萬靈中藥

The HEALING POWER of CHINESE HERBS and MEDICINAL RECIPES

Joseph P. Hou, PhD
Youyu Jin, MD

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The Healing Power of Chinese Herbs and Medicinal Recipes

Pre-publication REVIEWS, COMMENTARIES, EVALUATIONS . . .

"This book provides a comprehensive introduction to the principles and practice of Chinese herbal medicine. Practitioners of Chinese herbal medicine will profit from the vast experience of the authors."

Edzard Ernst, MD, PhD, FRCP
Professor of Complementary Medicine,
Peninsula Medical School,
Exeter, England

"*The Healing Power of Chinese Herbs and Medicinal Recipes* by Drs. Hou and Jin brings the theory and philosophy of Traditional Chinese Medicine to the Western reader. This book presents the historical development of this complex and unique healing system. The book also profiles the therapeutic properties of individual herbs and multi-ingredient formulas. Modern research findings are summarized as well. The value of this book is its presentation of information on Traditional Chinese Medicine in a context that is true to its origins and at the same time understandable to the western reader."

Marilyn Barrett, PhD
Pharmacognosy Consulting Services,
San Carlos, California;
Editor of *The Handbook of Clinically Tested Herbal Remedies*

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The Healing Power of Chinese Herbs and Medicinal Recipes

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ABOUT THE AUTHORS

Joseph P. Hou, PhD, AP, is President of the J. P. Hou Institute for Pain and Integral Health and President of the Florida Holistic Health Center and Research Foundation in Orlando. Dr. Hou received his PhD in pharmaceutical sciences and chemistry from the University of Wisconsin-Madison. He is a research scientist, acupuncture physician, and clinician specializing in pain management using alternative therapies and herbal medicine.

Dr. Hou is the author of *The Myth and Truth About Ginseng* and has published numerous scientific research and review papers. He is the former President of the Florida State Acupuncture Association and a former member and Vice-Chair of the Florida State Acupuncture Board. He holds several U.S. patents on new drugs.

Youyu Jin, MD, is Professor and Chairman of the Department of Pharmacology at the Capital University of Medical Sciences in Beijing—a position he has held since 1960. Dr. Jin is the author of many scientific research papers and books. His major research interests are the cardiovascular pharmacology of antiplatelet drugs, Traditional Chinese Medicine, and natural herbal medicinal agents. He is a member of the Commission of Pharmacopoeia of the People's Republic of China, the New Drug Approval Committee of Beijing, the Commission on Teaching Material for Medical University, the Ministry of Public Health, and the Approval Committee of National Natural Scientific Foundation.

Foreword

For more than sixty years I have devoted myself to studying, teaching, and researching modern pharmacology. I was fortunate to have the opportunity to study systematically Chinese herbal medicine during the 1970s. Since then, I have felt that Chinese herbal medicine is a treasure house of knowledge and deserves serious study and development in our time by our fellow pharmacologists. As to my part, I have conducted research on regulating the human immune system using Chinese medicinal herbs.

I am thrilled that my friend Dr. Joseph Hou along with Professor Youyu Jin have written *The Healing Power of Chinese Herbs and Medicinal Recipes.* This follows Dr. Hou's previous work, *The Myth and Truth About Ginseng,* which is an extensive, marvelous introduction to alternative healing with medicinal herbs.

Traditional Chinese Medicine (TCM) is a unique medical system and it has been the fruit of continued development by countless Chinese physicians, scholars, and government agencies during the past five millennia. The theory and philosophy of TCM differ significantly from contemporary Western medicine. It is often difficult for Western scholars to understand and is even harder to integrate into Western society. Chinese medicine, however, has made significant contributions toward health care in China and throughout Asia, and will play an increasing role in the future throughout the world.

The Healing Power of Chinese Herbs and Medicinal Recipes introduces the historic development and evolution of Chinese materia medica *(Ben Cao),* along with herbal recipes, principal theories, and the practice of TCM.

The therapeutic properties and use of 138 medicinal herbs and 101 herbal recipes in treating disease are described in detail. In particular, information on the healing power, dosage of herbs, and their traditional combinations in recipes for different actions is seldom found in current herbal books.

I believe this book is a vital source of information for professionals, as well as lay readers, for the use of Chinese herbs to prevent and treat common ailments with a success that modern medicine has failed to achieve.

Zhou Jinhuang, MD
Professor of Pharmacology,
Institute of Pharmacology and Toxicology,
Academy of Military Medical Sciences, Beijing;
Author of Chinese Medicine Immunopharmacology:
Recent Advances in Chinese Herbal Drugs

Preface

Chinese herbal medicine, in use for the past 4,000 years in the East, provides primary health care for nearly one quarter of the world's population. Today, at the beginning of the twenty-first century, interest in alternative healing, and herbal medicine in particular, is growing rapidly throughout the entire world. This is because Chinese medicine delivers a more integrated and remarkably satisfying result. Also, Chinese medicine emphasizes the prevention, as well as the cure, of diseases.

The healing system of Traditional Chinese Medicine (TCM) believes that diseases are the result of underlying malfunctions of the organs or imbalance of the yin and yang of the body. When disease develops, regardless of what it is and where it is located, the entire body is ill. Thus, treatment should be directed toward the cause of the disease and the whole person. On the other hand, Western medicine believes that a disease is an isolated entity in the body and treatment is usually directed toward the symptoms only.

The TCM approach views each patient and each ailment as unique. The cause of the disease may be different even if two people are suffering from the same ailment and is thus treated differently. This is more effective than the conventional Western approach of providing identical drug therapy to all persons having similar symptoms. Both in its philosophy and its practical application toward healing, TCM has a great deal to offer Western medicine.

In the United States, more and more health-conscious consumers, physicians, health care professionals, and medical authorities, including the World Health Organization (WHO) and the National Institutes of Health (NIH), endorse the benefits of TCM, herbs, and acupuncture as alternative medicine. Numerous well-known physicians, such as David Eisenberg, MD, Steven Bratman, MD, Andrew Weil, MD, and Jonathan Wright, MD, strongly advocate the benefits of alternative medicine and it has become increasingly important to a large segment of the American population. The authors believe that TCM, herbs, and acupuncture will soon be integrated with conventional (Western) medicine in the health care field.

Despite extraordinary success and scientific documentation regarding TCM and the practical applications of herbs, much remains unknown about

it in the United States. In response, *The Healing Power of Chinese Herbs and Medicinal Recipes* will serve as a modern reference guide for those living in Western cultures.

This book is designed to explain clearly the basics of Traditional Chinese Medicine and how to use these miraculous herbs and recipes in the healing process. In this easy-to-read, self-help manual, the authors share their experience and understanding of Chinese herbal medicine. The book is directed toward the general public who are actually seeking help with Chinese herbs, health care practitioners or students who are seriously considering the addition of some herbal remedies to their practices, and those who want to try herbs for their illnesses or to relieve pain when modern medicine fails.

This book is divided into four parts. The Introduction contains the benefits of using medicinal herbs, the basic differences between Western medicine and TCM, modern (synthetic) medicine versus herbal (natural) medicine, and the future of Chinese herbal medicine.

Part I, Chapters 1 and 2, covers the fundamentals of TCM, the historic development of Chinese medicinal herbs *(Ben Cao),* and recipes used for the past four millennia. In Part II, Chapters 3 and 4 deal with all aspects of medicinal herbs and recipes, their names, origins, properties, pharmaceutical preparations, actions, doses, and safety guidelines. Part III discusses the 138 most commonly used herbs. They are organized into eleven chapters and individually discussed, according to their actions, uses, customary combinations in recipes, and modern research findings.

Part IV lists 101 traditional popular recipes, divided into nine chapters, and discusses their origin, properties, composition, and clinical uses. Of these recipes, ten were once Forbidden City royal prescriptions used only in the Imperial Palace by the Dowager Empress Ci Xi, Emperor Guang Xu, palace officials, and concubines during the Qing dynasty.

Throughout the book, words having a specific meaning within the context of TCM are capitalized. Other medical terms that are used according to their English meaning appear in lower case (liver, phlegm). All Chinese herbs and recipes in *Pin Yin* names are italicized.

A guide to Chinese *Pin Yin* phonetics for herbs is provided at the beginning of the book. The modern Chinese *Pin Yin* system has superseded the old Wade-Giles System for all scientific terms in China.

This book differs from those published in China or elsewhere. First, this book emphasizes the clinical applications of the most commonly described individual herbs, as well as formulated recipes for treating commonly encountered ailments and conditions. Second, herbs and recipes combined in the same book give the reader a choice for herbal therapy. Third, to aid in providing a better selection of herbs for certain ailments, this book com-

pares and tabulates the common and individual or minor differences in actions of the herbs in each group.

This book selectively stresses mild and safe *phytoremedies,* or natural plant remedies, intentionally omitting those known to be toxic and those of mineral or animal origin. This book will help readers use herbs and recipes to find lasting relief and well-being from discomfort, suffering, or pain. Self-care has become more important and necessary in our society. Your health is in your hands!

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Most of all, I would like to thank my wife, Helen, and my two sons, John and Paul, for their understanding, inexhaustible love, and encouragement. I also appreciate my grandson, Alex, for his computer assistance. Without their support and encouragement, this book could not have been written.

Finally, I am deeply honored to have Professor Youyu Jin, not only as my co-author, but also a valuable lifelong friend.

Guide to Chinese *Pin Yin* Phonetics and the Wade-Giles System

The following list shows modern Chinese *Pin Yin* pronunciations with the approximate English equivalent. The corresponding symbols in parentheses are the former Wade-Giles system (Wade System), which is no longer used in China. Examples of herbs in *Pin Yin* names are provided.

Symbol *Pin Yin* (Wade System)	Key Word in English	Examples of Herbs in Chinese *Pin Yin* Names
a (a)	as in far, car	*ma huang, dan shen, ba ji tian*
ai (ai)	as in like, ice	*bai shao, bai jiang cao, ai ye*
an (an)	as in can	*shan dou gen, tian ma, san qi*
ang (ang)	as in gang	*huang qi, dang shen, qiang huo*
ao (ao)	as in how, cow	*ben cao, chi shao, mo yao*
b (p)	as in be, bed	*ban xia, bai zhu, bai fu zi*
c (ts', tz')	like ts in its	*cang er zi, xi mu cao, tong cao*
ch (ch')	as in church, arch	*chai hu, chen pi, che qian zi*
d (t)	as in door, had	*da qing ye, dang gui, dang shen*
e (e)	as in elf, ten	*che qian zi, ren shen, e zhu*
ei (ei)	as in day, may	*bei mu, she mei,*
f (f)	as in fun, off	*fu ling, fu zi, fu pen zi*
g (k)	as in good, dog	*gui zhi, ge gen, gua lou pi*
h (h)	as in how, hell	*he shou wu, hai dai, huang qin*
i (i)	as in hit	*jing jie, fang ji, zi su zi*
ie (ie)	as in jelly	*jie geng, jing jie, ze xie*
j (ch)	as in jeep, joy	*jiang xiang, ji xue teng, jiu jie cha*
k (k')	as in king, kill	*ku shen, ku xing ren, kun bu*
l (l)	as in lost, let	*ling zhi, lian qiao, lian zi*
m (m)	as in mother, met	*mu qua, mai dong, ma huang*
n (n)	as in no, ton	*niu pang zi, niu xi, nu zhen zi*
o (o)	as in paw	*bo he, mo yao,*
ou (ou)	as in toe	*hou pu, chong lou, bai tou wong*

Symbol *Pin Yin* (Wade System)	Key Word in English	Examples of Herbs in Chinese *Pin Yin* Names
p (p')	as in park, apple	*pi ba ye, pang da hai, chen pi*
q (ch')	as in chief, children	*qiang huo, jin qian cao, da qing ye*
r (j)	as in red, leisure	*lu rong, bai zi ren, ren shen*
s (s, ss)	as in sister, sell	*san qi,su mu, suan zao ren*
sh (sh)	as in shine, shell	*sheng jiang, shan zhu yu, shan yao*
t (t')	as in ton, top	*tu si zi, tian ma, tao ren*
u (u)	as in bamboo	*du zheng, ku xing ren, xiang fu*
uo (o)	as in pull, book	*huo xiang, bai guo, qiang huo*
w (w)	as in well, always	*wu wei zi, wu jia shen, wu zhu yu*
x (sh)	as in cashier, cashew	*xi xin, xian mao, xu duan*
y (y)	as in yes, young	*yi mu cao, yin yang huo, yan hu suo*
z (tz, ts)	as in zone, zebra	*zi su ye, zi he che, zi hua di ding*
zh (ch)	as in jar	*wu zhu yu, bai zhu, shan zhu yu*

Authors' Note

Every effort has been made to ensure that the information contained in this book is complete and accurate. However, neither the publisher nor the authors are engaged in rendering professional advice to the individual reader. The ideas, procedures, and suggestions contained in this book are not intended as a substitute for consulting with one's physician and obtaining medical treatment that might affect one's health. Accordingly, individual readers must assume responsibility for their own actions, safety, and health, and neither the author nor the publisher shall be liable or responsible for any loss, injury, or damage allegedly arising from any information or product referred in this book.

Introduction: Western Medicine versus Traditional Chinese Medicine

Western medicine treats diseases and ailments that are visible, structural, and mechanical in nature through the use of synthetic drugs and surgery. Traditional Chinese Medicine, on the other hand, does not treat structural changes. TCM dedicates itself to the treatment of physiological and functional imbalances that, to the unaided Western eye, are invisible.

TCM can best be considered a medicine of bioenergy. Its objective is to balance the body electromagnetically, nutritionally, and emotionally without the use of drugs and surgery. The electromagnetic energy in a life's vital force is called *Qi,* which activates all organ functions and chemical processes of the body.

The basic tools used in TCM are acupuncture, herbal medicine, dietary therapy, manipulative massage *(Tue Na),* and relaxation exercise *(Oigong, Tai ji),* to name a few. Through herbal and nutritional balancing, as well as body-mind readjustment, TCM therapy serves to regulate the flow of *Qi* within the body by removing disturbance or blockage from various pathological factors. The result of this adjustment is a correction of the imbalance of the yin (deficient) and yang (abundant) forces or functions of an organ, leaving the body in a healthy state of homeostasis.

In the United States, one of the implications of overspecialization in medical care is skyrocketing costs. This continuous rise in costs is most closely related to the use of highly technical diagnoses and procedures, an expensive practice that, in many cases, offers little benefit to the patient. To increase the level of agitation, not only are patients being financially drained momentarily during a time of hardship and worry, they are being placed in a cold, detached arena of manipulation. Sadly, many doctors today offer little soothing bedside manner to alleviate some of the trauma involved in being ill. Of course, this all makes sense. Who has time to talk to a patient when there are countless tests to be run?

These problems, as well as others frequently voiced, have led to a campaign to bring back the old-fashioned family doctor, who had a more intimate and long-standing knowledge of a patient's physical and emotional

needs. This shift in how people decide to be treated has, for example, brought midwifery back to take its place alongside obstetrics. In a move away from the disappointing cost and effectiveness of high-tech medical care, and the alarming failure rate of the West's modern diagnoses and surgical procedures, a resurgence has occurred in the application of time-honored practices of old-fashioned herbal medicine, acupuncture, dietary therapy, massage, relaxation (biofeedback), and breathing exercise in treating patients.

TCM practices are being promoted as a direct challenge to surgical, as well as drug- and laboratory-oriented, medical sciences. These reemerging fields can be summarized under the name of "alternative medicine" or "alternative-complementary therapies." These treatment methods are stated as being "reemerging" purely because the listed therapies are centuries old, not necessarily a recent introduction. However, only in recent years, with masses of pain sufferers finding a lack of help with today's Western "cures," have the numerous techniques amalgamated under the title of traditional Chinese medicine been viewed as a welcome alternative.

In Western society, we should tolerate and accept herbal medicine and acupuncture as complementary therapies to be used with conventional medical care. Each system is independent and each has its own merits in treating different kinds of illnesses. For instance, Western medicine is good for acute cases and for patients who need structural repairs, while herbal medicine or acupuncture is good for chronic cases, such as those who require balancing of physical, mental, and spiritual aspects.

MODERN (SYNTHETIC) MEDICINE VERSUS HERBAL (NATURAL) MEDICINE

As early as 1783, the English physician William Withering published his monograph on the use of digitalis, titled *An Account of the Foxglove and Its Medicinal Uses.* Starting in the nineteenth century, the science era and the evolution of modern medicine began. Serturner, a German pharmacist, chemically isolated the alkaloid morphine from opium in 1807. This was the first active ingredient ever isolated from opium for pain management.

In 1828, Wohler, another German chemist, published his synthesis of urea from ammonia cyanate. He was the first chemist to make organic urea through a chemical reaction without the kidneys. As a result, Wohler had laid the foundation for the elimination of routine dependency upon natural botanical and mineral substances.

With little delay, many organic chemists in Germany became famous for producing new drugs in the laboratories and became "new drug creators."

More than a million new chemical entities were created at the prodigious rate of nearly 30,000 each year. Suddenly, there was an abundance of new dyes, perfumes, flavoring agents, vitamins, and synthetic chemical drugs, all supposedly accomplished for the benefit of humanity.

In 1838, Piria, a German chemist, discovered salicin, a chemical isolated from white willow, which was found to be a powerful pain-relieving, fever-reducing, and anti-inflammatory agent. In 1853, a chemist named Gerhardt synthesized acetylsalicylic acid and in doing so found an organic drug that now is called aspirin. Worldwide aspirin quickly became a favored drug. In fact, it has been estimated that Americans consume more than 40 billion aspirin tablets a year. Nearly $500 million is spent on over-the-counter drugs containing aspirin each year.

Starting in the twentieth century, the "wonder-drug" era began. Sulfanilamide was first synthesized by Paul Ehrlich in 1906. Gerhard Domagk discovered the antiinfectant sulfanilamide, prontosil, initially using its properties against streptococca infections in mice. The sulfanilamide drugs exhibit a wide antibacterial spectrum for fighting infectious diseases. Sulfadiazine, sulfamerazine, sulffamethazine, and sulfaisoxazol have been most frequently prescribed, primarily because of their low toxicity and broad-spectrum benefits. However, serious toxic reactions can occur after a period of use, including cyanosis, leukopenia, granulocytopenia, hemolytic anemia, and serious kidney damage.

The development of modern psycholyptic drugs saw the production of tranquilizers. The most popular antianxiety tranquilizers were made with chlordiazepoxide, which was developed in 1954. The trade names are Librium, Novopoxide, and Ativan. During the 1960s, another series of antidepressant drugs were made with diazepam, under the trade names of Valium and Vivol.

All benzediazepines and diazepam drugs essentially have the same action in the brain. Some calm its activity and alleviate anxiety, insomnia, epilepsy, muscle spasms, and mental and mood disorders.

Disadvantages of antianxiety drugs are that their continued use can cause physical and mental dependence, tolerance, and addiction. The other noted side effects are confusion, stumbling, memory loss, drowsiness, lightheadedness, a hangover effect, increased aggression, weight gain, and impaired ability to drive or operate machinery.

In 1924, K. K. Chen, an outstanding Chinese pharmacologist at Beijing Union Medical College, introduced the studies of isolated ephedrine alkaloid from the bark of ephedra *(ma huang),* botanically known as *Ephedra sinica*. His research influenced the exploration of the pharmacology and therapeutic uses of ephedrine, and the research of homologs and analogs of epinephrine, a natural hormone found in the body.

Chen's report initiated a significant movement among chemists around the world to search for new stimulants. Subsequently, new synthetic drugs including amphetamines, phenylephedrines, mephentermines, isoproterenol, and other sympathomimetic amines were born. This group of drugs is widely used in the treatment of depression, nasal congestion, asthma, and blocked arteries.

In 1929, Fleming discovered penicillin, which was possibly the single most valuable discovery in modern medicine and which spawned an entire class of antibiotics for the treatment of infectious diseases. Later, many classes of new penicillins were produced by various strains of *Penicillium notatum* and *P. chrysogenum.* A highly potent strain of fungi was eventually isolated that was called penicillin G.

Attempts to increase the penicillin yield from a mold culture by the addition of various chemical intermediates also led to the discovery of many new penicillins. By this method, thirty-six new penicillins were soon isolated. Broad-spectrum penicillins, for oral use, were successfully manufactured by different pharmaceutical companies. The ampicillin series and cephalosporin group, the "second-generation" antibiotics, were synthesized in laboratories. Doctors joyfully referred to these antibiotics as "wonder drugs" or "miracle drugs."

In 1962, the design of a new synthetic hypnotic drug called thalidomide, thought to be harmless, was administered to pregnant women. However, the drug was soon found to be responsible for congenital birth defects in thousands of infants.

As a result of the availability of these wonder, or miracle, drugs, Western medicine has undergone a significant medical revolution. After World War II, in particular, development of new synthetic drugs progressed at a rapid pace by all pharmaceutical companies in numerous countries. In addition to antibiotics, new vitamins, steroids, cortisones, and other anti-inflammatory drugs were developed. Doctors and researchers predicted that there could be an end to infectious diseases in the world by the 1980s.

However, a serious mistake was made with this assumption. It was with this triumphant attitude that half of the large pharmaceutical companies discontinued all research and development on antibiotics, thinking incorrectly that the war against infectious diseases was won. Contrary to their calculations, the infectious diseases not only survived but fought back.

Today, many bacteria are impervious to existing antibiotics. More than 13,000 Americans die each year from drug-resistant bacteria. Many clinical physicians warn that the infectious disease problem is steadily getting worse. Obviously, the old glory days of wonder drugs are now a thing of the past.

Despite more than fifty years of experience working with these modern synthetic drugs and despite millions upon millions of dollars spent on their development, there still remains a dark side to all that has been done. Many of these chemical amalgamations have been doing as much harm as good. Even though the U.S. Food and Drug Administration (FDA) has approved countless drugs as being safe and effective, there are serious consequences to their use, such as side effects resulting from toxicity, allergic reactions, and habit formation. Also, many patients soon develop a tolerance to these drugs, rendering their use futile.

One example of this dilemma is aspirin. If the prescribed dosage of aspirin is too high, or the drug is used continuously, the patient may develop a sensation of ringing in the ears or slight deafness. Overdoses of aspirin can cause headache, dizziness, gastric irritation, and peptic ulcer. Basically, the drug becomes counterproductive. In addition, some patients cannot tolerate aspirin at all, at any dosage level.

A second example is cortisone. Notable side effects of cortisone medication and corticosteroids, used for easing pain and arthritis, are degeneration of joint cartilage, deposits of fat and weight gain, male impotence, fluid retention, insomnia, depression, and reduced resistance to infections. No synthetic drug is without some sort of side effect, particularly when used on a continuous basis.

The situation with synthetic drugs is not getting better. In recent years, many of the FDA-approved painkillers, such as OxyContin, oxycodone, and hydrocodone, have been a source of serious problems for the medical and legal fields. The side effects, habit-forming problems, and toxicity of these extremely potent painkillers have caused intolerable problems and numerous deaths in the United States in recent years.

The side effects and toxicity of drugs are cumulative, ranging from mild to severe, and can affect every part of the body, particularly the nervous system, liver, and kidneys.

Because of overuse of potent drugs in many Western societies, more people are suffering from allergies, headaches, migraines, fatigue, depression, weight gain, and kidney failure, in comparison with people who live in Asia. The suffering is not only physical but also financial. People spend thousands and thousands of dollars for transplants, dialysis, and hearing aids as a result of kidney damage. In TCM theory, damage to kidney functions directly affects the ear. The auditory function is dependent upon the nourishing from the Kidney-*Qi.* Deafness in the elderly is mainly due to deficiency of the Kidney-*Qi.*

There is a more simplistic solution to these problems, though. Medicinal herbs are an ever-present alternative, which has been the case for thousands of years. Medicinal herbs have been used since antiquity by cultures all over

the world. However, it is difficult to examine accurately the extent to which medicinal plants have been used throughout the world. Yet, WHO has estimated that at least 80 percent of the world population relys on traditional (herbal) medicines for its primary health care needs.

Some notable advantages of natural (herbal) medicines are that they are mild in action, lack many side effects at normal dosage, and are relatively inexpensive compared to most synthetic drugs. In addition, crude preparations of herbal medicines, when taken orally, have interesting benefits. With oral consumption, the release of active ingredients into the bloodstream is relatively slow. The low concentrated release of the medication provides for a sustained dosage, which is accomplished mostly by the presence of inert substances or speed buffers in the herbs. This natural time-release property is a possible explanation for the minimal side effects experienced from herbal preparations. The body is not subjected to a sudden surge of chemicals. Instead, the herb is introduced to the body's system slowly and gently.

In conclusion, modern (synthetic or chemical) medicines have distinct advantages: They are pure, potent, highly responsive, and chemically measurable. However, these drastic properties contribute to the frequent occurrence of many side effects and undesirable toxicity. In addition, this misuse and abuse of drugs and technology has been a contributor to frequent iatrogenic (doctor caused) diseases and even deaths.

Many times, people say that they were better off not going to their doctor in the first place. This is very disheartening because the medical profession should stand out in society as a place of refuge for the sick and needy. Yet, somewhere along the line, medicinal pursuits have gone astray. One might ask, are today's health care professionals working for the chance to help those in need or are they merely in this endeavor for the money?

THE HEALING BENEFITS OF CHINESE HERBS

Herbs are safer than modern-day synthetic or lab-produced drugs because they are naturally rich in both biologically active and inert substances. Many of these nutrients have strong antioxidant, detoxicant, scavenging, and dual-functioning properties, which a great number of people do not realize. Herbs do not act like chemical drugs but more closely resemble the orthomolecular substances of vitamins, minerals, and enzymes that naturally exist in our bodies. Also, medicinal herbs usually do not give immediate reactions. Rather, the effects of herbs are subtle and gradual. They tend to fill the needs of one's system as a whole. In TCM, it is stated simply that these herbal properties balance the yin and yang, gradually bringing the entire body to a natural state.

Two-time Nobel Prize winner, and one of the most outstanding scientists of our age, Professor Linus Pauling, wrote a decrease in colds could be realized if individuals increased resistance to viruses.

Professor Pauling stressed the fact that nutritional factors can lead to a significant decrease in the susceptibility of the population as a whole to the common cold. He founded his research facility, the Institute of Orthomolecular Medicine, to promote his orthomolecular medicine theory. Pauling believed that preservation of good health and the treatment of disease can be achieved by varying the concentration of substances that are normally present and widely distributed in the body, such as vitamin C.

Americans currently spend more than $500 million a year fighting common colds. Professor Pauling considered modern chemical substances, such as antipyretics, antihistamines, bronchiodilators, antitussives, and analgesics as ineffective in preventing or treating colds. The substances only damage a patient's health with their toxicity and side effects.

Professor Pauling's research gained great attention from Professor I. I. Brekhman, the director of the Institute of Biologically Active Substances, Academy of Sciences, Vladivostok, Russia. In his book, *Man and Biologically Active Substances,* Brekhman claims that ginseng (*Panax ginseng,* C. A. Mey) and Siberian ginseng *(Eleutherococcus senticosus Maxi),* along with many other natural herbal medicines with their broad spectrum of adaptogenic, prophylactic, and therapeutic actions, can be considered to be substances belonging to orthomolecular medicine as defined by Professor Pauling.

Ginseng and Siberian ginseng contain ingredients found in the human body. These herbal substances are consistent tonics because they can raise levels of physiological adaptation and prevention activities within the body. Brekhman believes this is because the herbs are able to accelerate the biosynthesis of proteins and nucleic acids. The general tonic (restorative) remedies listed in Chapters 5 and 6 are typical, naturally occurring, biologically active substances for prevention and fit the requirements of Pauling's orthomolecular medicine model.

Many medicinal herbs appear to impact homeostatic control mechanisms. Called "dual activities," they aid in the normalization or balancing of many of the body's processes. For example, to combat hypertension, an herb (such as ginseng root) will have a calming effect. To combat a hypostate, or feeling of tiredness, the same herb will have an energizing, or tonic effect, on the body's system, all much to the bafflement of conventional Western pharmacologists.

Andrew Weil, MD reported in the *Journal of Ethnopharmacology* (1981) that Chinese tonic herbs are some of the world's most potent immune system enhancers. However, Western medicine has ignored these phytomed-

icines because they do not look similar to drugs chemically and the concept of tonic remedy is Asian. Weil also makes a point about the safety of herbs and comments that their toxicity should be put in perspective alongside pharmaceuticals. There are between 10,000 and 20,000 deaths a year from gastric bleeding from nonsteroidal anti-inflammatory drugs used for arthritis (*Chemical Marketing Reporter,* January 2, 1989).

THE FUTURE OF CHINESE HERBAL MEDICINE

Chinese herbal medicine and acupuncture have long been regarded in the West as little more than folk medicine, superstition, and nonscientific at best. Since China opened its gates to the West, spurred by President Richard Nixon's historical visit in 1972, Western physicians, scholars, and scientists in all fields of study have come to China to gain knowledge of its ways. What these knowledge seekers have found, much to their dismay, is that traditional Chinese medicine, such as acupuncture and herbal medicine, does in fact work.

The Chinese normally consume considerable quantities of herbal medicines, many of which are used in hospitals throughout China. The Chinese herbal pharmaceutical factories make little effort to chemically isolate the active principles of the herbs (see Figure I.1). Rather, they utilize the whole extract of the herb, a method that works more effectively to combat sickness.

After struggling for twenty-five years for approval the FDA finally accepted the practice of acupuncture for use in the United States as an effective treatment method for illness and injury. Shortly after its approval, various medical schools began to add acupuncture courses to their curriculum. This has brought about a surge in the training of acupuncturists in schools devoted solely to the practice of TCM in the West.

Even though Chinese herbal medicine did not immediately follow acupuncture in its integration into the Western health care world, acceptance of herbal remedies is slowly becoming a reality. In fact, today more and more Western health care practitioners are turning to Chinese herbal products, rather than synthetic drugs, to treat their patients. Chinese herbal medicine is popular and successful in many areas of the world. One of the main reasons for this confidence in TCM is that it has been a precise, well studied, and thoroughly practiced science for more than 4,000 years. With centuries of clinical applications and development by Chinese doctors, scholars, and government institutions, millions upon millions of patients have proven that TCM works.

FIGURE I.1. Chinese Herbal Pharmacy

Considering that China was the first region in the world to be extensively involved in using medicinal herbs for its people's health, it is no wonder that it has long been a source of expertise in the science. In fact, more than 5,000 of these botanical species have been painstakingly identified and classified based on their actions and medicinal uses over the centuries.

Traditionally, Chinese doctors are accustomed to prescribing herbal amalgamations instead of a single herb to treat a disease. This grouping of herbs is prescribed for better efficiency and reduced side effects.

Illness and chronic disorders, particularly cardiovascular disease, cancer, arthritis, diabetes, obesity, and AIDS are so widespread today that the relief of patient suffering and pain should be the first concern, not whether care is provided by a mainstream (orthodox) physician or by an alternative health care provider. Chinese herbal medicine, acupuncture, dietary therapy, and other alternative therapies do not "invade the territory" of conventional (Western) medicine, and, therefore, do not threaten it. The key is *integration.* When Western medical authorities recognize and accept nondrug alternative therapies as legitimate, people will find it possible to cure many of

their illnesses, relieve their pain, and improve their health and quality of life at an affordable price.

The great patriarch and extraordinarily successful Chinese economic reformer, Mr. Deng Xiaoping, who recently passed away at the age of ninety-three, once said, "I do not care if the cat is black or white. As long as she can catch the rat, she is a good cat."

PART I:
THE MYTH AND TRUTH ABOUT CHINESE MEDICINE

Chapter 1

The Fundamentals of Chinese Medicine

EARLY MEDICAL PHILOSOPHY

In Chinese history, the three legendary emperors Fu-Hsi (Figure 1.1), Shen-Nong (Figure 1.2), and Huang-Ti (Figure 1.3) are the founders of early Chinese civilization. To Fu-Hsi is attributed the *Canon of Changes* or *I-Jing,* regarded as the most ancient Chinese philosophy and medicine. Shen-Nong, also known as Yin-Ti, is the father of agriculture and herbal medicine. He tasted hundreds of herbs and other crude drugs in order to acquaint himself with their properties and usefulness. He is commonly attributed with the compilation of the first *Ben Cao (Pen-ts'ao),* or Chinese *Materia Medica.*

Huang-Ti, the Yellow Emperor, contributed a complete treatise on the principles of health and medicine in 2697 B.C., known as *Huang Ti Nei Jing Su-Wen* (The Yellow Emperor's Classic of Internal Medicine) or simply called *Nei Jing* (The Canon of Medicine), which consisted of eighteen volumes with 162 chapters. Although it was written more than 4,000 years ago, it has been recognized as a valuable treatise on internal medicine and is supposedly the world's oldest extant medical book. Traditional Chinese Medicine can claim to be the world's first organized body of medical knowledge.

The Canon of Medicine, also an interesting medical book, was compiled in the form of a dialogue between the Yellow emperor and his physician minister, Qi Bai (Ch'i-Pai). Their discussions included the philosophy of nature, theories of yin and yang, the Doctrine of Five Elements, pulse diagnosis, mechanisms of viscera, vascular systems, the value of life, and the achievements of the perfect body. The book also stated that the prevention of disease can be achieved by regular habits, proper diet, a suitable combination of work and rest, and the maintenance of a peaceful mind.

Traditional Chinese Medicine is also the most pervasive and the most unyielding of the indigenous systems. It is based on the tenet that a human being is a microcosm constantly interacting with the immense universe, which influences and also controls every aspect of one's life, including one's health.

FIGURE 1.1. Fu-Hsi

Early Chinese medicine incorporated philosophy and religion. Three essential religious philosophy concepts that control early medical thinking are Tao, yin and yang, and the Doctrine of Five Elements.

Tao

During the sixth century B.C., Lao Tzu, the spiritual father of Taoism, founded this natural philosophy. Taoism is a concept common to all Chinese. It is the key to the mysterious intermingling of heaven and Earth. Tao

FIGURE 1.2. Shen-Nong

means "the way" and it is the method of maintaining the harmony between this world and the beyond. As in many agricultural societies, the ancient Chinese philosophy is related to nature and cosmology. The only manner in which humans could attain the right Tao was by emulating the course of the universe and adjusting completely to it.

Tao plays an important role as the regulator of the universe and the highest code of conduct. A human's health and longevity depend highly on his or her behavior toward Tao. To a certain degree, longevity itself became a token of sainthood because it was an indication that longevity had been

FIGURE 1.3. Huang-Ti, The Yellow Emperor

achieved by the personal effort of complete adherence to Tao. Those who follow Tao achieve the formula of perpetual youth and maintain a youthful body.

Yin and Yang Theory

Another integral concept is the tension between two ever-present, complementary forces of nature, yin and yang. Literally translated, yin and yang are the shady side of a hill (yin) and the sunny side of a hill (yang). Yang stands for sun, heaven, day, fire, heat, dryness, light, and many other posi-

tive and masculine subjects, while yin represents moon, earth, night, water, cold, damp, dark, and many negative and feminine subjects. Yang means motion, hence life. Yin means standstill, hence death.

The principal of yin and yang is the basis of the entire universe. However, yin and yang are conceived as one entity and both together are ever present. Day changes into night, spring and summer change to autumn and winter, light changes into dark, and so on. From these striking manifestations, it was deduced that all happenings in nature and in human life were conditions caused by the constantly changing relationship of yin and yang.

Heat is yang and cold is yin. In the human body, yin conditions reflect a lack of energy and yang conditions result from an excess of energy. Excessive yang causes a red face, fast pulse, fever, and agitation, and excessive yin causes chills, a pale face, slow pulse, cold extremities, and depression. Every food or medicine has a predominant character, either of yin or yang.

Theoretically, when the balance of yin and yang in the body is disturbed or lost, people get sick. The art of healing in Chinese medicine is to ascertain where and in which direction the equipoise of yin or yang has been lost. Then the appropriate medication or therapy has to be applied to restore it to normal, and to restore the internal balance and harmony. This is the essence of Chinese medical thinking.

Figure 1.4 represents these two complementary bipolar forces. Yin and yang are seen as opposites and each always contains an element of the other. This is why there is a tiny white dot within the black yin and a tiny dark dot within the white yang.

This division of everything into yin and yang is a very important concept and probably the most fundamental building block upon which Chinese medicine is based. Within the human body, the bioenergy, *Qi (Ch'i),* which maintains it and keeps it healthy, incorporates the vital elements of yin and yang, as does the body itself. When there is an imbalance of yin and yang, or too much of one or the other, illness can result. Humans received the doc-

FIGURE 1.4. Yin Yang Symbol

trine of Tao as a means of maintaining perfect balance and securing health and long life.

The *Nei Jing* provides many examples of this interchange between yin and yang, and of the duality preserved within a single thing. As to the interrelation of yin and yang in humans, male belongs to yang, female belongs to yin, yet both male and female are products of the two elements. Hence, both qualities are contained in both sexes. In the dual nature of yin and yang within the human body, yin and yang correspond to the surface and the interior, respectively.

In Chinese medicine, the yin-yang concept refers to various antitheses in anatomy, physiology, pathology, diagnosis, and treatment of diseases.

More examples of yin and yang are shown in Table 1.1. In our daily life, yin in excess makes yang suffer. For example, if the exogenous or endogenous pathogenic cold (a yin factor) prevails, the vital function (a yang factor) of an internal organ would be impaired. On the other hand, yang in excess makes yin suffer. Excessive exogenous or endogenous heat (a yang factor) would injure the vital essence and body fluid (a yin factor).

Many sinologists have noted yin and yang relationships in the modern anatomy and physiology of parasympathetic (yin) and sympathetic (yang) divisions of the autonomic nervous system (ANS) of the human body. In terms of function, overactivity of the sympathetic nervous system produces symptoms very similar to what the Chinese call an excess or exuberance of yang, whereas overactivity of the parasympathetic nervous system will produce symptoms very similar to what TCM calls an excess of yin.

The goal of Chinese medicine is to maintain or restore balance between yin and yang, thus ensuring proper health.

The Doctrine of Five Elements

More tangible components of yin and yang are the Five Elements. Yin and yang, in addition to exerting dual existence, are subdivided into metal, wood, water, fire, and earth—the so-called Five Elements. Humans were said to be the products of heaven and earth by the interaction of yin and yang, and therefore contain the Five Elements.

The sequence of the Five Elements varies according to the viewpoint from which they are enumerated. The *Nei Jing* explains the mutual victories of the Five Elements as follows:

1. Wood brought in contact with metal is felled.
2. Fire brought in contact with water is extinguished.
3. Earth brought in contact with wood is penetrated.

4. Metal brought in contact with fire is dissolved.
5. Water brought in contact with earth is halted.

The sequence of subjugation is that metal subjugates wood, water subjugates fire, wood subjugates earth, fire subjugates metal, and earth subjugates water.

The Doctrine of Five Elements also extends to grains, fruits, animals, vegetables, flavors, odors, climates, musical notes, human organs, and many other groups, each of which contains five components. The five grains that act as nourishment are wheat, glutinous rice, millet, rice, and

TABLE 1.1. Examples of Yin-Yang Properties

	Yin	**Yang**
Environment	earth	heaven
	moon	sun
	darkness	brightness
	autumn, winter	spring, summer
	passive	positive
	inner	outer
	front	back
	coolness, cold	warmth, heat
	feminine	masculine
	soft	hard
Physiology	blood	*Qi*
	spirit *(Jing)*	configurated force *(Shen)*
	the *Zang* organs (the heart, liver, spleen, lungs, kidneys, pericardium)	the *Fu* organs (the stomach, small intestines, large intestine, gallbladder, urinary bladder, triple burner*)
Disease	weak	powerful, strong
	moisture	dryness
	shivering	feverish
	exhaustion *(Xu)*	repletion *(Shi)*
	exuberance, excess	deficiency
	interior	exterior
	murkiness *(Zhag)*	clarity *(qing)*

*Triple burner, or *Sanjiao,* includes Upper-, Middle-, and Lower-*Jiao.* The function of the triple burner is mainly to coordinate transformation and transportation of fluids and nutrients in the body. The triple burner helps move *Qi* of the body and maintains the ambient temperature.

beans. The five fruits are peaches, plums, apricots, chestnuts, and dates. The five domestic animals that contribute additional nutrients are fowl, sheep, cows, horses, and pigs. The five vegetables are mallows, coarse greens, scallions, onions, and leeks. The human body contains five viscera: liver, lungs, heart, spleen, and kidneys.

The *Nei Jing* gives the following explanations of how the natural elements affect the human body. Climatic elements affect the viscera of the body: heat injures the heart, cold injures the lungs, wind injures the liver, humidity injures the spleen, and dryness injures the kidneys.

The five viscera, of course, control the body. The heart controls the pulse, the lungs control the skin, the liver controls the muscles, the spleen controls the flesh, and the kidney controls the bones.

The five flavors affect the body in the following manner: salty flavor hardens the pulse, bitter flavor withers the skin, pungent flavor knots the muscles, sour flavor toughens the flesh, and sweet flavor causes aches in the bones. The five flavors affect not only the five viscera but also all parts of the body that are connected with the five viscera. If people pay attention to the five flavors and blend them well, their bones will remain straight, their muscles will remain tender and young, breath and blood will circulate freely, the pores will be fine in texture, and, consequently, breath and bones will be filled with the essence of life.

THE ESSENCE OF CHINESE MEDICINE

In addition to Taoism, the yin and yang theory, and Five Elements concept, Chinese medicine involves *Qi,* which is a theory about circulation along the meridians of the body. This is explained further in the following section.

Qi, *the Energy Circulation Concept and the Theory of Meridians*

The early Chinese philosophers anticipated Einstein's theory of relativity because they recognized that matter and energy were just two different manifestations of the same thing. Rather than focus on the material aspects of the body (bones, muscles, nerves, blood vessels, organs, and so on), they concentrated on the vital energy that creates and animates the physical body. This dynamic vital force is *Qi* (pronounced "Chee," formerly written as *Ch'i*), and *Qi* is the true driving force that makes all physiological activities possible.

Qi has been variously translated as "bioenergy," "vital energy," "life energy," and so on, but the concept is impossible to capture fully in one English word. *Qi* is similar to the "orgone energy" described by Wilhelm Reich or "Prana" in the Hindu philosophical tradition. *Qi* is the source of movement ranging from voluntary muscle action to heartbeat, blood circulation, hormonal secretion, and all physical and mental activities. It generates heat and protects the body from getting sick. The concept of *Qi* and the medical concept of *Qi* is unknown to Western medicine.

The vital energy, *Qi,* is present in all living matter, whether plant, animal, or human. *Qi,* like the air we breathe, cannot be seen or touched and it is not presently included as part of acceptable or recognized science. This, however, does not keep it from existing. The *"Qi"* phenomenon is, and has been, used in many practical ways in Chinese medicine: it refers to the vital substances (vital energy) that comprise the human body and maintain necessary elements; it is the physiological function of the viscera and bowels of the body.

Qi circulates constantly throughout the body along the acupuncture meridians, twenty-four hours a day, without stopping, and flows freely without blockage. *Qi* also controls the blood, nerves, and all activities of the body organs. Trauma, poor diet, external or internal pathogenic factors, or excess stress can hinder or block the flow of *Qi* and, if the *Qi* flow becomes impaired, the flow of blood is disturbed and the individual then becomes susceptible to different illnesses. Accordingly, all aches or pains or other ailments are nothing more than a blockage of the flow of *Qi.*

The human energy circuit is made up of fourteen meridians or channels. The channels include twelve regular channels *(Jing)* on both the left and right sides of the body, and the *Ren* and the *Du* channels. Also, there are eight irregular channels and fifteen collaterals.

The vital energy, *Qi,* central to the whole balance of bioenergy, flows through the twelve regular meridians from the lungs to the large intestine, to the stomach, the spleen, the heart, the small intestine, and the bladder. From the bladder, it continues to the kidneys, the pericardium, the triple burner *(Sanjiao),* the gallbladder, the liver, then back again to the lungs (Figure 1.5).

Western medicine is familiar with the central nervous system and the autonomic nervous system. The impulses originating from these nerves must always be balanced, just as the Chinese affirm that the *Qi* must flow freely through the entire network of twelve meridians. As shown in Table 1.2, each of the twelve meridians and the *Ren* and *Du* channels develop different pathological conditions as a result of blockage of *Qi* and imbalance of yin and yang of the body.

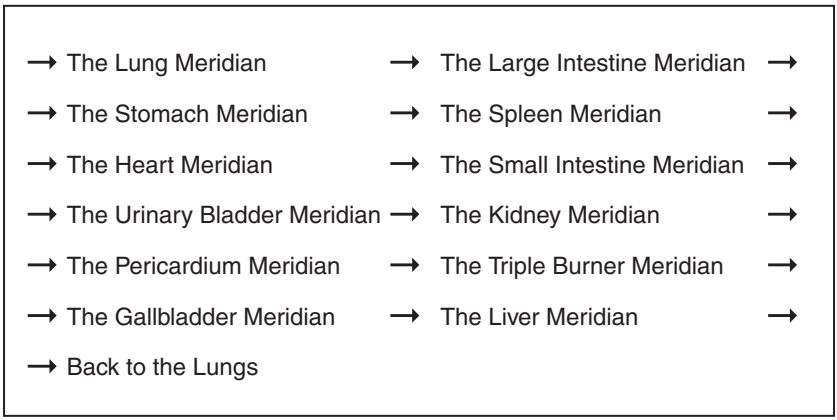


FIGURE 1.5. The Order of Circulation of *Qi* and Blood in the Twelve Meridians

With the application of medicinal herbs, acupuncture, acupressure, moxibustion, and other techniques, adjustments of *Qi* can be made to facilitate the organism's own tendency toward rebalancing the flow of *Qi,* and the yin and yang of the body.

The Viscera and Bowels

Zang, the five viscera of the human body (the heart, liver, lungs, spleen, and kidneys), are "solid" organs and yang in nature, and their functions are mainly to preserve vital substances, such as blood and bodily fluids. *Fu,* the six bowels (the stomach, small intestine, large intestine, bladder, gallbladder, and triple burner *[Sanjiao]*) are yin in nature and "hollow," and their functions are mainly for digestion and transmission of nutrients, such as water and food, throughout the body and elimination of body wastes.

The five viscera in TCM are structurally the same as those in Western medicine but the concepts differ. In TCM, viscera are more than anatomical entities; they also involve the concepts of physiology and pathology. For example, the *Xin* (TCM heart) refers to the same anatomic heart as in the West. However, *Xin* also refers to the functions of the nervous system, especially some of those activities involving the brain. Other viscera are *Fei* (TCM lung), *Shen* (TCM kidneys), *Gan* (TCM liver), and *Pi* (TCM spleen). Interested readers should refer to a book on TCM for further information.

TABLE 1.2. Pathological Manifestations of the Twelve Regular Meridians, and the *Ren* and *Du* Vessels

Meridian	Pathological Manifestation
Lungs	Cough, asthma, hemoptysis, sore throat, fullness of chest
Large intestine	Epistaxis, watery nasal discharge, toothache, sore throat, pain in the neck and anterior part of shoulder, borborygmus, abdominal pain, diarrhea, dysentery
Stomach	Borborygmus, abdominal distension, edema, epigastric pain, vomiting, feeling of hunger, epistaxis, pain in the abdomen and lateral aspect of the lower limbs
Spleen	Belching, vomiting, epigastric pain, abdominal distension, loose stool, sluggishness and general malaise, stiffness and pain of the tongue, swelling and cold feeling in the medial aspect of the thigh and knee
Heart	Cardialgia, palpitation, hypochondrial pain, insomnia, night sweating, dryness of the throat, hot palms, pain in the medial aspect of the upper arm
Small intestine	Deafness, yellow sclera, sore throat, swelling of neck, distension and pain in the lower abdomen, frequent urination
Urinary bladder	Retention of urine, enuresis, mental disturbance, malaria, ophthalmodynia, lacrimation when exposed to wind, nasal obstruction, rhinitis, epistaxis, headache, pain in the neck, upper and lower back and buttocks
Kidneys	Enuresis, frequent urination, nocturnal emission, impotence, irregular menstruation, asthma, hemoptysis, dryness of tongue, sore throat, edema, lumbago, pain along the spinal column, weakness of lower limbs, heat in soles of the feet
Pericardium	Cardialgia, palpitation, mental restlessness, stifling feeling in chest, flushed face, swelling in the axilla, mental disturbance, spasm of the upper limbs, hot palms
Sanjiao (triple burner)	Abdominal distension, edema, enuresis, dysuria, deafness, tinnitus, pain in the outer canthus, sore throat
Gallbladder	Headache, pain in the outer canthus, pain in the jaw, blurring of vision, bitter taste in mouth, pain along the lateral aspect of chest, hypochondrium, thigh and upper limbs
Liver	Lower back pain, fullness in chest, pain in the lower abdomen, hernia, vertical headache, dryness of the throat, hiccups, enuresis, dysuria, mental disturbances
Du (back middle or governing)	Stiffness and pain of the spinal column, opisthotonos, headache
Ren (front-middle or conception)	Leukorrhea, irregular menstruation, hernia, enuresis, retention of urine, pain in the epigastric region and lower abdomen

METHODS OF DIAGNOSIS AND DIFFERENTIATION OF SYNDROMES

Methods of Diagnosis

Chinese diagnosis is called *Zue Zhen,* as listed in *Nei Jing*. There are four basic methods of diagnosis of the patient: (1) inspection, (2) auscultation and olfaction, (3) inquiring, and (4) palpitation. Each of these methods plays a specific role in diagnosing the conditions and nature of disease. Only by combining all four methods of diagnosis can a comprehensive and clear understanding of the patient and the disease be obtained. Each of the methods are explained as follows.

1. *Inspection* includes the observation of the patient's spirit (mood), appearance (gait, posture), color of the skin, discharges, and the color, coating, and appearance of the tongue. Tongue inspection plays an important role in Chinese diagnosis. For example, a sallow, sticky coating on the tongue indicates accumulation of damp heat in the interior of the body or blockage of the lungs by phlegm heat.
2. *Auscultation* and *olfaction* means listening to the patient's voice, respiration, cough, and so on, observing bodily discharges, and paying attention to the odor of the patient's breath.
3. *Inquiring* means asking the patient about the disease symptoms. This would include chills/fever, perspiration, sleep/dreams, digestion and appetite, taste of food, bowel movements, urination, in female patients menstrual conditions and leukorrhea, and any pain or discomfort.
4. *Palpitation* means palpating, feeling, and pressing certain parts of the body—an important diagnostic method for detecting internal diseases. Palpitation includes feeling the pulse and palpating key acupoints and/or the abdomen. Chinese *pulsology,* or pulse feeling, developed in a great detail by Wang Shu-ho, recognizes three spots along the radial artery of each wrist, detected with the tips of three fingers. The pulse readings reflect the functioning of different viscera.

Pulsology has been the chief method of diagnosis in TCM. At the three pulse spots, each wrist has a deep and a superficial reading, thus giving a total of twelve different pulses in all. If the patient is a female, the right radial artery is palpated first; if a male, the left. The rate, strength, and direction of the beat in each segment of the pulse are determined. A strong pulse indicates a yang-type disease, while a weak pulse represents a yin-type disease.

Pulse diagnosis is most common in TCM but it is extremely complex in the way it works. Figure 1.6 indicates the six pulse points or those areas where the throbbing of the radial artery can be felt.

Differentiation of Syndromes

The differentiation of syndromes is based on analyzing the eight principles or factors of disease: exterior or interior, Cold or Hot, Excess or deficiency, and yin or yang. It is used mainly to analyze the case history and symptoms as well as the information gained using the four diagnostic methods. The treating physician must first understand the nature of a disease before a proper treatment can be undertaken.

Interested readers should consult a TCM book on diagnosis and differentiation of syndromes for further information.

TREATMENT METHODS

Unlike Western medicine, pathology, and physiology, Chinese medicine does not distinguish between mind and body. It considers the human body as a dynamic organic whole. All the component parts of the human body are interconnected and inseparable from one another. This wholeness of the hu-

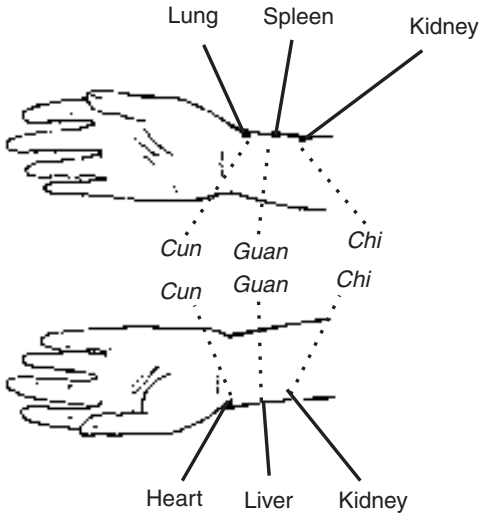


FIGURE 1.6. Chinese Pulse Diagnosis: The Six Areas for Feeling the Pulse

man body is connected through the mysterious, yet seemingly true, meridians and collaterals of the energy circulation system. An energy imbalance affects the entire organism. Chinese medicine treats the whole person physically, mentally, and spiritually, not just the symptoms.

TCM employs external therapy that involves several manipulative methods. Commonly used treatment methods are moxibustion, massage *(tui na* and *an mo),* acupressure, acupuncture, cupping, bone setting, and dietary therapy. Each of these methods requires special knowledge and skills.

Moxibustion

Moxibustion is one of the physical therapy techniques commonly used to treat patients with frozen shoulders, sciatica, and musculoskeletal disorders. The treatment is conducted in conjunction with acupuncture and acupressure. Usually, a ball of moxa (the herb mugwort, *Artemisia vulgaris*) is applied to the outer end of the acupuncture needles and ignited. The moxa is also applied on the skin above a thin layer of ginger or garlic. Moxibustion generates a great deal of heat and smoke that produce healing effects.

Cupping

Cupping is a popular therapy in the Orient but is less known in the West. Traditionally, a small portion of alcohol is poured into a cup made of glass or of bamboo. The alcohol is ignited and immediately the cup is placed against the selected area of the skin. As the air in the cup cools, a partial vacuum is formed, causing suction and producing a localized hematoma. Experience shows that suitable application of cupping and moxibustion for localized problems, such as low back pain or lumbago, gives good results.

Acupressure and Manipulative Massage

Acupressure involves applying pressure (with the thumb, finger, wrist, or elbow) to specific acupoints in order to achieve normalization of the flow of *Qi* and blood. Therapeutic or manipulative massage in Chinese medicine is called *tui na* and *an mo.* The techniques of *tui na* and *an mo* are much more than just using pressure alone. They involve other manual techniques including rubbing, pushing, finger gripping, wrist rubbing, digging, kneading, and finger pinching, as well as bending, rotating, and stretching of the patient's arms and feet. *Tui na* is used for treating localized disorders while *an mo* is used for treating localized and systemic disorders. Many minor discomforts and pain, swelling, and poor circulation respond well to acu-

pressure therapy. *An mo* and *tui na* therapies are extremely useful in relieving chronic pain and rehabilitating stroke patients.

Acupuncture

Acupuncture, as part of the oldest complete medical system of TCM, has probably been used for several thousand years to treat more people than any other method in the history of the world. *The Yellow Emperor's Classic of Internal Medicine* (2697 B.C.) recorded the practice of puncturing body tissue for the relief of pain by using a sharp item, such as flint, bamboo, and bone, long before the discovery of metal.

The Chinese believe that the human body is a microcosm of the universe and is subject to the guidance of a prevailing force called Tao, which means "the way." Tao brings definition and direction out of chaos and requires respect for the peaceful existence of all things, including the organs and systems of the body. It works through two forms of energy, called the yin (negative) and the yang (positive), whose coexistence and balance give harmony to the universe. Any upsetting conditions represent an imbalance of force, which must be brought back into line. A disease or symptom is not seen as a disorder of an organ or a system but, more broadly, as a dyscrasia of *Qi,* of a meridian, or of the yin or yang.

Twelve pairs of main ducts, called meridians, plus two middle meridians (one in front and one in the back of the body) can be traced on the human body (see Figures 1.7, 1.8, and 1.9). Along with the meridians, there are 365 known points, called acupoints, on the twelve meridians of the body.

Within the body, *Qi* must be in a nonstop dynamic moving condition from one meridian to another. For example, it circulates starting from the lung meridian to the large intestine meridian, and finally to the liver meridian then back to the lung meridian again for a complete cycle that takes twenty-four hours. Based on TCM theory, if there is a blockage, too much or too little *Qi* in any meridian (which corresponds to a representative organ), or an imbalance of *Qi,* disharmony of the body develops. Acupuncture is a tool that adjusts the imbalanced *Qi* and corrects the abnormal conditions.

According to the gate control theory of pain by Melzak and Wall, a pain message can be suppressed or gated by the stronger nervous system stimuli produced by acupuncture or electroacupuncture. In pain management, nociception is carried to the spinal cord by small, unmyelinated C fibers, which give off collaterals and are processed in the dorsal horn. Meanwhile, milder sensations of touch and proprioception are carried by large myelinated A-B fibers, whose activation by pressure, acupuncture, or electric stim-

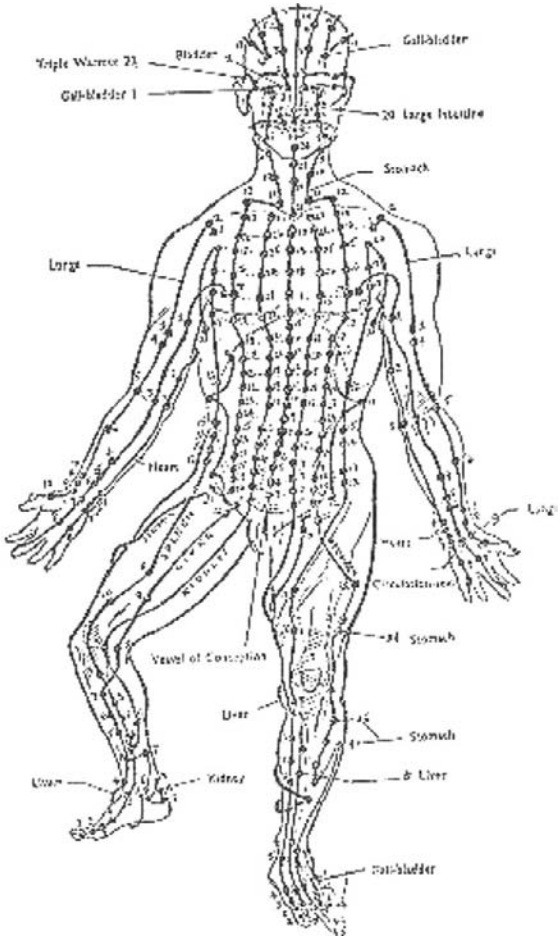


FIGURE 1.7. Acupuncture Meridians, Anterior View

ulation can interfere with the processing areas of the dorsal horn and thus close the gate.

Acupuncture is a special, highly skilled medical art and science originating in ancient China. Mastering acupuncture takes years of study and practice. Merely 300 to 1,000 hours of lectures cannot result in a person who can practice acupuncture confidently and successfully.

Modern acupuncture needles have a simple stem, usually made of stainless steel with a handle made of copper. They vary in length from 0.5 to 5.0

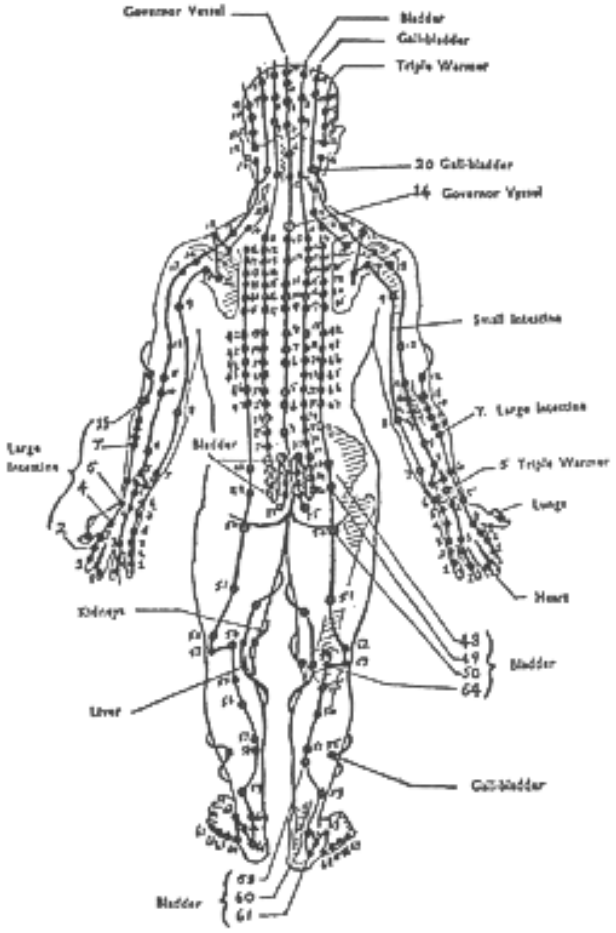


FIGURE 1.8. Acupuncture Meridians, Posterior View

inches, depending on the intended site of insertion and the size of the patient, and the diameter varies from 0.25 to 0.45 mm. The depth and angle of needle insertion are specific for the site of insertion. Proper insertion of the needle followed by twirling or moving up and down of the needle may evoke a specific sensation in the patient or the patient may experience a special sensory response, called *de qi,* wherein the flow of *Qi* is reached. Theoretically, the patient experiences the arrival of *Qi* with each treatment.

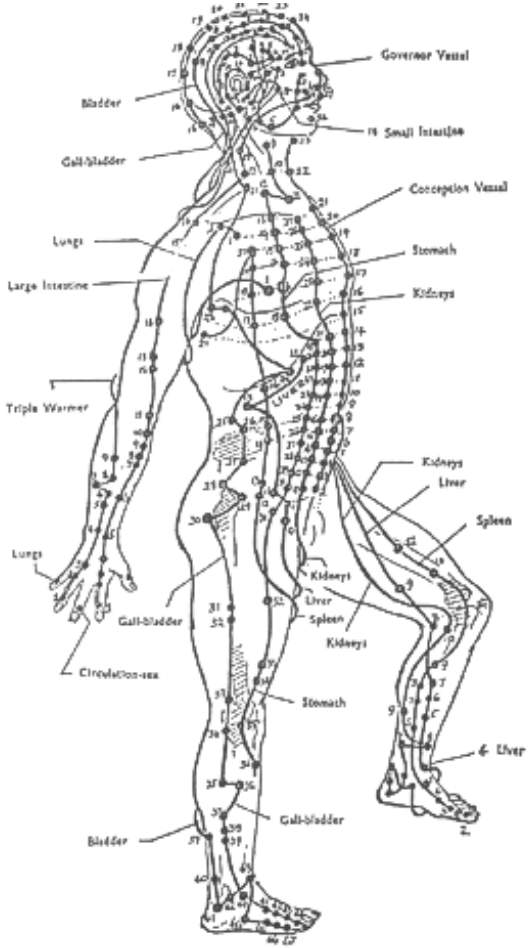


FIGURE 1.9. Acupuncture Meridians, Lateral View

If the needle is connected to an electric stimulator after the needle is inserted, it is called electroacupuncture. Currently, this type of acupuncture is more popular.

Acupuncture therapy can be administered three times a day for acute cases to once every three days for chronic ailments. A total of ten to fifteen sessions constitute a course of therapy. The effect of therapy is cumulative, so most ailments are responsive to a complete course of therapy, not just one or two treatments.

Acupuncture points are also distributed in the ears, feet, hands, and scalp. Acupuncture at these minor points, likewise, is very effective for minor disease, detoxification, weight loss, and preventive measures.

Acupuncture therapy corrects several complaints, especially the acute and chronic pains of rheumatism, neurological conditions, cramps, and colitis. Furthermore, the same treatment can alleviate mental disorders along with physical problems. Acupuncture remains unsurpassed as the best choice and the most effective means of nondrug relief of chronic pain.

Treatment is generally very relaxing and usually the patient is not even aware of the presence of needles. Some people may experience a slight numbness or the sensation of energy traveling through the body during the treatment but there is no pain during or after the therapy. It is absolutely safe and effective. That is why malpractice lawsuits or complaints are rarely lodged against licensed acupuncturists in the United States or elsewhere in the world.

Traditionally, the practice of acupuncture is combined with moxibustion. In treating and caring for ailments, doctors generally chose acupuncture first, followed by moxibustion, with herbal medicine as the last choice. Moxibustion was used to complement or to amplify the response to acupuncture.

Since 1985, the Florida State Board of Acupuncture has defined acupuncture as a form of primary health care based on traditional Chinese medical concepts, which employs acupuncture diagnosis and treatment, as well as adjunctive therapies and diagnostic techniques, for the promotion, maintenance, and restoration of health and prevention of disease.

The FDA has finally decreed that acupuncture needles are medical tools which are as effective and respectable as syringes or scalpels, and that acupuncture in the United States is no longer "experimental." This victory with FDA was won in 1996 after twenty-five years of hard struggle by 13,000 licensed acupuncturists in the United States. Currently, forty or more states accept acupuncture as a legal medical practice, and more and more insurance companies are, or are considering, accepting claims for acupuncture as an alternative therapy that is complementary to conventional medical care.

Who should avoid acupuncture? In general, no medical conditions rule out the use of acupuncture except, perhaps, a morbid fear of needles. People who are at risk of excessive bleeding, or who are hemophiliacs, would be prudent to avoid acupuncture.

The Value of Qigong *and* Taiji *Exercise in Chinese Medicine*

Qigong (pronounced "cheegong") is an important part of TCM. To understand the term *Qigong* in Chinese, *Qi* is everything from the air we

breathe to the vital energy that animates our bodies, regulates organic functions, and maintains health. *Gong* means to work with or to train. Thus, *Qigong* would be best understood simply as *breath exercise training.*

Many styles of *Qigong* are used. Basically, *Qigong* can be divided into either *Jing gong* (passive training), in which the body remains motionless, or *Dong gong* (active training), in which the body moves. *Jing gong* can be done while standing, sitting, or lying down. *Dong gong* covers all types of exercise in which the body moves, so it ranges from relatively nonstrenuous exercises to Chinese martial arts such as *Gongfu*.

Taiji (*Tai Chi* or *Tai chi chuan*) consists of thirty-seven basic postures that are combined into 128 different movements, or balletlike calisthenics, performed in sequence for fifteen minutes. Perhaps the most crucial element of the *Taiji* is concentration. The *Taiji* student should learn to focus on and coordinate movements with breathing, which should originate within the abdomen rather than the chest. If the student thinks about something else while practicing *Taiji,* the student is not doing *Taiji*.

Medical *Qigong* is performed by a *Qigong* master, a specialized medical doctor, and is used to treat chronic diseases such as mental disorders or hypertension. *Qigong* can be performed on a regular basis by anyone to maintain health and prevent illness.

Martial arts *Qigong* provides the groundwork and physical training needed to strengthen muscles, tendons, and bones, and to build up endurance and vitality. Nowadays, people learn the martial arts *Qigong* or *Gonfu* for self-defense.

How Qigong *Benefits the Treatment of Disease*

In China today, *Qigong* is being applied in the field of medicine to treat different chronic, difficult diseases. According to recent studies conducted in China, *Qigong* therapy has been used for a number of diseases, including neuroses, arthritis, hypertension, ulcers, gastroptosis, chronic constipation, and cancer.

To master *Qigong,* one must conquer the three essential elements of *Qigong* and *Taiji* exercise: adjust posture, control breathing, and regulate the mind. The objective of each exercise is to place the mind and body in balance and to cure disease.

Of course, it is not possible, for example, to destroy cancer cells by only practicing *Qigong*. Treating cancer patients requires radiation or chemotherapy, or both, along with other supportive therapies. Nevertheless, cancer patients, as a rule, become quite weak during the course of chemotherapy and radiation, and these treatments can cause serious side effects. As a

result, patients become more and more debilitated, and suffer loss of vitality and general health. Many cancer patients are unable to continue the treatments and, eventually, they give up the fight against cancer.

However, those patients who participate in *Qigong* therapy in Beijing and Shanghai hospitals, together with Chinese herbal medicine, usually gain energy, increase their appetites, gain weight, and enjoy better sleep and peace. Their white blood cell counts become normal, their pain is reduced or relieved, and their physical complexion also improves. Consequently, these patients become stronger and are able to withstand continued conventional cancer treatment. Such patients, therefore, stand a much better chance of overcoming cancer.

Dietary Therapy

Dietary therapy is an indispensable part of Chinese medicine. The famous ancient Chinese physician, Tao Hongjing, of the sixth century (Liang dynasty), compiled *Ben Cao Jing Ji Zhu* (Commentary on Shen Nong's Materia Medica), one of the most valuable herbal books of ancient China. This book describes the varieties of grains, vegetables, animals, and mineral materials used as both food and medicine.

The first dietary therapy book, *Qian Jing Shi Zhi* (Thousand Gold Dietary Therapy), was written by Sun Simiao (Figure 1.10) in the seventh century (Tang dynasty). This book discusses the properties of foods, their effects on health, and their therapeutic uses for diseases. Foods included were grains, vegetables, fruits, fish, fowl, worms, and meats.

Other important books on dietary therapy are *Shi Liao Ben Cao* (Dietary Therapy Materia Medica) by Ming Xi (published in the eighth century), the *Shi Xing Ben Cao* (Food Properties Materia Medica) written by Chen Shiliang (published in the tenth century during the south Tang dynasty), and the *Yin Shan Zheng Yao* (Principles of Correct Diet) written by Hu Sihei (Yuan dynasty). This last book lists 200 different kinds of medicinal herbs that can also be used as food. Numerous books on dietary therapy written by different physicians are available. *Zhong Hua Yao Shan Da Ci Dian* (The Encyclopedia on Chinese Medicinal Diet) by Wu Jiajing is considered valuable and comprehensive.

Foods, similar to herbs, have different energy properties of hot, warm, cold, cool, and neutral, as well as taste differences of sweet, sour, bitter, acrid, and salty. For therapy, in addition to understanding the properties of foods, the actions and medicinal benefits of food are important. Certain foods are beneficial to some whereas the same foods may be harmful to others.

FIGURE 1.10. Sun Simiao

For example, patients with insomnia, mental disorders, and emotional problems should not consume any irritating, Hot (energy), and Damp-producing foods or drinks including alcohol, since Hot foods lead to Fire that may easily harass the Mind. Hot foods such as strong coffee, tea, chilies, or ginger should not be consumed. Also, consumption of Damp-producing food (chiefly dairy products) leads to the formation of phlegm that when combined with Fire would further disturb the Mind. This improper diet could lead to agitation, manic behavior, and aggravated insomnia.

Patients with stomach or epigastric pain due to interior Cold should avoid any Cold or Cool foods. Consumption of Cold foods (cold vegetables, salads, ice cold drinks, ice cream, and so on) may aggravate the Cold, and lead to Cold in the spleen and stomach, causing additional epigastric pain.

Patients with hypertension should avoid Hot foods and consume more Cold foods. The best Cold foods are cucumber, celery, water chestnut, bamboo shoots, mung bean, sesame seeds, eggplant, turnips, seaweeds, tofu, millet, and green tea. Medicinal meals, such as medicated soups, congee, or tea, are considered essential in dietary therapy.

Chapter 2

The Development of *Ben Cao* and Herbal Recipes

China is rich in natural medicines and was one of the earliest countries to use them. These agents have been studied and classified by private physicians and government agencies for the past 5,000 years, and recorded systematically in the compendia called *Ben Cao. Ben Cao (Pen ts'ao)* is botanical, animal, and mineral substances used as medicines.

THE EVOLUTION OF BEN CAO

The term *Ben Cao* in Chinese medicine means materia medica, a compendium that deals with all aspects of natural medicaments. *Ben Cao* is actually a combination of pharmacognosy, pharmacology, and pharmacopoeia. The great work of *Shen-nong Ben Cao Jing* (Shen Nong's Materia Medica), formally published in the Han dynasty (100 B.C.), was the first official *Ben Cao* in Chinese history. It contains 365 different natural medicaments divided into the following sources: 237 botanical, sixty-five animal, forty-three mineral, and twenty of unknown origin.

According to their properties and usefulness, these medicaments are classified into superior (first), middle (second), and inferior (third) classes. The superior medicinal herbs, including ginseng, are mild and nontoxic, and can be used for a wide variety of diseases over long periods of time. The middle medicinal herbs are effective for a limited number of diseases and are potent. The inferior class medicinal herbs are useful only for particular sicknesses and should be used with great caution due to their high potency and toxicity.

During the Liang dynasty, a great physician, Tao Hongjing (A.D. 452-536), was born at Moling (now Nanking). He displayed exceptional gifts from an early age and devoted himself to the practice of medicine. As a Taoist, Tao Hongjing studied herbal medicine. He also edited *Shen-Nong Ben Cao Jing* into *Sheng Nong Ben Cao Jing Ji Zhu* (Commentary on Sheng Nong's Materia Medica). He wrote another herbal directory called *Ming Yi*

Bie Lu, which contains 730 effective medicaments and many recipes that had been praised and used by many eminent physicians for more than a thousand years during the earlier Zhou (1122-255 B.C.) and Qin (255-209 B.C.) dynasties and also in the former Han (206 B.C.-A.D. 23), the Later Han (A.D. 25-220), and Wei (A.D. 220-543) dynasties. Dr. Tao was the first to describe Chinese ginseng, its pharmacological properties, and the method of preserving it.

By the end of the Han dynasty (206 B.C. to A.D. 220), the system of Chinese medicine was firmly established. Dr. Zhang Zhongjing, one of the five greatest physicians of the Han dynasty, wrote the famous *Shang Han Za Bing Lun* (Treatise of Febrile and Miscellaneous Diseases) and *Jin Kai Yao Lue Fang Lun* (Synopsis of Prescriptions of the Golden Chambers). He conducted extensive clinical trials with ginseng and invented many new valuable prescriptions for various diseases. The other four outstanding physicians of that time were Hua Tuo, Bian Que, Huang Fumi, and Wang Xi.

A lengthy civil war and foreign tribal invasions, lasting about 400 years, were followed by the Tang dynasty (A.D. 618 to 907), the most famous and prosperous years in Chinese history. In addition to the well-founded government system and social order, a new medical service was also established. The Ministry of General Medical Service was set up in A.D. 624 to govern medical affairs and to examine the medical practitioners. The first medical college and first hospital were formed in the capital of Changan.

Emperor Gao Zong (650-683) ordered a group of scholars and physicians including Li Xun and Su Jing to organize a task force of twenty-two scholars and physicians to review the early publications of *Ben Cao*. After a few years of hard work, in 659, *Xin Xiu Ben Cao* (Newly Compiled Materia Medica of Tang), also called *Tang Ben Cao,* was published as the official pharmacopoeia of ancient China. This book illustrates in detail in twenty-five volumes a total of 844 medicaments. This official pharmacopoeia is about 1,000 years ahead of the first English pharmacopoeia.

Medical advancements in China soon spread to other Asian countries. Three Korean kingdoms, and later the Japanese and Vietnamese governments, began sending envoys, professionals, and students to China to study Chinese medicine. Chinese medicine has been practiced in these countries ever since.

In addition to medical achievements, foreign trade, culture, and religion also flourished during the Tang dynasty. A well-educated scholar and physician, Sun Simiao (581-682), after years of laborious study of medicine and the religious doctrines of Taoism, Confucianism, Canon of Zhuang Tze, and Buddhism, became a Buddhist monk physician and lived as a hermit. He practiced as a physician and edited many valuable books, both medical and religious.

The most famous medical books Sun Simiao wrote were *Bei Ji Qian Jin Yao Fang* or *Qian Jin Yao Fang* (The Precious Formulas Worth a Thousand Gold) and *Qian Jin Yi Fang* (The Supplement to the Precious Formulas Worth a Thousand Gold). Remedies for the treatment of diseases of women and children were included in these two books. Also included were treatments for intoxication, ophthalmologic disorders, and tumors. He was also the author of a famous medical treatise on pulse diagnosis and dietary therapy. Sun Simiao's works have been considered as an agglomeration of medical and pharmaceutical achievement.

During the Song dynasty, Liu Han and Ma Zhi edited a new materia medica called *Kai Bao Ben Cao* that contained 983 medicaments. In 1057, Zhang Yuxi, Su Song, et al., composed the well-known *Jia Yu Ben Cao.* Su Song also published *Pen Cao Tu Jing* in 1062, which was the first complete dispensatory book with detailed pictorial illustrations of each medicament. In the South Song dynasty, Cao Xiaozhong and others published *Zheng He Ben Cao* in 1116, in which they presented detailed classifications according to the activities of the medicinal herbs.

For about 400 years during the Tartar dynasty (916-1234) and the Yuan dynasty (1230-1341), Chinese medicine suffered a great deal as a result of wars and foreign (Mongolian) rule.

Then, during the Ming dynasty (1368-1644), China once again recovered from foreign invasion and wars, and began to enjoy a period of peace. The great pharmacologist and physician Li Shizhen (1515-1593) (Figure 2.1) seriously studied more than 800 commonly encountered medicaments, and traveled thousands of miles in order to collect known and unknown medicinal herbs. He carefully examined past editions of *Ben Cao* written in the Tang, Song, and South Song dynasties, and, based on his own rich knowledge and experience gained during thirty years of uninterrupted hard work, finally composed a monumental masterpiece, *Ben Cao Gang Mu* (Compendium of Materia Medica). This book was published in 1596, three years after his death.

Ben Cao Gang Mu is an encyclopedia of naturally occurring remedies, containing fifty-two volumes in which 1,892 medicaments and 11,892 prescriptions for known diseases are listed. The herbs are illustrated with 1,160 figures. Among the medicaments, 1,094 are botanical, 444 zoological, and the remainder are of mineral origin. Dr. Li classified them into sixty sections of sixteen divisions according to their source and properties. With the entry of each medicament, *Ben Cao Gang Mu* gives detailed information: names, synonyms, nicknames, sources, and descriptions, medicinal herb preparation and storage, properties (odor, color, taste, and so on), indications and pharmacological properties, and clinical applications. Also included are contraindications, precautions, prescriptions, formulations, and

FIGURE 2.1. Dr. Li Shizhen

the dosage of the herb. This great work has been praised the world over and, starting from the seventeenth century, it has been translated into Latin and every major Eastern and Western language.

During the Qing dynasty (1616-1912), there were no new, creative advancements in Chinese materia medica, with one exception. Zhao Xuemin edited *Ben Cao Gang Mu Shi Yi* (A Supplement to the Compendium of Materia Medica) in 1765. It lists 716 medical substances that had not been included in Li Shizhen's compendium of *Ben Cao Gang Mu* and also some herbs imported from foreign countries.

In the last years of the Qing dynasty, the thirty-eight-volume compendium of *Zhi Wu Ming Shi Tu Kao* (An Illustrated Book of Medicinal Plants) was written by Wu Qizun in 1848. This work contains 1,714 herbal substances. Wu Qizun made a detailed comparative description of the shape, color, nature, taste, usage, and habitual growing area of each of the plants. His drawings of the plants are vivid and marvelous. Today, the work is used by many practitioners.

Also in the later part of the Qing dynasty, Western medical books and theories began to be introduced into China.

From the Qin dynasty (255-209 B.C.) through the middle of the nineteenth century (A.D.) more than fifty different versions of *Ben Cao* were written by hundreds of scholars and physicians, and published both officially and unofficially. This enormous amount of literature on medicinal

herbs represents the world's richest source of knowledge of herbal medicine. Table 2.1 lists chronologically some of the most well-known publications of *Ben Cao* or herbals in China.

In 1975, the People's Health Publishing House in Beijing published, in two volumes, a gigantic new materia medica, called *Quan Guo Zhong Cao Yao Hui Bian* (A Compilation of Chinese Natural Medicaments), which lists 2,202 medicinal substances (botanical, zoological, and mineral). The names, sources, morphology, environment, cultivation, collection, prepara-

TABLE 2.1. Chronological List of the Major Chinese *Ben Cao*

Year/Dynasty	Author	Title of *Ben Cao*	Volume/Number of Herbs
100 B.C./Han	Shen Nong	*Shen Nong Ben Cao Jing*	4/365
A.D. 500/Liang	Tao Hongjing	*Shen Nong Ben Cao Jing Ji Zhu, Ming Yi Bie Lu*	7/730
659/Tang	Li Xun Su Jing	*Xin Xiu Ben Cao (Tang Ben Cao)*	25/850
652/Tang	Sun Simiao	*Qian Jin Yao Fang, Qian Jin Yi Fang*	301/unknown
739/Tang	Chen Cangqi	*Ben Cao Shi Yi*	6/unknown
770/Tang	Li Xun	*Hai Yao Ben Cao*	6/unknown
973/Song	Liu Han, and Ma Zhi	*Kai Bao Ben Cao*	21/983
1018/Song	Tang Shenwei	*Zheng Lei Ben Cao*	31/1,746
1057/Song	Zhang Yuxi, et al.	*Jia You Ben Cao*	20/1,084
1062/Song	Su Song	*Ben Cao Tu Jing*	21/780
1116/Song	Cao Xiaozhong, et al.	*Zheng He Ben Cao*	3/472
1289/Yuan	Wang Haogu	*Tang Ye Ben Cao*	2/228
1404/Ming	Zhu Su	*Jiu Huang Ben Cao*	4/414
1566/Ming	Chen Jiamo	*Ben Cao Meng Quan*	12/742
1596/Ming	Li Shizhen	*Ben Cao Gang Mu*	52/1,892
1765/Qing	Zhao Xuemin	*Ben Cao Gang Mu Shi Yi*	10/716
1848/Qing	Wu Qizun	*Zhi Wu Ming Shi Tu Kao*	22/1,714
Republic of China	Zhao Juhuang	*Pharmacognosy*	1/Unknown
1975/People's Republic of China	People's Health Publishing House	*Quan Guo Zhong Cao Yao Hui Bian*	2/2,202

tion, chemistry, pharmacology, therapeutic nature, taste, uses, indications, and doses of natural medicines are given in detail, each with a picture of the living plant or animal.

The Jiang Su New Medical College published a two-volume Chinese medicine compendium called *Zhong Yao Da Ci Dian* (Encyclopedia of Chinese Herbs) in 1975, which included 4,773 natural medicinal substances of botanical, animal, and mineral origin. This particular book includes modern pharmacological research findings and clinical application reports. It is probably the most modern Materia Medica on natural medicine.

THE EVOLUTION OF HERBAL RECIPES

Although as early as the Shang dynasty (2100 B.C.) physicians began to prescribe herbs in combinations, a prescription book titled *Wu Shih Er Bing Fang* (The Prescriptions for Fifty-Two Kinds of Diseases) was unearthed in 1979 from the No. 3 Han Tomb (Han dynasty, 206 B.C.-A.D. 220) at a place called Ma-Wang Dui of Changsha in Hunan Province. This could be the earliest Chinese medicinal recipe book.

Two other important works stand out. One, written by Zhang Ji (also known as Zhang Zhongjing) and later reedited by Wang Shuhe, was *Shang Han Lun* (Treatise of Febrile Diseases) (third century A.D.) and the other, *Jin Kui Yao Lue Fang Lun* (Synopsis of Prescriptions of the Golden Chamber), deal with miscellaneous internal diseases, female diseases, and illnesses that require surgery. *Shang Han Lun* contains 269 excellent recipes, and *Jin Gui Yao Lue Fang Lun* includes 262 important herbal recipes. Many of the famous recipes contained in these two books have been used for more than 1,000 years.

By the end of the Tang dynasty (A.D. 618-907), many herbal recipe books had been written. Three of these are *Bi Ji Qian Jin Yao Fang* and *Qian Jin Yi Fang* by Sun Simiao (see previous discussion), and *Wai Tai Mi Yao* (Medical Secrets of a Medical Official) by Wang Tao in A.D. 752. This latter work contains a comprehensive and exhaustive study of herbal medicine, and more than 6,000 recipes.

During the Song dynasty (A.D. 960-1279), the government instructed national outstanding physicians to study all past herbal prescriptions in order to compile *Tai Ping Sheng Hui Fang* (The Peace and Holy Benevolent Prescriptions), which is a collection of 16,834 recipes. Another compendium, called *Sheng Ji Zong Lu* (A Collection of Prescriptions for Holy Relief), contains 20,000 recipes. This monumental work of 200 volumes was compiled by a staff of hundreds of physicians under imperial orders around A.D. 1117. This medicinal encyclopedia covers every branch of the healing arts,

from internal medicine, surgery, and pediatrics, to dermatology, acupuncture, dietary therapy, and herbal recipes.

Also during the Song dynasty, the government of the pharmaceutical bureau compiled a book with 788 prescriptions called *Tai Ping Hui Min He Ji Ju Fang* (Formularies of the Bureau of People's Welfare Pharmacies). Compiled by Fei Zhongyuan and Chen Shiwen in A.D. 1151, it is one of the earliest herbal formularies published by a governmental pharmaceutical bureau. This formulary book laid the foundation for the future standard of herbal formularies in Chinese medicine. It also began the standardization for making pills, granules, and powder forms of patented medicine.

Pu Ji Ben Shi Fang (Effective Prescriptions for Universal Relief), also called *Ben Shi Fang* (Effective Prescriptions), was written by Xu Shuwei in the Southern Song dynasty and its ten volumes were published in the middle of the thirteenth century. It mainly deals with common diseases of internal medicine and lists 300 herbal prescriptions.

Ji Sheng Fang (Recipes for Saving Lives), also called *Yan Shi Ji Sheng Fang* (Yan's Recipes for Saving Lives), is a ten-volume book written by Yan Yonghe in 1253. It deals with internal disease, surgery, and gynecology, and it has 450 herbal prescriptions.

Shi Yi De Xiao Fang (Effective Formulas Tested by Physicians of Generations), compiled by Wei Yilin in 1345 on the basis of the author's experience as a physician, lists prescriptions for children's diseases, internal medicine, ophthalmology, oral/dental diseases, bone setting, wounds, ulcers, carbuncles, etc.

During the Ming dynasty, *Pu Ji Fang* (Prescriptions for Universal Relief), written by Teng Hong and Zhu Su, was issued in 1406. It is the most complete collection of herbal recipes and methods of treatment in TCM, with 61,739 recipes and 239 illustrations in 168 volumes.

Ju Fang Fa Hui (An Expounding of the Formularies of the Bureau of the People's Welfare Pharmacies), was written in the fourteenth century by Zhu Zhenheng, who criticized the mechanical and indiscriminate use of the formularies of the People's Welfare Pharmacies that were popular at the time.

Another excellent medical and pharmaceutical work is *Qi Xiao Liang Fang* (Wonderful and Effective Prescriptions), in sixty-nine volumes, written by Dong Su and Fang Xian, published in A.D. 1470. It lists more than 7,000 herbal recipes, and discusses the ideology of diseases and bone setting, as well as acupuncture methods.

As stated in the previous section, the most famous pharmacologist and physician in Chinese history, Li Shizhen, spent thirty years completing the well-known *Ben Cao Gang Mu*. It contains 11,096 prescriptions in 50 volumes.

In the Qing dynasty (A.D. 1644-1911), many herbal recipes books were published, such as *Yi Fang Kao* (Textual Criticism on Prescriptions) and *Yi Fang Ji Jie* (Collection of Prescriptions with Notes), written by Wang Ang. The latter book lists 700 prescriptions divided into twenty-one classes, such as prescriptions for health invigoration, dampness elimination, vomiting, and diaphoresis. It describes in detail the combinations of herbs in each recipe. With this advancement in classification, it further promoted the development of the theoretical aspect of the science of TCM herbal recipes.

Table 2.2 lists chronologically some of the most popular herbal recipe books published in China. Many of the herbal recipes listed in Part IV are derived from the ancient works.

TABLE 2.2. Important Books on Medical and Chinese Herbal Recipes

Year/Dynasty	Author	Title of Recipe Book	Number of Recipes
219/Han	Zhang Zhongjing	*Shang Han Lun*	113
219 /Han	Zhang Zhongjing	*Jin Gui Yao Lue Fang Lun*	262
652/Tang	Wang Tao	*Wai Tai Mi Yao*	6,000
682/Tang	Sun Simiao	*Bi Ji Qian Jin Yao Fang*	unknown
752/Tang	Sun Simiao	*Qian Jin Yi Fang*	5,300
992/Song	Wang Huaiyin	*Tai Ping Sheng Jui Fang*	16,834
1117/Song	Government	*Sheng Ji Zong Lu*	20,000
1151/Song	Fei Zhongyun and Chen Shiwen	*Tai Ping Hui Min He Ji Ju Fang*	788
1253/South Song	Yan Yonghe	*Ji Sheng Fang*	450
1250/South Song	Xu Shuwei	*Pu Ji Ben Shi Fang*	300
1345/Yuan	Wei Yilin	*Shi Yi De Xiao Fang*	unknown
1350/Yuan	Zhu Zhenheng	*Ju Fang Fa Hui*	unknown
1406/Ming	Zhu Su and Teng Hong	*Pu Ji Fang*	61,739
1470/Ming	Dong Su and Fang Xian	*Qi Xiao Liang Fang*	7,000
1556/Ming	Xu Chunfu	*Gu Jin Yi Tong*	unknown
1596/Ming	Li Shizhen	*Ben Cao Gang Mu*	11,096
1602/Ming	Wang Kentang	*Zheng Zhi Zhun Sheng*	unknown
1682/Qing	Wang Ang	*Yi Fang Ji Jie*	700

Year/Dynasty	Author	Title of Recipe Book	Number of Recipes
1742/Qing	Wu Qian	*Yi Zong Jin Jian*	unknown
1759/Qing	Zhao Xuemen	*Chuan Ya Nei Wai Bian*	unknown
195?/People's Republic of China	Zheng Xinting	*Wan San Gan Dan Ji Cheng*	2,782
195?/People's Republic of China	Ran Xiaofeng	*Quan Guo Zhong Yao Zheng Yao Chu Fang Ji*	2,633

Chinese Pharmacopeia

Since the establishment of the People's Republic of China in 1949, many natural medicines, old herbal recipes, government-proven recipes, secret recipes, and contemporary folk recipes have been compiled, analyzed, and systematized. These recipes have been scientifically tested by a number of hospitals and university laboratories to evaluate their effectiveness.

In 1953, the first new Chinese pharmacopoeia was compiled, with a total of 531 natural medicines and chemical drugs. The latest pharmacopoeia is the 2000 edition. Volume one contains herbal prescriptions and medicinal herbs, and volume two contains chemical and synthetic drugs, antibiotics, radioactive pharmaceuticals, and biological products. The pharmacopeia will be revised every five years by a special Chinese pharmacopoeia committee of experts.

In China, as well as in Russia natural medicines are equally important and occupy equal standing to synthetic chemical drugs in an official pharmacopoeia.

PART II: PRACTICALITIES OF CHINESE HERBAL REMEDIES

Chapter 3

Practical Herbalism

THE BENEFITS OF MEDICINAL HERBS

China has an estimated population of 1.3 billion citizens and there are more than 50 million Chinese living outside the country. Although they are the major consumers of herbal medicines, interest has increased during the past 30 years in other parts of the world, such as Europe, South America, Canada, and the United States.

Germany serves as an interesting example of the popularity of Chinese herbs. Not only is it the leader in modern chemical and biological research and also a main producer of modern drugs (such as aspirin and antibiotics), Germany recently reported that traditional herbal medicine, such as ginkgo biloba, ranks in the top ten of forms of medicinal substances sold there.

WHO has estimated that at least 80 percent of the world's population relies on botanical (herbal) remedies for primary health care needs because they are natural and have fewer harmful side effects. In other words, lack of side effects and/or safety is the number one benefit of natural herbal remedies.

Why are herbs safer than modern-day synthetic drugs? Chemical drugs are foreign to the body and tend to disturb the peace or balance of the body. Most drugs are, even at the recommended dosage, too potent to be tolerated, particularly by the elderly and children. On the other hand, herbs, similar to foods, are introduced in to the body's system in a mild and gentle manner, without disturbing its balance and harmony.

Another important and interesting medicinal benefit of herbal remedies is that oral consumption allows the release of active ingredients into the bloodstream slowly and gradually. The combination of a low concentration and slow release of medication from an herb or herb mixture provides a gentle healing, as well as a long-lasting effect, accomplished in part by the presence of inert substances and active ingredients. This mild and steady release is the possible explanation as to why the majority of herbal remedies cause no or minimal side effects. Also, the effects of herbs in a recipe (formula) are subtle and remedial.

Furthermore, herbs are naturally rich in both biologically active and inert substances. The inert substances, such as cellulose, starches, and lignin, may serve as buffering agents. Other ingredients in herbs possess strong antioxidant, detoxifying, and scavenging effects, in addition to health benefits.

Herbs are multifunctional in their properties because they contain multiple constituents. For example, licorice root *(Glycyrrhiza uralensis)* is an excellent detoxicant and sweetener, as well as a good antitussive and expectorant. *San qi (Panax notoginseng)* is a good hemostatic agent for external and visceral bleeding, it reduces cholesterol levels, increases coronary heart blood flow, and relieves arrhythmias and angina pectoralis. A third example is salvia *(Salvia miltiorrhiza),* which relieves ischemic heart disease, impaired peripheral and cerebrovascular circulation, and hepatitis. The important properties of many Chinese herbs are not, perhaps, generally realized by Western medical professionals (see Chapters 5 through 15 for more information).

Herbs, particularly the formulated herbs in a recipe, not only treat the symptoms but also heal the cause of disease. For example, to treat different types of headaches and migraines, no drug is as effective as the Chinese herbal formula containing cnidium *(Ligusticum chuanxing)* and gastrodia tuber *(Gastrodia elata rhizome),* as in the complex recipe *Chuang Xing Cha Tiao San* in Chapter 22, R-49. See Chapters 16 to 24 for more information.

As Andrew Weil pointed out in *Botanical Medicine,* some herbs have unique effects on some conditions for which conventional medicine has little or nothing to offer. Examples are milk thistle *(Sylibum marianum),* which protects the liver from toxins, and schisandra *(Schisandra chinensis),* which is used to treat chronic hepatitis. From the authors' experience, phytomedicines, such as salvia *(S. miltiorrhiza),* safflower *(Carthamus tinctorius),* red peony root *(Paeonia lactifloria rubra),* and ilex pubescent *(Ilex pubescens),* are excellent blood-circulation-activating herbs, capable of preventing and treating conditions of arteriosclerosis, cerebral and coronary blood clot, or blood stasis. Blood stasis occurs when blood flow throughout the body is impeded or there are localized sites of blood stagnation or internal hemorrhaging. Generally, blood stasis is a consequence of *Qi* stagnation or *Qi* deficience, both of which can impede blood flow. Blood stasis can also develop from trauma-induced internal hemorrhaging when the blood fails to disperse or be excreted in a timely manner. The principal sysmptoms of blood stasis conformation are: persistent stabbing pain that is aggrevated by pressure; masses or tumor formation as in hepatosplenomegalies. Other manifestations are dark-tinged complexion, dark purple tongue or a tongue with ecchymosis, and a thready, hesitant pulse. If stagnant blood invades the heart, insanity may result. All of the

previously mentioned herbs produce few side effects, as shown by pharmacological and toxicological studies.

Chinese herbs are safe and effective in general and seldom cause side effects. Most Chinese herbs are processed through preliminary and special pharmaceutical treatments for improved efficacy and reduced side effects and toxicity, before they reach the market. The process of preparing a crude herb to a final, marketable medicinal product is a traditional art and science in TCM. For example, the processed rehmannia root gives different healing effects compared to unprocessed (dried) rehmannia. (See Chapter 5 for more information).

Another benefit of herbs is affordability. Today's health care costs are increasing, including the patient's cost for insurance, office visits, miscellaneous test bills, and the cost of drugs. This has occurred not just in the United States but in every country of the world.

During a conference in Washington in 1994, the Office of Alternative Medicine of the NIH (also known as the National Center for Complementary and Alternative Medicine) invited FDA officials and other academia, industry, and governmental officials, both from the United States and abroad, to discuss the value of medicinal herbs in health care. Professor Varro Tyler of the Purdue University School of Pharmacy pointed out that cost control is a very important issue in medical care and that herbal remedies have a distinct advantage over most synthetic drugs.

Studies have shown that benign prostatic hyperplasia is treatable with finasteride at a cost of about $1.75 per day or with saw palmetto extract at only 40 cents per day. Migraine prophylaxis treated with feverfew costs only 10 to 25 cents per day but with the drugs propanalol or methysergide, treatment costs from $2.00 to as high as $8.00 per day. Reduction of high blood cholesterol with enteric-coated garlic costs about 15 cents daily. A similar reduction obtained with the drug cholestyramine costs about $4.00 or more per day. Tyler further stressed that in this age of intense concern with the cost of health care, we literally cannot afford to overlook the savings realized from the use of phytomedicinals.

Health Benefits of the Whole Herbal Extract versus an Isolated Chemical Ingredient

In the United States a substantial portion of over-the-counter pharmaceuticals labeled as "herbal remedies" are sold in drugstores. These preparations contain chemically synthesized or isolated active substances from herbs, such as caffeine from tea leaves or coffee seeds *(coffea arabica),*

menthol from mentha *(Mentha haplocalyx),* ephedrine from ephedra *(Ephedra sinica),* and digitoxin from digitalis leaves *(Digitalis purpurea).* However, these pharmaceutical products cannot be considered true natural herbal products. They are, as a matter of fact, drugs. These substances contain only a single biologically active ingredient. This type of drug form is quite different in character from natural herbal medicine.

A good example of this difference is ephedrine compared to ephedra. Ephedrine is the potent chemical constituent *derived from* ephedra and should not be confused with ephedra. In recent years, ephedrine has been a popular, somewhat controversial, drug in the Western world, particularly in the United States. A flurry of regulatory and legal activity has surrounded the sale of the herb ephedra and the drug ephedrine in health food stores.

Ephedrine has been formulated to be used as a weight control "pep pill" to use as a fat burner, decongestant, energizer, and stimulant. These improperly formulated dietary supplements contain the potent drug ephedrine. These diet pills have caused turmoil in the nutritional supplements industry because of false advertising and misleading labeling. They are dangerously formulated with other stimulants, such as caffeine, amphetamines, ginseng, ginger, damiana root *(Turnera diffusa),* goldenseal root, sarsaparilla root, zinc, and magnesium, and have caused serious toxicity and numerous deaths. This practice is extremely dangerous because when these stimulants are mixed together they can generate explosive reactions, both chemically and pharmacologically.

This is a good example of why the effects of a whole herb and its isolated chemical constituents must be considered separately. Any pharmaceutical preparations containing isolated active constituents should not be classified as herbal remedies. They should be classified and regulated as a drug. As in the previous example, one should not confuse ephedrine with ephedra *(ma huang)* just as one should not confuse caffeine with coffee or digitoxin with digitalis.

The use of an herb in its natural form or as a whole extract is the true application of an herbal remedy. Thus, a reasonable recommendation is to use the whole herbal extract in order to obtain the total package of benefits, not merely to use the chemically isolated active ingredient from the plant. Appreciating the need for the whole herb, most herbal products imported from China in recent years are extracts made from the entire herb or a mixture of herbs. Today, it is this form of herbal remedies that licensed acupuncturists, naturalists, nutritionists, and herbalists prefer and prescribe for their patients.

PRACTICAL HERBALISM

Natural Resources and How Nature Affects the Medicinal Plants

Around 2500 B.C., mythologist, emperor, and sage, Shennong, developed agriculture. He taught people how to raise crops and animals, and identified various plants. Shennong tested hundreds of herbs on himself, and recorded their medicinal values and therapeutic uses. The Chinese recognize Shennong as the earliest practitioner of herbal medicine and credit him as the author of China's first *Ben Cao, The Shennong Ben Cao Jing* (Shennong's Materia Medica). Chinese medicinal herbs are commonly called *"Zhong Cao Yao"* and are selectively listed in the official Chinese *Ben Cao* (Materia Medica) and Chinese pharmacopoeia.

Because of its great size and geographic location, China has a wide variety of climatic conditions, soil, and terrain. Most of the medicinal plants grow wild in the craggy mountains and deep valleys in the southern and southwestern regions of Sichuan, Yunnan, Guangxi, Guizhou, and Xizang (Tibet) provinces, and the northeastern provinces of Jilin, Liaoning, and Heilongjiang, and the greater Inner Mongolia of China. From the earliest recorded times, these areas have had rich resources of a wide variety of medicinal plants.

Northeast China near the Siberian and Korean borders is home to many of the most precious plants, including ginseng, astragalus, and lycium fruit. The most famous herb, *Panax ginseng,* as well as many other valuable herbs, can be found growing wild in the provinces of Liaoning and Jilin, along the Chang Bai mountains. Four especially treasured herbs are found in the province of Heilongjiang: *bu lao cao (Boschnaskia rossica), ling zhi (Lucid ganoderma), ci wu jia (Acanthopanax senticosus),* and *lu rong* (*Cornu cervi nippon* [pilose antler]).

Out of an estimated 200,000 plants that grow in Chinese soil, more than 3,000 different plant species have been identified and studied. Among these 3,000 valuable plants, more than 500 have been found to be effective and safe for medicinal uses for humans.

Since the establishment of the People's Republic of China in 1949, the government has encouraged the cultivation of these wild mountain herbs. It established the National Medicinal and Pharmaceutical Corporation (a top government agency), and each province, city, country, or special district has its local or branch corporation that specifically controls the growth, production, processing, and trade of chemical and herbal medicines.

Certain plants of the same species will survive only in a particular type of environment, with specific soil, rainfall, and climatic conditions. However,

the majority of plants do grow in a wide variety of environments. Recent research has shown that, even though these plants may be of the same species, their active contents (bioactive and inactive constituents) and composition, and thus their therapeutic effects, vary greatly according to the area of growth and the method of processing after harvesting.

Parts of Medicinal Plants

The particular parts of a medicinal plant differ with each herb. With some plants, the roots, rhizomes, tubers, stems, bark, flowers, seeds, leaves, or fruits are medicinally useful. In others, the roots and leaves, roots and rhizomes, roots and stems, or the entire plant is useful. However, most medicinal recipes use the roots, rhizomes, seeds, or the entire plant.

The following are some important herbs processed from eleven different parts of a plant:

1. *Root (Rx):* Chinese angelica, ginseng root, American ginseng, dahurian angelica root, astragalus root, aucklandia root, bupleurum root, cyathula root, gentiana root, isatis root, notoginseng, polygonum (fleece flower root), licorice root, morinda root, ophiopogon, peony root, polygala root, pseudostellaria root, pueraria root, rehmannia root, scute root, stephania, and trichosanthes root
2. *Rhizome (Rh):* Alisma, anemarrhena, atractylodes, Chinese yam, cibotium, cimicifuga, cnidium, curcuma, cyperus tuber, gastrodia, ginger, polygonatum rhizome, rhubarb, turmeric, white atractylodes
3. *Stem or Veins (Rh or Rl):* Dendrobium, lonicera stem, uncaria stem, millettia, akebia, loranthus
4. *Bark (Cx):* Acathopanax, albizzia, cinnamon, eucommia, magnolia bark, moutan bark, phellodendron bark
5. *Lignin (Lg):* Aquilaria, sappan wood, acronychia (dalbergia wood), camphorwood
6. *Leaves (Fm):* Apocynum (dogbane leaf), artemisia leaf, baphicacanthis, loquat leaf, perilla leaf, morus leaf, ginkgo biloba leaf
7. *Flowers (Fl):* Albizzia flower, carthamus, chrysanthemum, wild chrysanthemum, clove, lonicera flower, magnolia flower, tussilago flower (coltsfoot)
8. *Fruits (Fr):* Ammomum fruit, bitter orange, immature bitter orange, burdock fruit, chaenomeles, cornus fruit, forsythia fruit, gardenia, hawthorn, lycium fruit, schisandra fruit
9. *Seeds (Sm):* Bitter apricot kernel, areca seed, coix seed, lepidium seed, plantago seed, zizyphus, raphanus seed, semiaquilegia seed, vaccaria seed, ginkgo biloba seed

10. *Whole Herb (Hb):* Agastache, barbat skullcap, capillaris, black nightshade, centipeda, dandelion, duchesnea, ephedra, houttuynia, lycopodium, lysimachia, mentha, oldenlandia, patrinia, plantago herb, prunella spike, sarcandra, siegesbeckia, schizonepeta, verbena, viola herb
11. *Fungus:* Cordyceps, poria slices, polyporus, and ganoderma (reishi mushroom)

Collecting the Parts of Medicinal Plants

Since different parts of a given plant mature at different seasons, the parts must be collected at the proper time. The following section indicates when the different parts should be collected:

- *Root and rhizome:* In late fall or early spring. The active ingredients of the plant are generally prevalent at this time and the quality of the root or rhizome is at its best.
- *Barks:* Between February and May. In the spring and early summer the moisture content in the bark is high and facilitates easy bark stripping.
- *Leaves:* Usually before the flowers begin to bloom. However, some leaves may be collected in the fall when they begin to drop.
- *Flowers:* Between March and May, and during July and August. Since the flowering season is generally short, proper timing is important. The flowers should be in bud or have just bloomed. They should be sun dried immediately.
- *Fruits:* Except for individual instances in which unripened fruits are collected and used, fruits should be collected as soon as they ripen.
- *Seeds:* After they have matured completely. Certain medicinal herb seeds fall and disperse easily upon maturity and so are collected after the fruits have ripened but before the fruits split open.

HOW MEDICINAL PLANTS ARE PROCESSED

Preliminary Processing

Fresh medicinal herb parts tend to deteriorate quickly and must be processed immediately after harvest. Certain herbs cannot be used raw. Only after being properly processed can medicinal herbs exert their full therapeutic effects and can their safety be guaranteed.

The important steps for preliminary processing of herbs are as follows:

- *Sorting:* Surface dirt, impurities, and nonmedicinal parts are removed. Parts that have different medicinal uses are separated.
- *Washing:* Most plants should be washed clean and free of dirt to meet the basic requirements and standards of medicinal herbs. Note, however, that flowers and certain plants cannot be washed.
- *Slicing and cutting:* For easy packaging and storage, the crude herbs must be dried. Before drying, all cleaned parts are sliced or cut into appropriate sizes and shapes. Generally, thick and fat roots, rhizomes, and woody vines are cut into thin slices, bark and leaves into fine strips, and whole plants into sections.
- *Drying:* Most herbs are dried in direct sunshine. During rainy seasons or on cloudy days, the herbs can be dried around an indoor stove. Aromatic herbs, such as mint, are dried in well-ventilated shade. Dried herbs are safe, stable, and easy to store.
- *Crushing or pressing:* Certain juicy herbs are crushed or pressed for their liquid or oil for external use.

The purposes of preliminary processing of herbs are

- to eliminate nonuseful parts and get rid of impurities,
- to ensure stability, and facilitate storage and transportation, and
- to make it easier to dispense or manufacture pharmaceuticals.

Special Pharmaceutical Processing

The primary steps for the special pharmaceutical processing of herbs are stir baking (cooking with liquid vinegar, saltwater, ginger juice, honey, or wine), parching to a brown color, calcining, and roasting. Some other processing methods include steaming, boiling, and cooking in a special solvent, scalding, germinating to sprouts, or fermenting under controlled conditions. The processed crude herb is called processed, prepared, or cooked, for example, processed or prepared licorice root versus dried licorice root, processed rehmannia root versus dried rehmannia root, processed or prepared aconite versus dried aconite.

The purposes of pharmaceutical processing of herbs are

- to decrease the plant's bad taste,
- to eliminate possible side or toxic effects,
- to alter its medicinal characteristics, and
- to render the herb more effective.

Also, in storage, the processed herbs are easier to keep and have a longer shelf life than raw herbs.

CHEMICAL COMPONENTS OF MEDICINAL PLANTS

Many well-known medicinal herbs, such as *ma huang,* described as a remedy for asthma or coughs and as a cardiac stimulant, are among the oldest Chinese medicinal herbs scientifically identified. Licorice root has been used for many centuries in China and in Europe for treating stomach complaints and as a general sweetener. Snakeroot *(Rauwalfia cerpentina)* has been used in India as a tranquilizer and to treat headaches and hypertension for more than 4,000 years. These medicinal herbs contain different therapeutically or biologically active ingredients or components and inactive components.

As a rule, the therapeutically active components in herbs, called constituents, are isolated in the laboratory using processes of extraction, separation, purification, and identification. Generally, medicinal plants contain the following sixteen different groups of biologically active and inactive components.

Biologically Active Ingredients

1. Alkaloids
2. Amino acids, peptides
3. Enzymes
4. Essential, volatile or fixed oils, and oleoresins
5. Glycosides
6. Inorganic salts, minerals
7. Organic acids
8. Sugars
9. Trace elements
10. Vitamins

Biologically Inactive (Inert) Substances

11. Cellulose
12. Pigments
13. Gums, resins, and mucilaginous substance
14. Lignins
15. Starches
16. Water

The chemically active ingredients in plants produce its characteristic pharmacological properties and medical uses. For example, ginger root contains starch, protein, lipids, lecithin, free fatty acids, the enzyme protease, various vitamins, resins, and the volatile oils of sesquiterpens, which are the active components that make ginger a stomachic, carminative, and diaphoretic agent.

Scientific research, including chemical, biological (pharmacological and toxicological), and clinical studies, on ginseng *(P. ginseng)* over the past 100 years shows that ginseng contains at least fifteen triterpenoid saponins, collectively known as ginsenosides (see Chapter 5). Other principals include volatile oils, free and glucoside-bound sterols, panoxinol, starch, organic acids, amino acids, various minerals, carbohydrates, nitrogenous substances, enzymes, ferments, and trace elements. Research shows that the active components, ginsenosides, and the inorganic trace elements are responsible for the tonic effects of ginseng root.

Among the biologically active components of different plants, the most important components are glycosides, alkaloids, essential or volatile oils, and saponins. The chemistry of and the plants containing these important components are listed as follows.

Glycosides

Glycosides are compounds containing a glycone (sugar) component and an aglycone (nonsugar) component that can be separated using chemical hydrolysis. The glycone portion may be glucose, fructose, rhamnose, xylose, or any other single sugar. The aglycone portion may be any organic compound of sterol, triterpene, hydroquinone, anthraquinone, tannin, carotenoid, or anthocyanidin. The most active glycoside-containing plants are digitalis, rhubarb, aloe, ginseng, American ginseng, licorice root, bitter almond, senna leaf, scute root, polygala root, carthamus flower, and platycodon root.

Alkaloids

Alkaloids are organic nitrogen-containing amines—the most active and potent components in herbal medicines. The most active alkaloid-containing medicinal plants include areca seed (contains arecoline), belladonna (atropine), aconite (aconitine, mesaconitine), ephedra (ephedrine), coca leaves (cocaine), coptis root (coptysin, berberine), ergot (ergotamine, ergotoxine, ergobasine), cinchona bark (quinine, quinidine, cinchonine), corydalis tuber (corydaline), opium (morphine, codeine), tea leaves (caffeine,

theophylline, theobromine, xanthine), phellodendron (berberine palmitine), and rauwolfia root (reserpine).

Essential Oils

Essential or volatile oils are ethereal oils that represent the odoriferous constituents of plants. They are complex mixtures of a wide variety of organic compounds, including alcohols, ketones, phenols, esters, and aldehydes, that evaporate when exposed to air. Some plants containing volatile oils are peppermint (peppermint oil), clove (clove oil), and rose (rose oil).

Saponins

Saponins are nitrogenous glycosides typically containing sterols or triterpenes from aglycone that, when combined with water and shaken, produce foam. Today, with the availability of modern science and technology, extractions of herbs or herb mixtures can be processed easily using different solvents at different temperatures and dried under reduced pressure or freeze-dried.

PROPERTIES OF MEDICINAL HERBS

Basic TCM Properties of Herbs

Based on TCM theory, herbs may display Cool or Cold, Hot or Warm, sweet or bitter, acrid or tasteless properties that act on the kidney meridian or on the spleen and liver meridians. Each herb, similar to food, has its own characteristics. The book *Yao Xing Lun* (Discussions on Properties of Medicinal Herbs) deals with basic properties, actions, and medicinal uses of herbs. The basic properties of herbs in relation to clinical application include *Si Qi, Wu Wei,* and meridian affinity of herbs, and the less important ascending and descending and floating and sinking properties.

Si Qi *(The Four Energy Qualities)*

Herbs possess different energy or temperature qualities of Cold, Hot, Warm, or Cool. Herbs that are Cold and Cool differ in action and medicinal use from those which are Hot and Warm in nature. Also, a cold-natured herb

differs slightly from a cool-natured herb and similarly, a hot-natured herb differs slightly from a warm-natured herb. Not all herbs are Cold or Hot. Some herbs are classified as neither Hot nor Cold, but neutral or bland. However, neutral herbs may be slightly Cool or slightly Warm.

In clinical application, a patient has fever or febrile disease (yang disease) is treated with herbs that are Cold or Cool. Conversely, a patient who is Cold (yin syndrome) should be treated with Warm or Hot herbs. For example, a Cool herb such as peppermint *(Mentha piperita),* is good for its diaphoretic properties when used in the summer. *Capsicum minimum* is a Hot herb and would be a better choice during a cold winter.

Many food items possess similar treatment qualities. In different seasons, we customarily eat different foods. For example, bitter melon, winter melon, mung bean, and tofu are Cool or Cold in nature, suitable for summer or consumed in hot weather. Lamb meat and hot pepper, on the other hand, are Warm or Hot, suitable for cold weather.

For healing purposes, herbs that are Cold/Cool cause an inhibitive or sedative effect and tend to inhibit the activities of the digestive system, metabolism, cardiovascular system, and internal digestive juice secretions. Hot/Warm herbs, on the other hand, are stimulating. They cause a tonic effect on the nervous and the cardiovascular systems, digestive activities, and metabolism, and they activate internal hormonal secretions.

Table 3.1 illustrates how herbs with different energy qualities produce different actions and have different therapeutic uses.

TABLE 3.1. Herbs with Different Energy Qualities Produce Different Actions and Have Different Therapeutic Uses

Qualities	Actions and Uses
Cold/Cool nature	1. Clear heat (pyroletic) 2. Purge fire and treat febrile syndromes 3. Remove toxic substances 4. Nourish yin, nourish blood
Hot/Warm nature	1. Disperse cold, wind, dampness 2. Relieve cold syndromes, dispel pathogenic exterior cold 3. Treat collapse 4. Nourish yang, tone the *Qi*
Neutral (bland)	1. Regulate blood circulation 2. Soothe nerves 3. Remove dampness

Wu Wei *(The Five Flavors of Herbs)*

Generally, there are five flavors inherent in herbs: acrid, sweet, sour, bitter, and salty. Some herbs, however, are tasteless, while others are astringent. Herbs that are sour and astringent, or tasteless and sweet, have the same effect. Empirical evidence has shown that each of these five basic tastes indicates a specific pharmacological trait and acts specifically on different organs. For example:

- Bitter herbs act on the heart.
- Sour herbs act on the liver.
- Sweet herbs act on the spleen.
- Acrid herbs act on the lungs.
- Salty herbs act on the kidneys.

Meridian Affinity Property

The meridian affinity property is typical in Chinese medicine. It refers to an herb's selective therapeutic effects on a certain part of the body. Experience showed that by using bupleurum root, pain of the hypochondriac region is relieved and that by using gypsum, the swelling and pain of the gums are relieved. This led ancient Chinese physicians to hypothesize that bupleurum root acts on the liver meridian and that gypsum acts selectively on the stomach meridian. Through repeated clinical trials using different herbs for different ailments, a theory of "meridian affinity, or tropism, of herbs" was eventually developed.

Gastrodia tuber *(tian ma),* which is sweet and neutral, has an affinity for the liver meridian. It is used to treat liver-related disorders of epilepsy, headache, and light-headedness due to hyperactivity of the liver yang. It acts by checking endogenous Wind to relieve convulsions, calms the liver, and suppresses liver-yang hyperactivity. Polygala root, which is Pungent, bitter, and slightly Warm, selectively acts on the heart and lung meridians. Medicinally, polygala root helps reduce mental stress and tranquilizes the mind. Chinese *chuan xiong,* which is Pungent and Warm, acts on the liver, gallbladder, and pericardium meridians. It promotes the flow of *Qi* and blood, is able to eliminate the exogenous pathogenic factor, is used for menstrual and abdominal pain, pain in the hypochondriac region, various types of headaches, numbness and pain in the extremities, rheumatic arthralgia, and angina pectoris.

Those who are interested in using herbs should understand the properties of herbs first. Herbs with affinity for several meridians usually produce

complex actions and are useful in multiple ways. On the other hand, different herbs acting on the same meridian may have markedly different effects because of their varied energy qualities and tastes. For example, ephedra, peppermint, honeysuckle flower, ginger root, and ginseng root all act on the lung meridian but produce quite different effects and are used quite differently. Ephedra, which is Pungent, bitter, and Warm, relieves Wind-Cold type colds. Peppermint, which is Pungent and Cold, relieves Wind-Heat type colds. Honeysuckle flower, which is sweet and Cold, relieves Heat and treats high fever and epidemic febrile disease. Ginseng root, which is sweet, slightly bitter, and neutral, is a general *Qi* tonic remedy. Ginger root, which is Pungent and Hot, expels Cold, warms up the lungs, and expels phlegm from the lungs.

Ascending and Descending and Floating and Sinking Character

Another clever discovery by the ancient Chinese physicians was that herbs also have motion, or ascending and descending (or lifting and lowering) and floating and sinking properties. These properties refer to the upward, downward, outward, or inward directions in which the herbs tend to act on the body. Floating means going from within the body to the surface of the body; sinking means moving inside or purging away. Herbs with ascending and floating properties elevate yang, relieve exterior syndromes by means of diaphoresis, dispel superficial pathogenic Wind and Cold, induce vomiting, or cause resuscitation. Herbs with descending and sinking properties have downward and inward actions, and are used to relieve fever, induce purgation, promote urination, remove Dampness of the body, stop vomiting, relieve asthma and cough, and improve digestion.

Herbs with ascending and floating properties are good for treating diseases located in the upper part of the body and are exterior in nature. Herbs with descending and sinking properties are often prescribed for diseases located in the lower part of the body and are interior in nature.

Most sweet, Pungent, and Warm or Hot herbs carry lifting and floating actions, whereas most bitter, sour, salty, and Cold or Cool herbs carry lowering and sinking actions. However, modern materia medica pays less attention to the motion properties.

Therapeutic Properties of Herbs

In addition to the basic TCM qualities of herbs previously discussed, contemporary Chinese medicine classifies medicinal herbs into eighteen different groups based on their actions and medicinal uses. They are:

1. *Tonics* (Energizing and Nourishing Agents): Tonics in TCM are different in action from stimulants in Western medicine. Stimulants are chemical substances that temporarily increase functional activity of certain organs or nerves. They may be used for cardiac, respiratory, or intestinal difficulty, or to stimulate hormonal secretions. Tonics, on the other hand, are energizing, remedying, and nourishing, and are used in TCM for correcting ailments or conditions known as "deficiency" or "empty" syndromes. They are, by far, the most important and most frequently prescribed herbs. Tonics consist of four groups, known as *Qi* tonics, blood tonics, yin tonics, and yang tonics.

    - Qi *tonics,* such as ginseng, Siberian ginseng, and astragalus root (used mainly to invigorate the physiological functions of the body), are especially useful for deficiency of the Spleen-*Qi* and Lung-*Qi*. (See Chapter 5 for further information.)
    - *Blood tonics,* such as Chinese angelica root, processed rehmannia root, and white peony root, are indicated for syndromes of blood deficiency. (See Chapter 5 for further information.)
    - *Yin tonics,* such as American ginseng root, ophiopogon root, and polygonatum root, are mainly used to nourish the yin of the body. (See Chapter 6 for further information.)
    - *Yang tonics,* such as epimedium and pilose antler, are used for yang deficiency syndrome and male impotency. They are also used to reinforce the activities of the kidney yang, and to enhance the functions of the kidneys and the body's resistance to disease in general. (see Chapter 6 for further information.)

2. Qi *and blood regulation agents:* This group, which includes such herbs as aucklandia, salvia root, cnidium, and carthamas flower, activates and balances the *Qi* and blood. This group of herbs also include hemostatics. One outstanding hemostatic herb is notoginseng. (See Chapter 7 for further information.)
3. *Herbal tranquilizers and sedatives,* such as polygala root and biota seed, are used for relaxation and stress reduction. (See Chapter 8 for further information.)
4. *Herbal diaphoretics (sweating herbs),* such as ephedra and peppermint, induce perspiration. Diaphoretics are classified into Pungent-Warm and Pungent-Cold types. The Pungent-Warm diaphoretics, such as ephedra, cinnamon twig, and siler, are used to treat exterior syndromes due to affliction by Wind-Cold exopathogens. The Pun-

gent-Cold type of diaphoretics, such as peppermint, chrysanthemum, and bupleurum, are used to treat exterior syndromes due to affliction by Wind-Heat exopathogens. (See Chapter 9 for further information.)

5. *Herbal expectorants, antitussives, and antiasthmatics,* such as platycodon root, stemona root, and trichosanthes root, are indicated to resolve phlegm, relieve coughs, and soothe asthmatic attacks. (See Chapter 10 for further information.)
6. *Antirheumatism herbs,* such as pubescent angelica, notopterygium root, gastrodia, loranthus, stephania, and cynanchum root, are basically classified as Dampness-eliminating agents in most Chinese materia medica texts, and these herbs are capable of treating rheumatic pain. (See Chapter 11 for further information.)
7. *Herbs for digestion and food stagnation,* such as hawthorn berry, agastache, germinated barley, and rhubarb, treat gastrointestinal ailments, indigestion, and food stagnation. (see Chapter 12 for further information.)
8. *Purgative herbs,* such as rhubarb and hemp seed, lubricate the large intestines to induce loose stools and to relieve constipation and food stagnation. Purgative herbs exert a stronger action than laxatives, and are appropriate for acute conditions. Laxatives offer a milder lubrication that is best suited for chronic conditions or for elderly patients. (See Chapter 12 for further information.)
9. *Herbal diuretics,* such as as alisma, hoelen, and polyporus, are used to induce diuresis and eliminate internal Dampness. (See Chapter 13 for further information.)
10. *Interior warming and Cold-expelling herbs,* such as ginger and cinnamon bark, are Warm and Pungent in nature. They disperse coldness in the abdominal tract, and relieve abdominal pain, diarrhea, and other symptoms due to interior Cold. (See Chapters 9 and 12 for further information.)
11. *Anthelmintic herbs,* such as areca seed, expel parasites in the human body. (See Chapter 12 for further information.)
12. *Herbal astringents,* such as schisandra fruit, alpinia fruit, and cornus fruit, are chiefly used to arrest or reduce the loss of body fluid. (See Chapter 5 for further information.)
13. *Herbal antipyretics,* such as scute root, coptis root, and pulsatilla root, are chiefly indicated for febrile diseases with fever, dysentery, suppurative infections, and for detoxification. Standard Chinese materia medica further divides antipyretics into five subgroups in accordance with their actions and uses. Herbs such as gardenia, phragmitis, prunella spike, scute root, coptis root, and gentiana root

are antipyretics. Other antipyretics, such as lonicera stem, forsythia fruit, and pulsatilla root, are potent heat-clearing, detoxifying, and antimicrobial agents. (See Chapter 14 for further information.)

14. *Antitumor and anticancer herbs,* such as oldenlandia, lobeliae, akebia fruit, and viola are anticancer agents. Certain potent and slightly toxic antimicrobes and antipyretics include herbs capable of producing detoxifying effects and a strong tumor-cell-inhibiting effect. (See Chapter 15 for further information.)
15. *Herbs for calming the liver,* such as gastrodia tuber, uncaria stem, and powdered oyster shell, are used for disorders of liver yang, spasms and convulsions caused by an accumulation of endogenous Wind of the liver, and intense Heat in the liver. (See Chapter 8 for further information.)
16. *Resuscitating herbs,* such as musk, storax, borneol, and acorus, with their strong aromatic odors that stimulate the sense organs, are used to treat loss of consciousness and delirium due to the invasion of pathogenic Heat into the *Xinbao* (TCM pericardium). (see Chapter 8 for further information.)
17. *Herbal emetics,* such as *Pedicellus melo* and *Rhizoma veratri (Veratrum nigrum)* induce vomiting and are used for acute conditions such as food poisoning or ailments of the upper gastrointestinal tract.
18. *Herbs for external application,* which include sopheria root, lonicera, prunella spike, wild chrysanthemum flower, and pulsatilla root, are used externally. (See Chapter 14 for further information.)

DOSAGE OF HERBS

Dosage is the amount of dried herbs to be used daily in a decoction by an adult, usually based on a man's body. Dosage is directly related to the therapeutic effects and therefore should be properly determined. Since herbs are crude medicine, the dosage of these agents are not as strict as most potent chemical drugs. Chinese materia medica list herbal dosage in a broad range, from 3 to 10 g.

However, certain potent herbs, such as ginseng root or ephedra, should not exceed 3 g per day. Several very potent and potentially toxic herbs, such as *ma qian zi (Strychnos nux-vomica),* are used only in special cases. The dosage of these herbs should be less than 1 g, and they must be used only for emergency cases. The dosage of such potent herbs, such as ephedra and processed aconite, should be strictly controlled. When used in a decoction, the dosage of the crude herb can be larger than it is when used in a powder

form. Also, the dose of each herb should be smaller if it is dispensed in a recipe with other herbs of similar action.

The dosage of herbs is adjusted to suit each patient. For example, the amount of herbs prescribed for a strong adult is greater than that for a weaker adult, greater for a young adult than for an aged person or child, and greater for a man than for a woman. The dosage for a child of age six to twelve is about one half to two-thirds of an adult dose.

Potent herbs or patent medicines should not be used by pregnant women or lactating mothers, or by children below the age of three years. Smaller dosages are usually prescribed for a patient with a mild disease than for a patient with a severe disease. Patients with chronic diseases should be treated slowly by using smaller doses. Patients with acute ailments may require heavy doses in an attempt to save their lives.

Since 1979, the Chinese government has adopted the metric system for all pharmaceuticals, in place of the old traditional Chinese weight system of *fen, chian, liang,* and *jin,* for uniformity and simplicity. If you see an old prescription, the converting factors are as follows:

1 *jin* equals 500 g
1 *liang* equals 31.2 g
1 *chian* equals 3.12 g
1 *fen* equals 0.31 g

Side Effects and Safety Guidelines

Each herbal discussion in this book includes an informative section about precautions, dosage, side effects, and toxicity, however, following are some general guidelines for using herbs.

1. *Do not take herb quality and identity for granted.* Chinese herbs imported from mainland China, Hong Kong, Macao, or Taiwan are in labeled packages with pharmaceutical and Chinese names, but the quality of each herb is quite different, along with the prices. This is because the sources of the raw herb vary. Adulteration is possible, particularly among such expensive herbs as ginseng, cordyceps, and ganoderma. When in doubt about the identity, do not take the herb.
2. *Use only recommended amounts (suggested doses) for recommended periods.* When herbs have caused harm, the vast majority of cases involved people who consumed the wrong herb, huge amounts (overdose), or for extended periods.

3. *Adapt dosage for the elderly and children.* If the patient is over the age of sixty or under the age of six, the recommended daily dosage should be reduced. Many elderly people cannot tolerate, or develop increased sensitivity to, herbs or even certain foods.
4. *Avoid an improper herb-drug mix.* Be extra cautious if you take a number of different drugs, including alcohol. Never take herbs and drugs at the same time, no matter what the drug. Vitamins or other nutritional supplements are usually safe because these products do not cause dangerous interactions with most herbs.
5. *Pay attention to any adverse symptoms or toxicity.* If stomach upset, nausea, vomiting, diarrhea, headache, and/or skin rashes or itching develop within an hour after ingesting the herb or herb product, stop taking it and consult a health practitioner or take some detoxifying substances to neutralize the toxicity.
6. *Be extra careful when using herb oils.* In most aromatic herbs, essential or volatile oils are active chemical constituents, and are highly concentrated and potent. Amounts that seem small may cause serious harm. As little as one teaspoon of pennyroyal oil or clove oil, for example, can cause serious health problems, even death. If you must take an oil, take only one or two drops at a time.
7. *Be cautious when using Chinese herbal patent medicines.* The formulated pharmaceuticals of herbs are made for different ailments or symptoms. Identifying the exact name and formula of the patent products is important. Taking the wrong product may be harmful and cause adverse side effects.
8. *Pregnant and nursing women are not advised to use herbs.* Herbs that cause no harm to adults may harm the unborn and newborns.
9. *Medicinal herbs are not for children.* Do not give any herbs, dry or fresh, to very young children. Those under the age of three should not take any herbs. If absolutely necessary, only use very diluted preparations.
10. *Based on traditional* materia medica, *there are four grades of toxicity in Chinese herbs.*

    Very toxic, such as euphorbia root *(Euphorbia fischeriana)* and aconite *(Aconitum carmichaeli).*

    Toxic, such as pinellia *(Pinellia ternata),* castor oil seed *(Ricinus communis),* and euphorbia *(E. kansui).*

    Slightly toxic, such as evodia fruit *(Evodia rutaecarpa),* quisqualis *(Quisqualis indica),* peach kernel *(Prunus persica),* and ginkgo seed *(Fructus gingko biloba).*

    Nontoxic. About 95 percent of commonly used Chinese herbs are nontoxic at the recommended dose levels.

Any herb can be toxic and cause death depending on how it is used and when it is used. On the other hand, a very toxic herb can be the best medicine, if used correctly. Chinese herbs recorded as very toxic and slightly toxic are mostly anthelmintic, antipyretic, dampness clearing, antitumor, and emetic, and those used externally. One must be cautious when using them.

FACTORS THAT INFLUENCE THE EFFICACY OF HERBS

A common question often asked is, "Are Chinese herbs safe to use?" The answer is, "Yes." Experience with Chinese herbs has accumulated over four millennia. Since all herbs exported from China are properly processed, packaged, and examined by the government, herbs or herbal patent medicines are not toxic if they are used properly. Any unpleasant side effects or toxic effects may be due to an overdose, allergic reaction, an incorrect prescription, or the use of herbs of the wrong species.

To avoid potential side effects and ensure the efficacy of herbs, clinicians and patients should note the following five points:

1. *Pay attention to the age, sex, and physical condition of the patient.* As previously stated, young children and aged seniors should take only 70 to 90 percent of the regular adult dose. The bodily processes of absorption, distribution, detoxification, and elimination of the young and the old function less efficiently than that of a typical adult. Also, patients who suffer from liver or kidney ailments, or both, need smaller doses because they have difficulty detoxifying and eliminating the metabolized wastes. For similar reasons, pregnant women and lactating mothers should avoid using certain herbs, particularly strong potent herbs.
2. *Understand the nature of the ailment.* The vast majority of toxicity cases occur when the wrong herbs are consumed, when huge amounts (more than the recommended dose) are used, or the same herbs are continuously used for a long period of time. In clinical practice, avoid prescribing Cold or Cool herbs for treating cold syndromes, or Warm or Hot herbs for heat syndromes.
3. *Avoid poor quality herbs and use herbs properly.* Today, herbs or herbal patent medicines are imported from China, Taiwan, or Hong Kong. Be aware of the quality and dependability of the products before ordering or using. Poor quality herbs generate poor results or toxic effects. Also, before using any herb or patent medicine, its qual-

ity should be thoroughly understood. The herbs should be prepared properly and taken in the correct amount.

4. *Avoid food-herb or drug-herb mixing.* To avoid possible bad interactions, herbs or patent medicines should never be mixed or taken with any chemical drugs, alcoholic beverages, or beverages containing caffeine. Also, do not take cold food or drinks, or greasy and spicy foods with herbs because these foods may cause flatulence and thus block the normal digestion and absorption of the herbal medicine.
5. *Establish a good doctor-patient relationship.* A poor bedside manner, cool attitude, lack of sympathy, and unfriendly conversation from the health care professional may produce a negative effect and cause confusion or suspicion for the patient. All these may lead to a less effective or ineffective therapy.

HOW CHINESE MEDICINAL HERBS ARE USED

Herbs can be used in fresh or dry form alone or in a mixture. The traditional and most convenient way is to use the crude herb, whether a root, rhizome, bark, leaves, fruit, seed, or flowers, and cook it with water to make an herbal tea or decoction. Another method is to use it as a powder. The powdered herb can be made into pills or boluses (see Chapter 16 for more information). The third way, and also the modern way, is to use the whole herbal extract in its powdered or granular form. The powdered herbal extract can be made into tablets, capsules, or pills by a pharmaceutical manufacturer. The following are some of the most common methods of dispensing herbs.

Infusion

Infusion is the best and simplest way to obtain an herb's active ingredients. If the prescription calls for 30 g of a dried herb, steep the herb in a well-stoppered bottle, add 500 ml of hot water or water-alcohol mixture, and store the mixture for ten hours. The clear solution is used. The infusion may be sweetened with licorice, honey, or corn syrup. It should be stored in a refrigerator for no longer than ten days. If there is any sign of fermentation or spoiling, the infusion should be discarded.

If a fresh herb is used for an infusion, the amount should be two to three times more than the dried herbs. Many plant parts such as leaves, flowers, stems, bark, and roots ground up are suitable for making infusions.

Herbal Tea

Tea is another common form in which herbs are taken. Put one to two teaspoons of crushed or powdered herbs, or a mixture of herbs, in a teapot and pour hot water over the herbs. Simmer for ten to fifteen minutes, pour the tea through a sieve or strainer into a cup, and drink while hot. Of course, the tea can be sweetened to fit individual taste.

A second method of tea preparation is to seal the powdered or crushed herb, or mixture of herbs, in a paper tea bag and place the tea bag directly in a cup. Pour hot water over the bag and let it steep for five to ten minutes. The tea bag can then be thrown away and the tea taken hot or cold.

Herbal teas are not only useful as medicines or alternatives to coffee or sweetened drinks but can, in their own right, make excellent beverages. Many Chinese herbs make excellent herbal teas, which can make a delicious addition to everyday life and can open up a whole world of subtle delights and pleasures.

Decoction

Decoction, or *Tang* in Chinese medicine, is the most common form in which herbs are ingested. It is a dark-colored liquid extract made by boiling the herb or herbs with pure water in a ceramic, clay, glass, or stainless steel pot (avoid copper, aluminum, or iron pots). Herbal decoctions have the advantages of being easily absorbed and they produce quick curative effects. In addition, herbs can be adjusted each time based on the conditions of the disease. Herbal decoctions are not only used internally but also externally as lotions, enemas, and as bath solutions for skin ailments.

The following is a simplified method of preparing a decoction:

1. Transfer the herbs (the amount of each herb is based on the prescription) into a properly sized container.
2. Pour enough pure water into the pot to completely cover the herbs. The amount of water used is about three to five times the volume of the herbs. Stir and soak the herbs for about ten to fifteen minutes.
3. Place the pot over medium heat and bring to a boil. Then reduce the heat and simmer for about thirty to forty minutes. Take care not to allow the herbs to boil over and, if needed, add more water to avoid scorching.
4. Filter the herbs while they are still hot by using a strainer and a piece of cheesecloth above the strainer to make a filtrate. The filtrate is the decoction. Store the decoction in a glass container.

5. Second cooking. Add slightly less water than that in step 2 to the cooked herbs in the pot and repeat steps 3 and 4.
6. Pour the second filtrate into the same glass container as the first filtrate. Store the decoction in a refrigerator. The cooked herbs can be thrown away.

Herbal decoctions spoil easily and should not be stored in the refrigerator for longer than seven days. The decoction is usually taken warm before meals, three to four times a day, unless the practitioner gives different instructions.

Part IV of this book lists a great number of herbal recipes that are originally in the form of *Tang,* or decoctions, but most modern preparations make these as pills, tablets, or capsules.

Tincture

Tincture is an alcohol, or an alcohol-water mixture extract of herbs. An alcohol-water mixture makes a better infusion than water. Tincture is a better preparation of herbs because the alcohol is a good preservative. The following is a simple way to prepare tinctures:

1. Put 100 g of herbs in a glass container and pour about 500 ml of wine or liquor into the herbs.
2. Stopper and store in a warm place for about fourteen days.
3. Filter the herbs through a strainer to produce the filtrate.

The filtrate is a clear, potent alcoholic extract of herbs. Store the tincture in a brown bottle and keep it in a cool place. The usual dose is about one to four teaspoons.

Liquid Extract and Extract

Liquid extract is called *Liu Qin Gao* and an extract is called *Gao* in Chinese medicine. Both are concentrated and potent modern pharmaceutical herbal preparations. People unable to swallow tablets, capsules, or pills can take either a liquid extract or extract. Part IV of this book lists a number of extract *(Gao)* preparations.

Powders

Powders are called *San* in Chinese medicine. They are an herb or mixture of herbs finely ground for oral administration or external application. The

coarsely ground herbal powder is used to make infusions or decoctions. Pills of different sizes, tablets, capsules, and tea bags are prepared by using finely powdered herbs. Powdered herbs are rather stable and easy to use.

Pills or Boluses

Pills are called *Wan* in Chinese medicine. They are made in various sizes with powdered herbs, moistened with honey, water, vinegar, or wine; rice flour paste is used as a recipient or binder to make different sizes manually or by a machine. The size of a pill can be as small as a millet seed or as large as a pigeon's egg. The small-sized pill is call *Dan* and the large-sized pill is called *Wan* in Chinese medicine.

Small-sized pills are easily swallowed with water. Large-sized pills have to be chewed up or cut into small pieces before orally ingested.

In Chinese medicine, there are three types of herb pills: honey pills, water pills, and concentrated extract pills. The concentrated extract pills are modern pharmaceutical preparations that are effective and potent.

Dried Herbal Extract Granules

Dried herbal extract granules are another modern pharmaceutical herbal preparation. They are prepared in coarse granular form and easily dissolve in water to make a tea. The dried herbal extract granules can easily supersede the traditional way of dispensing crude herbs in pharmacies.

Tablets

Tablets are modern pharmaceutical preparations made of powdered herbs or dried herbal extract granules. Tablets are easy to take and have a long shelf life.

Capsules

Capsules are the easiest way to take herbs since the bitterness and other disagreeable tastes of herbs can be masked. The herbs are ground into very fine powder and poured into gelatine capsules. Today, capsules made of rice flour are available on the market. This nongelatin type of capsule is welcomed by many vegetarians.

Chapter 4

Effective Herbal Recipes and Patent Medicines

HERBAL RECIPES (FORMULAS, PRESCRIPTIONS)

In the West, doctors and herbalists typically prescribe a single drug substance. For example, herbalists prescribe goldenseal for tonic purposes, garlic pills to enhance the immune system and lower blood pressure, and so on. Chinese doctors, however, are accustomed to prescribing multiple herbs. Clinical experience shows that using a blend of several herbs in a recipe enhances the therapeutic effect because it creates a wider spectrum of actions and provides better results in treating diseases.

Herbal recipes are often referred to as *Fang, Cheng Fang,* or *Fang Ji* in Chinese medicine. An herbal recipe is written based on the diagnosis of the disease, the patient's condition, and how the disease is to be treated. A recipe (formula, prescription) is formed by properly combining various ingredients (individual herbs) with the purpose of producing desired therapeutic effects and reducing toxicity or side effects.

Traditional Chinese medicine uses many types of recipes including simple recipes, complex or compound recipes, secret recipes handed down from ancestors or from the royal palace, traditional recipes, and contemporary recipes. In general, a simple recipe is a recipe that contains only one herb and a complex recipe contains several herbal ingredients.

Based on TCM theory, a complex recipe must contain principal, assistant, adjuvant, and guiding herbs. The principal herb is used to treat the chief symptoms of the disease, while the secondary herbs or other ingredients are used to treat minor symptoms.

The recipe *Si Jun Zi Tang* (Decoction of Four Noble Herbs) provides a good example of a complex recipe. This recipe is made of one principal herb, one assistant herb, one adjuvant herb, and one guiding herb. The composition, direction, actions, indications, and explanation of the complex recipe are as follows:

Composition:

10 g ginseng (principal herb)
9 g white atractylodes (assistant herb)
9 g poria (adjuvant herb)
6 g processed licorice root (guiding herb)

Directions: All ingredients are cooked in water for a decoction for oral administration.

Actions and indications: The recipe is a Stomach-*Qi* and Spleen-*Qi* invigorating remedy and is used for treating poor appetite, watery stools, a pale complexion, lassitude of limbs, lack of energy, and a thready and weak pulse.

Explanation: Ginseng is used to invigorate the *Qi,* strengthen the spleen and stomach, and acts as the principal herb. White atractylodes is effective for strengthening the spleen and eliminating Dampness and is used as an assistant herb. Poria is used for strengthening the effect of ginseng and is an adjuvant herb. Licorice root, sweet and Warm in nature, is the guiding herb of the decoction and is used for adjusting the Middle-*Jiao* of the body and correcting the bitter taste of the decoction.

Another complex recipe, *Long Dan Xie Gan Tang* (Decoction of Gentiana Root to Purge the Liver), contains ten different herbs:

Composition:

6 g gentiana root (principal herb)
9 g scute root, processed (assistant herb)
9 g gardenia fruit (assistant herb)
12 g alisma (adjuvant herb)
9 g akebia trifolia (adjuvant herb)
9 g plantain seed (adjuvant herb)
3 g Chinese angelica (guiding herb)
9 g dried rehmannia, (guiding herb)
9 g bupleurum (guiding herb)
10 g licorice root (guiding herb)

Directions: Cook all herbs in water to make a decoction for oral administration.

Actions and indications: This recipe is used to eliminate excessive Heat from the *Gan* (TCM liver) and *Dan* (TCM gallbladder), and remove the Damp-Heat from the Lower-*Jiao*.

Explanation: Gentiana root is the principal herb. It is used to purge excessive Heat in the liver and gallbladder, and also to clear up Heat and Dampness in the intestines, thus providing the recipe's chief therapeutic ef-

fects. Scute root and gardenia fruit are assistant herbs, used together to reinforce the properties of the gentiana root and to produce a synergistic effect. Alisma, akebia trifolia, and plantain seed are adjuvant herbs and remove pathogenic Heat and induce diuresis to dispel Dampness and Heat from the body. Chinese angelica root and dried rehmannia root are guiding herbs and nourish the yin and blood so as to soothe the liver. Bupleurum is a guiding herb that soothes the liver and regulates the circulation of *Qi* in the liver and gallbladder, so as to produce a synergetic effect with other herbs in the recipe. Licorice root is a mild sweetener and detoxifier. It functions as a buffer, sweetener, and mediator, and serves as a guiding herb.

More than 80,000 recipes have been written by different physicians during the past four millennia and recorded in different formularies or medical works. For example, the recipes *Ping Wei San* (R-59), *Xiao Yao Wan* (R-41), *Xiao Huo Luo Dan* (R-51), and *Chuang Xiong Cha Tiao San* (R-49) are recorded in the famous text of *Tai Ping Hui Min He Ji Ju Fang* (Formularies of the Bureau of People's Welfare Pharmacies) (see Chapter 2 for further information).

HOW HERBAL RECIPES ARE MODIFIED

When using any of the age-old recipes, proper adjustments must be made at each patient's office visit, based on the nature and condition of the disease and changes in the patient. A new recipe is made by adding or deleting some herbs or by simply increasing or decreasing the dose of certain herbs without altering the original composition of the recipe.

Herb users must realize that when two or three herbs of similar action are combined in a complex recipe, an additive or synergistic effect can be expected. Thus, a smaller dose of each herb is required than if it were used alone. When writing a complex or compound recipe, caution must be taken to avoid possible contraindications (pharmacological) and incompatibilities (chemical) among the herbs.

How Recipes are Grouped

Recipes, similar to herbs, have different actions and uses. TCM materia medica classify recipes into the following eighteen groups:

1. *Tonic recipes:* Recipes that tone the *Qi* or blood, such as *Si Jun Zi Tang* or *Dang Gui Wan.*
2. *Tonic recipes:* Recipes that tone the yin or yang, such as *Liu Wei Di Huang Wan* or *Jin Gui Shen Qi Wan.*

3. *Diaphoretic recipes:* Recipes for the treatment of exterior symptoms, such as *Ma Huang Tang* or *Yin Qiao Jei Du Pan.*
4. *Febrifugal recipe:* Recipes that relieve Heat from the interior of the body, such as *Long Dan Xie Gan Tang.*
5. Qi-*regulating recipe:* Such as *Si Ni San* or *Gua Lou Xi Bai Ban Xia Tang.*
6. *Blood-regulating recipe:* Such as *Xue Fu Zhu Yu Tang.*
7. *Recipes that expel Wind:* Such as *Tain Ma Gou Teng Yin* or *Chuan Xiong Cha Tiao San.*
8. *Recipes that expel Wind-Dampness:* Such as *Du Huo Ji Sheng Tang*.
9. *Desiccating recipes:* Recipes that relieve internal Dampness, such as *Huo Xiang Zheng Qi Wan* or *Yin Chen Hao Tang.*
10. *Recipes that calm the mind:* Such as *Suan Zao Ren Tang.*
11. *Mediation recipes:* Such as *Xiao Che Hu Tang* or *Xiao Yao Wan.*
12. *Purgative recipes:* Such as *Da Cheng Qi Tang.*
13. *Recipes that reduce food stagnation:* Such as *Bao He Wan.*
14. *Recipes that expel phlegm and relieve asthma:* Such as *Xiao Qing Long Tang.*
15. *Astringent recipes:* Such as *Si Shen Wan.*
16. *Interior warming recipes:* Such as *Li Zhong Tang.*
17. *Recipes that expel parasites:* Such as *Mu Xiang Beng Lang Wan.*
18. *Recipes that treat carbuncles:* Such as *Da Huang Mu Dan Tang.*

The actions and medicinal uses of recipes are discussed in detail in Part IV of this book.

PATENT MEDICINES AND MODERN PHARMACEUTICAL HERBAL PREPARATIONS

Today, herbal pharmaceutical factories in China make many excellent herbal recipes into over-the-counter patent medicines in different forms such as pills, boluses, tablets, granules, powders, capsules, oral liquid solutions, tinctures, suppositories, plasters, and injections.

The majority of people in China routinely use patent medicines to combat minor ailments such as flu, the common cold, insomnia, constipation, diarrhea, stomach pain, cough, minor headaches, and arthritis pains. Patent medicines have the advantage of being safe, effective, economical, and easily accessible to patients. In Chinese hospitals, it is common for 200 to 300 popular herbal patent medicines to be stocked on the shelves of the hospital pharmacy.

The manufacture of any new herbal patent medicine in China must be approved by the national or provincial health authority. Any newly developed formulated product must initially be tested in the laboratory and then pass clinical trials in the hospital to guarantee that the formulation is safe and effective.

More than 1,000 herbal patent medicines are available on the market. Products manufactured by established pharmaceutical plants in China or elsewhere are dependable and safe, assuming the products are made according to good manufacturing practices procedures.

QUALITY CONTROL AND GOOD MANUFACTURING PRACTICES (GMP) OF HERBAL PRODUCTS

The U.S. Food and Drug Administration and similar agencies in Canada, Australia, and China are committed to ensuring that all health care products available to consumers are safe and effective, and that they are accurately and truthfully labeled so that consumers can make intelligent, informed decisions concerning the product. Good manufacturing practices (GMP), started in the United States, are established procedures to guarantee that a manufacturer's products, such as food or drugs, are safe and effective.

In the authors' opinion, the same GMP procedures for manufacturing drugs should also be applied to nutritional supplements, including herbs, botanicals, and herbal patent medicines. Currently, however, there are no GMP regulations specifically for nutritional supplements in the United States or elsewhere. Regulations to ensure the quality and safety of herbal or food products should cover raw materials, processing and quality control methods, equipment used, environmental conditions in the plant, sanitary practices of employees, record keeping, and the technical qualifications of certain key employees.

Also, at the present time, the analytical methodology needed to ensure quality control (the quality assurance) of crude herbs, herbal preparations, and patent medicines does not seem to exist. Such testing procedures must be developed soon. Research and studies should be performed as soon as possible by herbal factories, universities, and government agencies in China and elsewhere to establish proper quality control procedures of herbs and herbal medicinal products.

Chinese Herbs and Patent Medicines As Nutritional Supplements in the United States

Under current U.S. federal law, the Dietary Supplement Health and Education Act (DSHEA) of 1994 (P.L.-103-417), Chinese herbs and herbal patent medicines, similar to other herbs, are classified as nutritional supplements, not drugs. Therefore, unless serious toxicity of a product is discovered, these herbs and patent medicines are not under FDA control and can be purchased at herb shops, herbal pharmacies, or from importers. Health care practitioners must make certain that they know the ingredients, actions, indications, uses, and dose of the patent medicines they wish to use before these products are prescribed or sold to patients.

WHERE TO BUY CHINESE HERBS AND PATENT MEDICINES

Today, it is easy to obtain Chinese herbs and herbal patent medicines in the United States, Canada, or any large European city. This is also true in Hong Kong, Macau, Taiwan, Thailand, Vietnam, Singapore, Japan, Korea, New Zealand, and Australia. The easiest place to shop is in the herbal pharmacies or with herbal importers in the "Chinatown" area of any large city. For the convenience of readers, a list of established Chinese herb importers and wholesalers or manufacturers, with their names, addresses, and phone numbers, is provided in Appendix A of this book.

PART III: THE HEALING POWERS OF MEDICINAL HERBS, PAST AND PRESENT

Chapter 5

Miraculous Tonic Herbs: Strengthening the First Line of Defense and Fortifying the Immune System

Based on the concept of TCM, the human body's balanced and healthy system must keep both biological material and function in adequacy and balance. Any shortage or imbalance in either substance or function causes a condition known as "deficiency" (for example, deficiency in bioenergy or in blood and other body liquids). Functional deficiency includes all bodily functions:

1. nervous system,
2. endocrine system,
3. immune system,
4. cardiovascular system,
5. blood-generating system, and
6. metabolic system.

The symptoms or conditions of deficiency are quite common etiology in Chinese medicine. Tonic herbs are defined as medicinal substances used to treat or prevent deficiency in the body (Dong et al., 1998).

The term "tonic," as used by TCM, is not familiar to Western medicine. Tonic medicines are not stimulants in the biological and pharmacological sense. Tonics or tonic herbs are a special class of nourishing medicinal herbs used primarily for restoring strength, invigorating the functions of organs, and keeping the body in balance. Tonics are activators or nourishing agents for deficient or debilitated organs, and strengthen the body's resistance to disease.

For example, lack of appetite, constant diarrhea, feeling bloated after eating, a pale face, and a feeling of constant tiredness are caused by spleen deficiency. Vertigo, dizziness, or restlessness are likely due to deficiency of the liver. A cough, shortness of breath, spontaneous sweating, and general weakness or feeling tired all the time may be due to a deficiency or insuffi-

ciency of bioenergy *Qi*. Medicinal herbs that replenish the vital energy are called bioenergy modulators, bioenergetics, or *Qi* tonics.

The term "deficiency" used in Western medicine describes deficiency of a substance essential in body metabolism, such as vitamin C deficiency. However, in TCM, it means more than just inadequacy in substance—it also means deficient activity of certain organs of the body. The second group of medicinal herbs are those that promote the function of the body system. This group of medicinal herbs may enforce blood circulation, promote blood regeneration, disperse stagnation of blood, or activate the metabolism of blood constituents. These herbs are called blood activators or blood tonics. The medicinal herbs covered in this section are *Qi* and blood tonic herbs (Zhou, 1991).

Deficiency and weakened immunity go hand in hand. In Western medicine, the immune system can be compared to a defending army, constantly on the alert for viruses, bacteria, fungi, cancers, and other attackers. White blood cells are the main defenders in this system and are greatly assisted by the lymph nodes. Also important in the battle are bone marrow, the skin, and the epithelial linings of internal organs. However, if there is a deficiency in *Qi* or blood or a malfunction of any of these defenders, the immune system is weakened.

Professor Jinhuang Zhou in Beijing spent more than forty years studying and researching the immunopharmacology and health benefits of tonic herbs. For example, the polysaccharides of astragalus root *(Astragalus membranaceus)* are capable of remarkable activities not only on the immune system but also on the reproductive system, the central nervous system, the liver detoxification function, and even directly and indirectly on the inhibition of the growth of tumors (Zhou and Xing, 1994).

The defense system or immunity of the body may become weakened or completely lost once *Qi* becomes deficient, especially the Lung-*Qi* and the Spleen-*Qi*. Clinically observed symptoms such as shortness of breath, breathlessness after movement, a disinclination to talk, spontaneous sweating or cold sweats, lassitude, and weariness are due to deficiency of the Lung-*Qi*.

Symptoms of fatigue, lack of vitality, lassitude, edema, spontaneous sweating, loose bowel movements, poor appetite, hernias, and prolapse of the uterus or rectum are likely due to deficiency of Spleen-*Qi*.

Deficiency of *Qi* is quite common in the elderly, particularly males, and people who are overweight, cancer patients, and those who are recovering from surgery or suffering a long illness (Long, 1998).

A deficiency of blood is by no means less important than deficiencies of *Qi*. For example, a sallow complexion; paleness of the lips, tongue, and nails; dizziness; blurred vision; palpitations; delayed menstrual cycle with

scanty, pale menstrual blood; or amenorrhea are common symptoms of blood deficiency. The heart, liver, and spleen are the organs most often affected by blood deficiency disorders.

Tonic herbs are generally prescribed for correcting or strengthening a deficiency in the body. From a biomedical perspective, tonic herbs function as guards of the body, regulate the autonomic nervous system, and keep the body in balance.

In addition to *Qi* deficiency and blood deficiency, yin deficiency or yang deficiency can occur. Yin and yang are complementary in composition and function; they are the inseparable parts of one unit, whether an organ or the human body. The balance of yin and yang in a system maintains the normal functioning of the system. An excess of one means a corresponding deficiency in the other. In other words, yin deficiency leads to excess or hyperactivity of yang, and vice versa (Dong et al., 1998; Zhu, 1998) (see Chapter 1).

Because the *Qi,* the blood, the yin, and the yang in the human body are interdependent, deficiency of *Qi* is often accompanied by deficiency of yang. Deficiency of yang is most likely to develop or lead to deficiency of *Qi*. Similarly, deficiency of yin is usually accompanied by deficiency of blood, and deficiency of blood is likely to cause deficiency of yin. (For further information on deficiency of yin and yang, see Chapter 6.) That is why in clinical practice, *Qi* and yang tonics are often prescribed together for better efficacy, as are blood and yin tonics. Similarly, in cases of both blood and *Qi* deficiency, or yin and yang deficiency, both types of tonics are prescribed.

This chapter covers the common symptoms caused by deficiency of *Qi* and blood, and commonly used *Qi* and blood tonic herbs. Chapter 6 covers the symptoms caused by yin or yang deficiency and the tonic herbs commonly prescribed.

Table 5.1 lists the symptoms of deficiency of *Qi* and blood, and commonly used tonic herbal remedies.

Table 5.2 describes the differences and similarities of actions of frequently used *Qi* and blood tonic herbs.

Commonly used herbs for deficiency of *Qi* are ginseng root, Siberian ginseng *(wu jia shen)* codonopsis root, astragalus root, white atractylodes rhizome, Chinese yam, licorice root, schisandra fruit, American ginseng root, pseudostellaria root, and jujube.

Frequently used herbs for deficiency of blood are Chinese angelica root, processed rehmannia root, white peony root, polygonum *(he shou wu),* longan aril, jujube, and donkey-hide gelatin.

The twelve most important tonic herbs for *Qi* deficiency or blood deficiency are introduced and further discussed on the following pages.

TABLE 5.1. Symptoms of Deficiency of *Qi* and Blood, and Tonic Herbal Remedies

Etiology	Symptoms	Tonic Herbs and Patent Medicines
Deficiency of Spleen-*Qi*	Anorexia, loose stool, gastrointestinal distension, lack of vitality, lassitude, prolapse of stomach, or rectum	Herbs ginseng root, Siberian ginseng, *wu jia shen (ci wu jia),* codonopsis root, astragalus root, white atractylodes, Chinese yam, schisandra fruit, licorice root, pseudostellaria root, jujube Patent Medicine *Bu Zhong Yi Qi Tang, Gui Pi Tang, Huang Qi Tang, Li Zhong Tang (Wan), Liu Jun Zi Tang, Ren Shen Hu Tao Tang, Si Jun Zi Tang*
Deficiency of Lung-*Qi*	Shortness of breath, disinclination to talk, breathlessness, asthenia, spontaneous sweating	
Deficiency of Heart-*Qi* and Spleen-*Qi*	Irritability, insomnia, dreaminess, palpitations, listlessness, lassitude, spontaneous sweating	
Deficiency of Lung-*Qi* and Spleen-*Qi*	General debility, poor appetite, diarrhea, weakened immune system, and prolapse of anus, rectum, uterus, or viscera	
Deficiency of Spleen-*Qi* and Stomach-*Qi*	Abdominal distention, poor appetite, loose stool, epigastric and abdominal distention, lassitude, asthenia	
Deficiency of blood	Sallow complexion, poor memory, drowsiness, blurred vision, withered hair, insomnia, palpitations, irregular menstruation, delayed menstrual cycle, menorrhagia, scanty or pale menstrual flow, amenorrhea, metrorrhagia, menopause, and pale lips, tongue, and nails	Herbs Chinese angelica root, processed rehmannia root, white peony root, longan aril, donkey-hide gelatin Patent Medicines *Dang Gui Bu Xue Tang, Dang Gui Wan, Gui Pi Tang, Qi Bao Mei Ran Dan, Si Wu Tang.*

TABLE 5.2. The Actions of *Qi*-Blood Tonic Herbs

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Ginseng root *(ren shen)*	3-9	Replenishes primordial *Qi,* restores collapse, invigorates the lungs and spleen, tranquilizes the mind.	*Qi* tonic, invigorates spleen and kidney, replenishes *Qi,* treats *Qi* deficiency and blood-deficiency syndromes
Siberian ginseng *(ci wu jia)*	9-30	Expels wind and dampness, relieves arthralgia, improves immunity, antistress	
Codonopsis *(dang shen)*	10-15	Invigorates the spleen, stomach and lungs, promotes the production of body fluid, nourishes blood	
Astragalus root *(huang qi)*	10-15	Strengthens the superficial resistance, promotes tissue regeneration, diuresis, improves immunity	
Chinese yam *(shan yao*)	10-30	Promotes the production of body fluid, strengthens the kidney, benefits the lungs, reinforces the spleen	
Schisandra fruit (*wu wei zi)*	10-30	Benefits *Qi,* promotes body fluid, relieves symptoms of diabetes, invigorates kidney and spleen, has astringent effect	
Chinese angelica *(dang gui)*	6-15	Replenishes the vital essence and marrow, promotes circulation, regulates blood and menstruation	Nourishes blood, invigorates blood, promotes circulation, treats blood-deficiency syndrome
Processed Rehmannia root, *(shu di)*	9-15	Replenishes blood, regulates menstruation, nourishes kidney yin, hypoglycemic	
White peony *(bai shao)*	6-12	Regulates menstruation, stops sweating, soothes liver-*Qi* and stops pain	
Polygonum (*he shou wu*)	9-15	Replenishes the vital essence and blood, and treats sores, swellings, and scrofula	

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

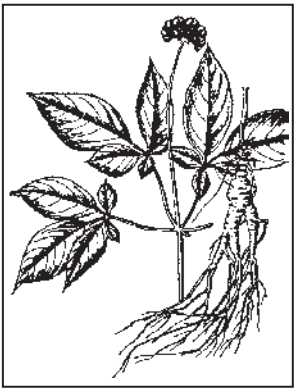
Long, Z. X. (Ed.) (1998). *Basic Theories of Traditional Chinese Medicine*. Beijing: Academy Press.

Zhou, J. (1991). Immunopharmacological activities of yin and yang biomodulatory drugs. In Zhou, J. H. and Liu, G. Z (Eds.), *Recent Advances in Chinese Herbal Drugs* (pp. 126-132). Beijing: Science Press.

Zhou, J. and Xing, S. T. (1994). *Zhongyao Mianyi Yaoli Xue* [Immunopharmacology of Chinese Medicinal Herbs]. Beijing: People's Military Medicine Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

GINSENG
Radix ginseng
Ren shen



Several varieties of ginseng exist in the world, the best known is *Panax ginseng* of the family Araliaceae. It grows mostly in the mountainous forests of the Jilin, Liaoning, and Heilongjian provinces of China. *Panax ginseng* is also distributed in northern Korea and the Eastern Maritime area of Siberia. Garden-cultivated ginseng is called garden ginseng, and the wild variety is known as mountain ginseng. Today, most ginseng is cultivated. It is harvested in autumn and the root is washed clean after the removal of the lateral roots and rootlets. It is dried in the sun or roasted and is then called "sun-dried" or "white ginseng." After steam cooking, dried ginseng turns a red-brown color and is known as "red ginseng." When soaked in syrup, it is known as "sugar-processed ginseng." The sliced root is a powerful *Qi* tonic and antiaging medicinal herb (Dong et al., 1998).

Medicinally, according to *Ben Cao Gang Mu* (Wilson and Stuart, 1973), ginseng, to the Chinese, is the medicine *par excellance,* the *dernier ressort* (last resort) when all other drugs fail; it was reserved for the Emperor, his household, and the nobles. The Chinese claim ginseng to be

> a tonic of the five viscera, quieting the animal spirits, establishing the soul, allaying fear, expelling evil effluvia, brightening the eyes, opening up the heart, benefitting the understanding, and, if taken for some time, it will invigorate the body and prolong life.

Traditionally, ginseng root has been more valuable than all other herbs, and is used as a tonic, carminative, demulcent, and stomachic remedy. It is also used to treat all forms of debility, the persistent vomiting of pregnant women, chronic malaria, continued fever, exhausting discharges, old coughs, polyuria, impotence, and spermatorrhea (Wilson and Stuart, 1973).

TCM Properties

Sweet and slightly bitter in taste, and neutral, it acts on the spleen, heart, and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates *Qi* and augments the body's Essence: Ginseng is the best remedy for deficiency of Lung-*Qi,* which manifests as shortness of breath, listlessness, cold limbs, profuse sweating, a weak pulse, and in severe cases, shock.

   - It can be used alone, as in *Du Shen Tang* (ginseng decoction).
   - It can be combined with processed aconite, as in *Shen Fu Tang* (R-1)* (Dong et al., 1998; Wang, 1994).

2. Strengthens the spleen and stomach functions:

   - To treat listlessness, anorexia, fullness of abdomen, diarrhea, or prolapse of the stomach or uterus, ginseng is combined with white atractylodes *(bai zhu),* poria *(fu ling),* and stir-baked licorice root, as in *Si Jun Zi Tang* (R-2) (Wang, 1994).
   - For *Qi* deficiency of the middle *Jiao* (gastrointestinal cavity), as manifested by chronic diarrhea, or prolapse of the anus or uterus, it is used with astragalus root, bupleurum root *(chai hu),* and white atractylodes *(bai zhu)* (Wang, 1994).
   - For tiredness, poor appetite, palpitations, mental fatigue, and spontaneous perspiration, ginseng is blended with orange peel, astragalus root, processed rehmannia, Chinese angelica, white peony root, cinnamon bark, schisandra fruit, and polygala root, as in *Ren Shen Yang Rong Tang (Wan)* (R-3) (Dong et al., 1998).

3. Strengthens functions of the lungs and augments the *Qi:*

   - To treat shortness of breath, asthma, spontaneous sweating, wheezing, and labored breathing with exertion, ginseng is prescribed with walnut kernel, schisandra fruit, and gecko *(ge jie),* as in *Ren Shen Hu Tao Tang.*
   - To augment *Qi* and invigorate the functions of the spleen, ginseng is dispensed with schisandra fruit, royal jelly, and honey, as in *Ren Shen Feng Wang Jiang* (R-4), to nourish the human body, and to treat malnutrition and rheumatic arthritis.

4. Improves diabetes, polyuria, thirst disorders, and supplements *Qi,* nourishing the yin and producing body fluid: Ginseng is often used

*Denotes recipe number in book.

with ophiopogon root *(mai men dong)* and schisandra fruit, as in *Sheng Mai San* (R-5).

5. Strengthens the Heart-*Qi* and Spleen-*Qi,* and calms the Spirit: For irritability, insomnia, dreaminess, palpitations, listlessness and lassitude, ginseng is combined with Chinese angelica *(dang gui),* zizyphus, astragalus root, licorice root, and longan aril, as in *Gui Pi Tang* (R-6).
6. Invigorates kidney yang: For male sexual disorders, such as impotence, premature ejaculation, and spermatorrhea, ginseng is commonly dispensed with other *Qi* tonic and yang tonic herbs, such as astragalus, epimedium, and deer antler *(lu rong)*.

Dosage

In a decoction, 3 to 9 g per day. A lower dose (1 to 3 g) is used with the powdered form or when used in combination with other *Qi* or Yang tonic herbs (Wang, 1994).

Precautions

Combining ginseng with the following drugs, herbs, or food may produce unwanted side effects (Fetrow and Avila, 1999):

1. Veratrum root is incompatible with ginseng root.
2. Any drug that is a heart stimulant or a sedative.
3. Blood thinner, such as warfarin.
4. Hot foods, tea, coffee, and turnips are to be avoided when taking ginseng.

Side Effects and Toxicity

Under normal conditions, ginseng produces few side effects. Ginseng should *not* be prescribed for those who are not *Qi* or yang deficient, or those with excess Fire. Long-term use of ginseng (more than four weeks) or an overdose may cause side effects, such as headaches, insomnia, high blood pressure, palpitations, and skin eruptions. These symptoms will slowly disappear after one stops taking the herb (Dong et al., 1998).

People who consume 3 percent of ginseng root tincture, up to 100 ml, showed slight irritation and excitation. When the dose was increased up to 200 ml, urticaria, headaches, dizziness, hemorrhaging, and insomnia resulted (Dong et al., 1998). The LD_{50} of powdered ginseng in mice by oral administration was 5g/kg (Huang, 1993).

Modern Research Findings and Uses

Chemical Constituents

Ginseng leaves and stems contain about 5 to 15 percent of ginseng saponins, in comparison to the main root which contains about 2 to 15 percent total saponins and 0.05 percent volatile oil. *Panax ginseng* contains panaquilon and ginseng saponin glycosides. The various isolated chemicals found in ginseng, so far identified, can be classified into nine groups:

1. ginseng saponins (panaxadiol type and panaxatriol type panaxosides): Rx (x = o, a, b, b_2, c, d, e, f, g-1, g-2, g-3, and h) (Hou, 1978; Sibada et al., 1965, 1966; Tang and Eisenbrand, 1992);
2. ginseng oil and phytosterol (stigma sterol);
3. sugars and carbohydrates (glucose, fructose, maltose, sucrose, and other polysugars);
4. organic acids (citric, fumaric, ketoglutaric, oleic, linolenic, maleic, malic, and so on);
5. nonprotein nitrogenous substances (such as choline);
6. amino acids and peptides (essential and nonessential);
7. vitamins (B-complex, biotin, niacin, niacinamide, pantothenic acid);
8. minerals and trace elements (Al, Mg, K, P, Si, S, Mn, Ca, Na, Zn, Mo, B, Fe, V, Cu, Co, and As); and
9. unknown enzymes (Hou, 1978; Sibada et al., 1965, 1966; Tang and Eisenbrand, 1992).

Saponins can be divided into two classes: the protopanaxatriol class and the protopanaxadiol class. Saponins have particular chemical properties and their most notable characteristics are:

1. ability to form colloidal solutions in water that foam upon shaking;
2. a bitter taste;
3. sternutatory and irritating properties to the mucous membrane; and
4. hemolytic action against red blood cells (Hou, 1978).

Pharmacological Findings

1. Ginseng regulates the central nervous system and stimulates it at a lower dose and can be a sedative at higher doses. Ginseng improves the activity and performance of the brain, reduces fatigue (Wang, 1994), and improves stamina (Dong et al., 1998).
2. Ginseng has protective effects and invigorates adaptogenic activity; it is a powerful "adaptogenic herb." The adaptogenic concept was introduced by the Russian scientist, I. I. Brekhman, who defined adaptogens as innocuous or harmless herbs that exhibit an ability to increase resistance to a wide range of adverse or harmful chemical, physical, environmental, and biological influences and normalize the pathological state (Brekhman and Dardymov, 1969).
3. Action on the endocrine system:

    - Excitatory action on the pituitary-adrenal cortex system increases the function of the adrenal cortex system, immunity response, and resistance to disease. Ginsenosides react directly with the hypothalamus or the hypophysis (pituitary) to secrete adrenocorticotropic hormone (ACTH), which stimulates the adrenal cortex (Zhu, 1998).
    - Stimulates the pituitary gland and produces more sex hormones (Zhu, 1998).
    - Increases the activities of the thyroid gland (Dong et al., 1998).

4. Action on the cardiac and circulatory system (Dong et al., 1998; Zhu, 1998):

    - Cardiac tonic effect is similar to cardiac glycoside. A small dose can increase cardiac muscle tone but a large dose is inhibitive.
    - Stimulates the production of red and white blood cells.
    - Hypertensive effect with small dose but hypotensive effect with large dose, due to either the constriction or dilation of capillary blood vessels at different doses.

5. Effect on metabolism:

    - Invigorates the activities of the digestive system and increases appetite.
    - Reduces blood sugar as it increases the secretion of insulin.
    - Regulates the metabolism of cholesterol and prevents the development of arteriosclerosis (Zhu, 1998).

6. Immunity stimulation (Zhu, 1998):

   - Increases the immunity response of the body and stimulates the production of immunoglobulins.
   - Stimulates the production of white blood cells and lymphocytes, and promotes the transformation of lymphoblast.
   - Increases the reticuloendothelial system and increases immunity.

7. Antiaging: studies show that the alcohol extract called "maltol" from red ginseng root demonstrates an antiaging effect on rats (Dong et al., 1998; Hou, 1978).
8. Anabolic (growth promotion) (Dong et al., 1998)
9. Antiallergic (Dong et al., 1998)
10. Antitumor and anticarcinogenic activity (Dong et al., 1998)
11. Effect on hematopoietic function: Ginseng extract showed protective and stimulative actions on the hematopoietic function of the bone marrow, increasing the amount of white and red blood cells, and hemoglobin in normal and anemic animals (Zhu, 1998).
12. Increases sexual functions and gonadotrophic effect (Dong et al., 1998).

Clinical Findings

1. Helps in treating shock, cardiac failure, low blood pressure, hyperlipemia, and neurasthenia
2. Good for treating anemia, fatigue, debility, and poor appetite
3. Relieves menopausal symptoms
4. Beneficial for patients with deficient *Qi* and vital essence
5. For stomach cancer and colon cancer, ginseng helps during chemotherapy and improves immunity
6. Ginseng regulates gonadotrophic hormones to relieve sexual debility and menopausal symptoms (Dong et al., 1998; Hou, 1978).

Clinical findings in Germany are as follows: In patients using ginseng powder 400 to 1200 mg/day and extract preparation in doses of 200 to 600 mg/day, in thirteen of the studies (1,572 cases), improvements in mood were reported. Physical performance improved in seventeen studies (846 cases). Improved intellectual performance was reported in eleven studies and improvement in various metabolic parameters were noted in 10 studies (Schulz, Hansel, and Tyler, 2001).

All the studies emphasized the absence or near absence of side effects from ginseng therapy (Schulz, Hansel, and Tyler, 2001; Sonnenborn and Propper, 1990).

REFERENCES

Brekhman, I. I. and Dardymov, I. V. (1969). *Annual Review of Pharmacology* 9: 419-430.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Fetrow, C. W. and Avila, J. R. (1999). *Herbal Medicine*. Springhouse, PA: Springhouse.

Hou, J. P. (1978). *The Myth and Truth About Ginseng*. South Brunswick, NJ: A. S. Barnes and Co.

Huang, K. C. (1993). *The Pharmacology of Chinese Herbs*. Boca Raton, FL: CRC Press.

Schulz, V., Hansel, R., and Tyler, V. (2001). *Rational Phytotherapy*. Heidelberg, Germany: Springer-Verlag.

Sibada, S., Tanaka, O., Ando, T., Sodo, M., Tsushima, S., and Ohsawa, T. (1966). Chemical studies on the oriental plant drugs XIV. Protopanaxadiol, a genuine sapogenin of ginseng saponins. *Chemical and Pharmaceutical Bulletin* 14: 595-600.

Sibada, S., Tanaka, O., Soma, K., Iida, Y., and Nakamura, H. (1965). Studies on saponins and sapogenins of ginseng. The structure of panaxatriol. *Tetrahedron Letters:* 207-213.

Tang, W. and Eisenbrand, G. (1992). *Chinese Drugs and Plant Origin*. Heidelberg, Germany: Springer-Verlag.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wilson, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SIBERIAN GINSENG

Radix Acanthopanax senticosus
Wu jia shen *or* Ci wu jia

This herb is the dried root and rhizome of *Acanthopanax senticosus* of the family Araliaceae. It grows in abundance in northeastern China, particularly in the Heilongjiang province, as well as Inner Mongolia, North Korea, and Siberia. The varieties of Siberian ginseng *Eleutherococcus henry* and *E. senticosus,* are known to most Westerners. The Chinese variety of Siberian ginseng, or *wu jia shen,* is not well known; it is a tonic herb for *Qi* and an effective antifatigue herb. It is also recommended for rheumatism, bone or tendon pain, general debility, and weakened immunity. Siberian ginseng is an adaptogenic and an effective, antiaging medicinal herb (Hou, 1978; Jiang Su New Medical College, 1977).

TCM Properties

Acrid and slightly bitter in taste, it acts on the spleen, kidney, and heart meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates *Qi* and nourishes the spleen; it is used for weakness, fatigue, lassitude, anorexia, insomnia, sleep with dreams, forgetfulness, and palpitations as a result of weakness of the spleen and *Qi* deficiency. Siberian ginseng can be used alone in a decoction, in a tincture, in an extract such as *Wu Jia Shen Gao* (R-7), or in combination with schisandra fruit and other tonic herbs (Wang, 1994).
2. Nourishes the kidneys and tranquilizes the Spirit: for male sexual disorders, impotence, spermatorrhea, and aches and pains in the loins and knees due to kidney deficiency, or mental disturbance, Siberian ginseng is prescribed with processed rehmannia root, eucommia bark, dodder seed, and rosa cherokee fruit (Wang, 1994).
3. Expels pathogenic Wind and eliminates Dampness: to treat arthritis, rheumatic arthralgia, and numbness of limbs, Siberian ginseng can be used alone in a decoction or in combination with millettia *(ji xue teng),* dried (chaenomeles) papaya fruit, and clematis root *(wei ling xian)* (Wang, 1994).

4. Strengthens the immune system and improves resistance: to treat white blood cell loss in cancer patients caused by the side effects of chemotherapy, or intoxication of noxious chemicals (such as pyridoxine or benzene fumes), Siberian ginseng extract, or *Wu Jia Shen Gao* (R-7), can be used to strengthen immunity, and boost detoxification (Wang, 1994).

Dosage

In a decoction of 9 to 30 g, or 0.5 g powdered extract.

Precautions

People who are yin deficient or yang hyperactive should use *ci wu jia* with care.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic doses in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Wu jia shen contains six glycosides, including beta-*sitostinol,* eluetherosides A, B, C, D, E, F, secamin, ethyl-beta-d-galactoside, and isofraxidin (Jiang Su New Medical College, 1977).

Pharmacological Findings

1. Adaptogenic effect: Siberian ginseng, or *wu jia shen (ci wu jia),* has even stronger adaptogenic activity than *Panax ginseng.* An adaptogen is a substance that causes "a state of nonspecific increased resistance" (SNIR) to adverse stresses of various origin (Brekhman and Dardymov, 1969). An effective adaptogen must (1) be innocuous and safe, (2) have antistress activity, and (3) possess normalizing and protective properties. According to published results, ginseng, Siberian ginseng, and Chinese schisandra fruits meet all the fundamental requirements necessary to be classified as adaptogens (Brekhman and Dardymov, 1969).

2. Antifatigue and antistress properties in Siberian ginseng are stronger than in *Panax ginseng*. Also, a noticeable sedative effect on the central nervous system may occur (Wang, 1994).
3. Regulates endocrine secretions, adrenal cortex, and blood sugar levels (Wang, 1994).
4. Increases the immune activity of the body, and it has a protective effect against radiation and toxic chemicals that cause loss of white blood cells.
5. Stimulates adrenal and sex hormone production, and is gonadotrophic (Wang, 1994).
6. The German Commission E, on the basis of studies conducted concluded that eleutherosides were an effective tonic (Robbers and Tyler, 1999).
7. Analgesic and anti-inflammatory (Dong et al., 1998).
8. Detoxificant (Dong et al., 1998).

Clinical Findings

Wu jia shen is a sedative and is able to help patients suffering from sleep difficulties. The root is used to treat a wide spectrum of ailments in the nervous, cardiovascular, and endocrine systems. It helps adjust blood sugar levels, and is used to treat sexual debility (Brekhman and Dardymov, 1969; Dong et al., 1998).

REFERENCES

Brekhman, I. I. and Dardymov, I. V. (1969). *Annual Review of Pharmacology* 9: 419-430.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Hou, J. P. (1978). *The Myth and Truth About Ginseng*. South Brunswick, N J: A. S. Barnes and Co.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Robbers, J. E. and Tyler, V. (1999). *Tyler's Herbs of Choice*. Binghamton, NY: The Haworth Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

ASTRAGALUS ROOT

Radix Astragali
Huang qi

This herb is the dried root of *Astragalus membranaceus* (Fisch.) Bge. or *A. membranaceus* (Fisch) Bge. var mongholicus (Bge.) Hsiao of the family Leguminosae. It is grown primarily in the Gansu, Heilongjiang, and Shanxi provinces, and Inner Mongolia of China. The four- to five-year-old root of the plant is dug up in spring or autumn, cleaned, sliced, dried in the sun, and used unprocessed or stir baked with honey (Dong et al., 1998).

Astragalus is part of the superior class of herbs and, similar to ginseng and licorice root, has been widely prescribed. It is highly regarded as a tonic, pectoral, and diuretic medicine. Traditionally, the herb was used for every sort of wasting or exhausting disease (Smith and Stuart, 1973). Today, the root is used to invigorate vital energy, *Qi,* especially for deficiency of Lung-*Qi* and Spleen-*Qi*. It helps dispel pus and accelerate the healing of wounds. Astragalus root is a powerful tonic, immunity booster, and anti-aging medicinal herb.

TCM Properties

Sweet in taste and warm, it acts on the spleen and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates the vital energy, *Qi,* and replenishes physical power:

   - For general debility, weakness and lassitude, spontaneous perspiration, night sweating, and prolapse of the uterus or anus, astragalus is used with ginseng, as in *Shen Qi Gao* (R-7).
   - For metrorrhagia, metrostaxis, and other conditions due to deficiency of *Qi* and blood, and weakness of the spleen and the heart, astragalus root is dispensed with Chinese angelica root, ginseng, poria, white atractylodes root, and longan aril, as in *Gui Pi Tang* (R-6).
   - For Spleen-*Qi* deficiency, poor appetite, loose stools, or chronic diarrhea, astragalus root is combined with white atractylodes rhizome *(bai zhu)*.

- For general debility, lassitude, sinking or weakened Middle-*Jiao,* characterized by visceroptosis, hysteroptosis, and proctoptosis after a long period of diarrhea, astragalus root is prescribed with ginseng, white atractylodes rhizome, cimicifugae rhizome *(sheng ma),* and bupleurum root *(chai hu),* as in *Bu Zhong Yi Qi Tang* (R-9) (Wang, 1994).

2. Strengthens the immune system: for respiratory ailments, profuse sweating, night sweats, and susceptibility to the common cold due to general weakness and deficiency of Lung-*Qi,* astragalus root is blended with white atractylodes rhizome and siler (ledebouriella) root, as in *Yu Ping Feng San* (R-10) (Dong et al., 1998; Wang, 1994).
3. Strengthens *Qi* and warms up Middle-*Jiao:* to treat digestive tract ulcers, stomach distention, duodenal ulcers, fullness, and pain, astragalus is mixed with white peony, cinnamon twig, dry ginger, licorice root, and jujube, as in *Huang Qi Jian Zhong Tang*.
4. Treats metabolism disorders and diabetes: astragalus is used with dried rehmannia root, ophiopogon root *(mai dong),* trichosanthes root *(tien hua fen),* Chinese yam, black plum, and pueraria root *(ge gen),* as in *Yu Quan Wan* (R-12) (Wang, 1994).
5. Invigorates the circulation of *Qi* and blood:

   - To treat numbness of extremities caused by a deficiency of *Qi* and poor circulation, astragalus is prescribed with cinnamon twig, white peony root, ginger root, and jujube in a decoction known as *Huang Qi Gui Zhi Wu Wu Tang* (Wang, 1994).
   - For recuperating from conditions of hemiplegia after apoplexy, astragalus is blended with Chinese angelica, safflower, and peach kernel in a decoction known as *Bu Yang Huan Wu Tang* (R-34) (Dong et al., 1998; Wang, 1994).

6. Induces diuresis and reduces edema: for facial edema, scanty urine, palpitations, shortness of breath, and chronic nephritis resulting from weakened Spleen-*Qi,* astragalus is dispensed with stephania and white atractylodes, as in *Fang Ji Huang Qi Tang* (R-66) (Dong et al., 1998).
7. Improves the healing of wounds: for treating slow healing of carbuncles long after ulceration, astragalus is prescribed with Chinese angelica root, ginseng, and cinnamon bark, as in *Shi Quan Da Bu Wan* (R-80) (Wang, 1994).
8. Treats hepatitis: for patients with chronic hepatitis, astragalus root is combined with Chinese angelica, atractylodes, poria, polygonum, cuspidatum *(hu zhang),* oldenlandia (hedyotis), and other herbs (Dong et al., 1998).

Dosage

In a decoction of 10 to 15 g for general conditions or up to 30 to 60 g for severe symptoms.

Precautions

For patients with Excess *(shi)* symptoms, yin deficiency, yang excess, stagnation of *Qi* or dampness, particularly when there is painful obstruction, astragalus should be avoided (Wang, 1994).

Side Effects and Toxicity

Astragalus is safe at the recommended therapeutic dose. A few clinical studies report toxicity from astragalus root. Very high doses may cause pain in the extremities, nausea, trembling, hot sensations in the limbs, and vomiting. No adverse reactions were observed in mice at oral doses as high as 75 to 100 g/kg (Wang, 1983).

Modern Research Findings

Chemical Constituents

Astragalus root contains numerous components, including (Dong et al., 1998; Wang, 1994):

1. Flavonoids and isoflavonoids, which confer a yellow color (yellow coloration is traditionally regarded as an indicator of quality).
2. Polysaccharides and astragalans I, II, and III were isolated from the root.
3. Triterpene glycoside (astragaloside I to VII), acetylastragalosides, astragenol, amino acids, sucrose, choline, beta-sitosterole, and trace minerals (Bone, 2001; Ling, 1995).
4. Many triterpenoid saponins have been identified. Astragaloside I to VIII polysaccharides have received considerable attention in the past fifteen years due to their potential therapeutic value in cancer and AIDS patients (Ling, 1995; Bone, 2001).

Pharmacological Findings

1. Regulates and invigorates immunity:

   - Laboratory animal studies of the whole root extract showed increased phagocytic activity, and increased superoxide production and acid phosphatase activity of peritoneal macrophage in mice (Ling, 1995).
   - An oral dose of dried extract of astragalus root in humans increased antibodies of IgE and IgM levels (Ling, 1995).
   - In mice, intraperitoneal administration of the polysaccharides of astragalus root lessened the atrophy of immune tissues, such as the spleen, thymus, and intestinal lymph nodes, as well as leukopenia caused by the immunosuppressant prednisone (Zhu, 1998).
   - Astragalus combined with codonopsis and ganoderma significantly increased immune activity.

2. Antifatigue properties.
3. Adaptogenic and a tonic:

   - Astragalus root enhances cell growth, metabolism, and longevity in cultures.
   - Increases memory in mice.
   - Improves survival time in mice exposed to toxins and swimming stress tests (Wang, 1994).

4. As a diuretic, astragalus root significantly increases renal function in rats with experimental nephritis.
5. In the cardiovascular system, astragalus root has been used as a cardiotonic on isolated hearts and cardiac cells, and also has been used to treat heart failure patients.
6. Antimicrobial and antiallergic (Bone, 2001).
7. Mildly hypotensive, astragalus dilates blood vessels in cerebral, coronary heart, and intestinal areas (Bone, 2001).
8. It provides protection of new liver cells in mice and prevents the loss of concentration of glycogen in the liver.
9. The Chinese formula containing astragalus and other herbs, *Shi Quan Da Bu Wan* (R-80), showed immunomodulatory properties. It demonstrates potential therapeutic activity during chemotherapy and radiation, prolongs survival, and ameliorates the adverse toxicity of many anticancer drugs with less side effects (Bone, 2001).
10. Astragalus root has a high content of selenium (Se), which is an antiaging substance.

Clinical Findings

1. Immunological function:

- In an open study on 1,000 subjects, a prophylactic effect against the common cold was demonstrated by an oral dose of astragalus. There was a decreased incidence and a shortened duration of any infection (Bone, 2001).
- Patients with small-cell lung cancer were treated with a combination of chemotherapy, radiotherapy, immunotherapy, and herbal medicine therapy containing astragalus and ginseng. The herb mixture treatment raised the survival rates considerably, with some patients gaining three to seventeen years of survival (Bone, 2001).

Astragalus can be used clinically to treat shortness of breath, general debility, lack of appetite, flu and colds, ulcers, and peripheral vascular disease, and has been prescribed as a diuretic.

In studies performed at the National Cancer Institute and five other leading American cancer institutes in recent years, astragalus did not directly attack cancers. It does, however, strengthen cancer patients' immune systems allowing them to recover significantly faster and live longer (Thompson, 2003).

Astragalus augments white blood cells and removes some of those that make the body more vulnerable to it. Patients with low white blood cell counts responded to treatment with astragalus injection and white blood cell levels were maintained above 4,000 per ml in most cases.

Astragalus promotes adrenal cortical function, which also critically diminishes in cancer patients, and ameliorates bone marrow damage and gastrointestinal toxicity caused by chemotherapy and radiation. Currently, researchers are studying astragalus as a possible effective agent for treating AIDS and other viral conditions because it increases interferon production, and enhances natural killer (NK) and T-cell function (Bone, 2001).

2. Other conditions:

- Cardiac output increased by 20 percent in patients with angina pectoris after administration of astragalus. There was no improvement of the left ventricular diastolic function (Bone, 2001).
- An injection of astragalus aided the healing of peptic ulcers, especially gastric ulcers (Thompson, 2003).
- In a controlled double-blind study of 507 subjects, a formula of astragalus with *Polygonum multiflorum* and *Salvia miltiorrhiza* showed antiaging effects after oral administration. Results showed improved

vigor, strength, sleep, appetite, and cellular immunity, and less greying of hair (Bone, 2001).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayuruedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Thompson, K. (2003). *The Healing Plants Astragalus Membranaceous*. Available online at <www.cancersalves.com/checklist/astragalus.html>.

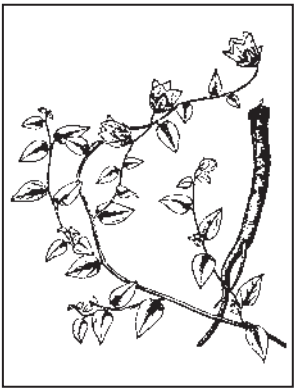
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CODONOPSIS

Radix Codonopsis Pilosulae
Dang shen



This herb is the dried root of *Codonopsis pilosula* (Franch.) Nannf., or *C. Tangshen* Oliv. of the family Campanulaceae. It grows chiefly in the Gansu, Shaanxi, and Shanxi provinces in northern China, and is dug up in the autumn, dried in the sun, and cut into segments. Codonopsis is an excellent *Qi* tonic herb and was used traditionally as a substitute for ginseng root in many prescriptions in an effort to lower the cost to the patient. It is also used for diseases of the lungs.

The root is quite long and slender, tapering at the end, marked with wrinkles and fissures or transverse rings. Depending on its age, the root averages about a foot in length and varies in texture from tough to brittle. Codonopsis has a sweet mucilaginous taste, is used as a tonic similar to ginseng, and is an antiaging herb (Jiang Su New Medical College, 1977).

TCM Properties

Sweet and bitter in taste, codonopsis is neutral or slightly cool. It acts on the spleen and lung meridians (Jiang Su New Medical College, 1977).

Effects, Medicinal Uses, and Combinations

1. Invigorates the Spleen-*Qi* and Lung-*Qi:*

   - To treat anorexia, loss of appetite, and chronic diarrhea, codonopsis is used alone or with atractylodes rhizome, poria, and licorice root.
   - To treat shortness of breath, it is combined with astragalus root and schisandra fruit (Dong et al., 1998).

2. Invigorates the production of body fluids and nourishes the blood: for sallow complexion, dizziness, and edema as a result of blood deficiency, codonopsis is combined with prepared rehmannia root, white peony, and millettia *(ji xue teng)* (Dong et al., 1998).
3. Invigorates the Lung-*Qi:* for shortness of breath, cough, dyspnea, and a weak, low voice, sweating, and a propensity of catching colds and

flu, codonopsis is commonly prescribed with schisandra fruit, fritillary bulb, ginger root, licorice root, and ophiopogon root (Wang, 1994).
4. Eliminates dampness and edema: for nephritis edema and chronic nephritis, codonopsis is prescribed with hoelen, *wu jia shen,* and areca peel *(da fu pi)* (Dong et al., 1998).

Dosage

In a decoction of 10 to 15 g, up to 30 g for acute or severe conditions.

Precautions

People with excess yang and Heat syndromes, and *Qi* stagnation should not use codonopsis. Avoid dispensing veratrum root together with codonopsis root. A dosage over 60 g may cause chest pains and irregular heartbeats

Side Effects and Toxicity

Therapeutic doses do not produce side effects or toxic reactions. An overdose (exceeding 60 g per dose) may cause precordial discomfort and arrhythmia but these reactions disappear spontaneously upon discontinuation of the herb (Zhu, 1998). The LD_{50} of the herb's injection solution was 79.21 ± 3.60 g/kg in mice by intraperitoneal administration (Wang, 1983).

Modern Research Findings

Chemical Constituents

The root *C. pilosula* contains phytosterols and triterpenes, phenolic compounds including syringaldehyde, vanilla acid, syringin, tangshenoside I, and alkaloids perolyrin, together with furane and pyridine. Butyloxycarbonylurea, 5-(hydroxymethyl)-2 furaldehyde, essential oil (methyl palmitate, octadecane, nonadecane, heptadecane) and carboxylic acid have also been identified (Liao and Lu, 1987). Other ingredients are proteins, seventeen amino acids, sugars, and vitamins B_1 and B_2.

Pharmacological Findings

1. Increases both cellular and humoral immunity. Oral administration of 0.25 g of the decoction of the herb in mice for two weeks accelerated

the clearance of intravenously injected 131 I-plasma colloidal particles from the blood, suggesting an increase in reticuloendothelial phagocytosis (Wang, 1983) and an increase in the ability to fight disease (Zhu, 1998).

2. The methanol extract of the root caused a marked but not significant secretion of ACTH in primary cultures of rat pituitary cells (Wagner et al., 1994). It inhibits the hypertensive action of adrenaline, dilates peripheral blood vessels, and reduces blood pressure (Wang, 1983).
3. Increased the production of both white and red blood cells in cancer patients with decreased numbers of white cells caused by chemotherapy and radiation therapy (Wang, 1983).
4. Codonopsis reduced the incidence of ulcers in rats due to stress or pylorus ligation. It also protected rats from gastric mucosal damage due to intragastric administration of absolute alcohol, 0.2N NaOH, or 0.6N HCL. The antiulcer action may be mediated by increasing PGE_2 and decreasing TXA_2 contents in gastric mucosa (Zhu, 1998).
5. Codonopsis was also demonstrated to be anti-inflammatory, analgesic, antimicrobial, hypotensive, and antiaging (Dong et al., 1998).
6. Regulates digestive system functions, and increases motility and the secretion of digestive juices (Wang, 1983).
7. Stimulates the central nervous system (CNS) (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Liao, J. and Lu, Y. O. (1987). Chemical constituents of pilosa asiabell *(Codonopsis pilosula)* V. Studies of the essential oils. *Chinese Traditional Herbal Drugs* 18: 386-388.

Wagner, H., Norr, H., Winteroff, H. (1994). Plant adaptogens. *Phytomedicine* 1: 63-76.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

LICORICE ROOT

Radix Glycyrrhizae
Gan cao

This herb is the root and rhizome of *Glycyrrhiza uralensis* Fisch., *G. inflata* Bat., or *G. glabra* L. of the Leguminosae family. Grown in Inner Magnolia and the Gansu, Shanxi, and Xinjiang provinces of China, it is also found throughout all regions of Europe, the Middle East, and Central Asia. It is harvested in spring and autumn, sliced after removal of the residual stem and rootlets, dried in the sun, and used unprocessed or stir baked with honey (Dong et al., 1998).

Licorice root is highly prized in TCM and is widely prescribed. Next to ginseng in importance, it is a great corrective adjunct and harmonizing ingredient in a large number of recipes. Dry licorice root is an antipyretic, good for detoxification and pain relief, and an antitussive and expectorant (Smith and Stuart, 1973). Honey-processed licorice root is good for replenishing *Qi,* invigorating the spleen, and preventing irregular heartbeats. Licorice root is an excellent antiaging herb (Dong et al., 1998).

TCM Properties

Sweet in taste and neutral, licorice root acts on the heart, lung, spleen, and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Replenishes Spleen-*Qi* and Stomach-*Qi:* for a deficiency of Spleen-*Qi* and Stomach-*Qi* manifested as indigestion, chronic gastroenteritis, poor appetite, chronic dysentery, and anemia, licorice root is often combined with poria, codonopsis root *(dang shen),* and white atractylodes rhizome, as in *Si Jun Zi Tang* (R-2) (Wang, 1994).
2. Eliminates coughs and phlegm, relieves Heat, and detoxifies:

   - To treat Wind-Heat type colds and coughs, licorice root is used with platycodon root *(jie geng),* arctium fruit, peucedanum root, and mulberry leaf (Wang, 1994).
   - To treat Wind-Cold types of colds and coughs, licorice root is blended with ephedra and bitter apricot kernel (Zhang, 1988).

- For coughs due to an accumulation of Heat in the lungs, licorice root is mixed with unprocessed gypsum, ephedra, and bitter apricot kernel (Zhang, 1988).

3. Detoxifies and removes pathogenic Heat and toxins: for detoxification, sores, ulcers, pyogenic skin infections, and sore throats, licorice root is dispensed with lonicera and forsythia fruit in a decoction. It can be blended with platycodon for a swollen throat, or with mung bean or siler *(fang feng)* for food poisoning (Wang, 1994).
4. Relieves spasms and pain: for intestinal cramps and stomach pain, it is mixed with cinnamon twig and white peony root in a decoction (Wang, 1994).

Dosage

In a decoction of 3 to 9 g, or 10 to 30 g for detoxification. To reduce heat and to detoxify, use dried licorice root. For all other conditions, use processed licorice root.

Precautions

- If taken for a long period of time or overdosed, it may cause edema or hypertension.
- Anyone with a history of cardiovascular disorders, kidney disorders, low blood potassium count, high blood pressure, diabetes, or women who are pregnant or breast feeding should avoid licorice root or take with caution.

Side Effects and Toxicity

At the normal recommended dose, this herb is safe. However, continuous use or an overdose can result in sodium retention, lower the basal metabolic rate, and decrease thyroid function, causing edema and hypertension (Zhu, 1998).

The MLD of glycyrrhizin in mice by subcutaneous administration was 1g/kg. The LD_{50} of glycyrrhizic acid (GA) in mice by intraperitoneal administration was 308 mg/kg (Wang, 1983).

Modern Research Findings

Chemical Constituents

Licorice root contains about 1 to 24 percent of triterpene glycoside glycyrrhizin, which is the calcium or potassium salt of glycyrrhizic acid. Other contents include flavonoids, isoflavonoids, chalcones, coumarin, triterpenoids, isoliquiritigenin, licobenzoburan, liquirigenin, liquirin, mannite, betulic acid, biotin, sterols, starch, volatile oil, sugar, lignin, amino acids, amines, gum, and wax (Leung and Foster, 1996).

Pharmacological Findings

1. Antiulcer and spasmolytic effects. The fluid extract of licorice root:

   - relieves the spasm of the gastrointestinal smooth muscles;
   - inhibits the secretion of gastric acid and reduces the activity by direct absorption of the acid, and
   - is therapeutic and protective as shown by experimental ulceration of the gastrointestinal mucous surface of rats.

2. Detoxication through absorption, neutralization, and combination of toxins.

   - Licorice root decoction decreases or detoxifies toxins from food, drugs, bacteria, and metabolites (Wang, 1994).
   - It reduces the toxicity from strychnine, histamine, chlorohydrate, benzene, arsenic, barbitol, tetanus toxin, and diphtheria toxin (Zhu, 1998).
   - It increases detoxication in the liver (Zhu, 1998).

3. Liver protection. Licorice root provided protection for rats' livers against carbontetrachloride and promoted the regeneration of liver cells (Zhu, 1998).
4. Glycyrrhizin has shown adrenocortical hormone action, mineral corticoid action with fluid, and sodium retention and potassium loss in urine, leading to hypertension (Wang, 1994; Zhu, 1998).

Clinical Findings

Licorice root extract is widely used in China for gastric ulcers, duodenal ulcers, bronchial asthma, infectious hepatitis, malaria, diabetes insipidus,

and contact dermatitis. The flavonoid extracts have recently been shown to be strongly antioxidant and antihepatotoxic (Leung and Foster, 1996).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CHINESE YAM
Rhizoma Dioscoreae
Shan yao

This herb is the rhizome of *Dioscorea opposita* Thunb. of the family Dioscoreaceae. The Chinese yam, grown in the Henan province (Xinxiang county) is believed to be the best variety, although Chinese yams found in other provinces (including Hebei, Shandong, and Shanxi in the northern, southern, and southwestern provinces) are equally effective. Harvested in the winter, it is cleaned, skinned, smoked with sulfur, and dried, or further processed with wheat bran and sliced (Jiang Su New Medical College, 1977).

Chinese yam is a tonic and a restorative herb. It benefits the spirit, promotes growth, and, when taken habitually, brightens the intellect, promotes flesh (helps build new muscle and tissue), and prolongs life (Smith and Stuart, 1973). Unprocessed yam is good for nourishing *Qi* and kidney yin, and production of body fluids. It is commonly used to treat diabetes and bronchitis. Stir-baked yam with wheat bran is good for invigorating the spleen, stopping diarrhea, and nourishing the kidneys for strength and vitality. Chinese yam is also an antiaging medicinal herb (Wang, 1994; Zhang, 1988).

TCM Properties

Sweet in taste and neutral, it acts on the spleen, lung, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the Stomach and Spleen:
   - For metabolic imbalance, diminished functioning of the spleen, and diabetes, Chinese yam is often used with astragalus, trichosanthes root, codonopsis, and hoelen, as in *Yu Quan Wan* (R-12).
   - For poor appetite, lassitude, loose stools, and diarrhea, Chinese yam is blended with ginseng, prepared licorice root, white atractylodes rhizome, and poria, as in *Shen Ling Bai Zhu San* (R-13) (Dong et al., 1998).

2. Strengthens kidney yin: for weakness and soreness in the waist and knees, vertigo, tinnitus, deafness, night sweating, frequent urination, leukorrhea, or spermatorrhea due to deficiency of the kidney yin, Chi-

nese yam is mixed with processed rehmannia root, cornus fruit, alisma, moutan, and hoelen, as in *Liu Wei Di Huang Wan* (R-22).

3. Nourishes the lungs and promotes production of body fluids: For a cough and dyspnea due to lung deficiency, Chinese yam is combined with codonopsis root, ophiopogon root, and schisandra fruit.
4. Invigorates Kidney-*Qi*:

   - To treat deficiency of Kidney-*Qi* and kidney yang, Chinese yam is dispensed with dried rehmannia, poria, cinnamon twig, cornus, and alisma, as in *Jin Gui Shen Qi Wan* or *Shen Qi Wan* (R-24).
   - To treat profuse leukorrhea due to Dampness and deficiency of Kidney-*Qi* and Spleen-*Qi,* Chinese yam is prescribed with codonopsis root, white atractylodes rhizome, and plantain seed. Chinese yam is used with phellodendron bark *(huang bai)* if yellow leukorrhea with signs of Damp-Heat is diagnosed.

5. Nourishes both *Qi* and yin: can be used in a recipe for treating anguish with thirst, smothering sensations (confused and suppressed state), and other symptoms of diabetes; Chinese yam can be given daily with astragalus root, pueraria root, trichosanthes root, ophiopogon, dry rehmannia, and anemarrhena rhizome *(zhi mu)* in a decoction known as *Yu Ye Tang* (Dong et al., 1998).

Dosage

A decoction of 10 to 30 g, or 6 to 10 g in powdered form is taken orally with water. Doses up to 60 to 250 g per day can be administered (Zhang, 1988).

Precautions

People with Damp-Heat diarrhea should avoid Chinese yam. Those with spleen-yin-deficient-type diarrhea with stagnation in the abdomen should avoid Chinese yam. To avoid destroying the enzyme when making a decoction do not overcook (Zhang, 1988). Avoid cooking Chinese yam with drugs or foods that are alkaline in nature.

Side Effects and Toxicity

At the normal dosage, no adverse reactions have been reported.

Modern Research Findings

Chemical Constituents

Chinese yam contains 2 percent saponins (sapogenin) phenolic compounds, namely cholin and batatasins I-V, other ingredients are: glycosides, starch, enzymes, arginin, mannan, phytic acid, arginine, phytic acid, allantoin, and vitamin C (Hachimoto and Taima, 1978; Ireland et al., 1981; Ling, 1995; Zhu, 1998).

Pharmacological Findings

1. The enzyme content in Chinese yam lowers blood sugar levels in diabetics (Zhang, 1988).
2. It nourishes the body and improves appetite. The protein content in Chinese yam furnishes essential amino acids; it is particularly good for those who lack appetite, and the elderly (Zhang, 1988).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Hachimoto, T. and Taima, M. (1978). Structures and synthesis of the growth inhibitors batasins IV and V and their physiological activities. *Phytochemistry* 17: 1179-1184.

Ireland, C. R., Shwabe, W. W., and Coursey, D. G. (1981). The occurrence of batatasins in the Dioscoreaceae. *Phytochemistry* 20: 1569-1571.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SCHISANDRA FRUIT

Fructus Schisandra
Wu wei zi

This herb is the dried ripe fruit of *Schisandra chinensis* (Turez.) Baill. or *S. Sphenanthera* Rehd. et Wils. of the family Magnoliaceae. *Schisandra chinensis* is widely distributed throughout northern China, Inner Mongolia, and Korea, where it is known as *bei* (north) *wu wei zi.* The latter species is abundantly distributed in central China, particularly the Sichuan and Yunnan provinces, where it is known as *zhong* (central) *wu wei zi* (Dong et al., 1998; Jiang Su New Medical College, 1977).

Schisandra fruit is collected in autumn and dried in the sun after removing the fruit stalks. It is used unprocessed, or mixed with vinegar or honey, steamed, and then dried. Schisandra has five distinct tastes. The skin and pulp of the fruit are sweet and sour, the kernels are pungent and bitter, and the whole fruit is salty. This gives rise to the Chinese name "five flavor seeds." The plant is a climber and the dried fruit is a small berry, red or purple in color (Smith and Stuart, 1973).

Schisandra is a tonic herb that benefits *Qi* and promotes the production of body fluid, with a slightly laxative effect; it also has astringent properties. Tonic, aphrodisiac, pectoral, and lenitive properties are ascribed to the plant (Smith and Stuart, 1973).

Schisandra fruit is an excellent adaptogenic phytomedicine and a powerful antiaging medicinal herb.

TCM Properties

Sour and sweet in taste, and warm, it acts on the lung, kidney, and heart meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the kidneys, promotes the generation of body fluids, and arrests spontaneous sweating:

   - For palpitations, feeble pulse, thirst, excess sweating, and night sweating from impaired *Qi* and yin caused by pathogenic Heat, schisandra fruit is prescribed with ginseng and ophiopogon root *(mai dong),* as in *Sheng Mai San* (R-5) (Wang, 1994).

- For repeated sweating due to debility, schisandra fruit is used with biota seed *(bai zi ren),* ginseng, ephedra root, and oyster shell, as in *Bai Zi Ren Wan*.
- To relieve symptoms of diabetes, schisandra fruit is blended with astragalus root, dried rehmannia root, ophiopogon root *(mai dong),* and trichosanthes root *(tian hua fen),* as in *Huang Qi Tang* (Zhang, 1988).

2. Produces astringency in the lungs and nourishes the kidneys: for a chronic cough and deficiency-type asthma, schisandra fruit is combined with prepared rehmannia root, cornus fruit *(shan zhu yu),* and Chinese yam, as in *Du Qi Wan* (Zhang, 1988).
3. Invigorates and warms up the kidneys and spleen: for debility of both spleen yang and kidney yang caused by endogenic coldness, diarrhea before dawn, anorexia, loose stools with undigested food, abdominal pain, coldness in limbs, and lack of Spirit, schisandra fruit is often prescribed with evodia *(wu zhu yu),* psoralea *(bu gu zi),* nutmeg *(rou dou kou),* ginger, and Chinese dates, as in *Si Shen Wan* (R-28) (Wang, 1994).
4. Nourishes the heart and tranquilizes the mind: for insomnia, dreaminess, frigidity, and palpitations, schisandra fruit is mixed with dried rehmannia root, ophiopogon root, salvia root, and wild jujube seed, as in *Tian Wang Bu Xin Wan* (R-45). It is also used with salvia and acorus, along with other herbs, as in *An Shen Bu Xin Wan* (R-43) (Wang, 1994).
5. Hepatoprotective: schisandra is used to treat icterohepatitis, chronic hepatitis, and viral hepatitis. Schisandra powder 30 g three times a day for 30 days is effective, and a synthetic drug called biphendyldimethyldicarboxylate (BDD) is widely used in China as a hepatoprotective agent. It is highly effective in normalizing liver functions and has very few side effects. Schisandra was found better than silymarin (legalon) and glycyrrhizin in parallel clinical trials (Bone, 2001; Zhu, 1998).

Dosage

In a decoction of 2 to 6 g, or 1 to 3 g in powdered form to be taken orally.

Precautions

Those with ulcers, hyperchlorhydria, interior inflammation, or suffering from skin afflictions should avoid schisandra fruit (Dong et al., 1998; Wang, 1994).

Side Effects and Toxicity

At the suggested therapeutic dose, the herb is safe. At higher dosages, stomach burning, gastrointestinal tract discomfort, and poor appetite were reported. No deaths occurred in mice receiving an oral dose of 5 g/kg of the herb or 2 g/kg of schisandrin B. The oral LD_{50} of ethanol extract of the fruit in mice was 5.1 g/kg. Light skin-allergic reactions and itching were reported (Wang, 1983).

Modern Research Findings

Chemical Constituents

Schisandra fruit *(S. chinensis)* contains a large number of dibenzocyclooctane lignans known as schisandrins A, B, and C, schisandrols A and B, schisantherin A and B, hydroxyschisandrine, gama-schisandrin, and gomisins. Other ingredients include triter penic acid, triterpenic lactones, essential oil, citric acid, and vitamins C and E (Ling, 1995; Wang, 1994).

Pharmacological Findings

1. Good for treating hepatitis, schisandra has been shown to reduce serum glutamic acid-pyruvietransaminase (SGPT) concentration in experimental animals; it also protected and increased the detoxification of the liver cells (Dong et al., 1998).
2. Action on central nervous system (CNS):

    - Increases the physical and mental power of a person, reduces fatigue, nourishes the brain, and increases performance and learning ability.
    - Regulates both the excitatory and inhibitory action, and keeps the CNS in balance.
    - The whole herb extract is a CNS stimulant. It increases vision, hearing ability, and skin reactivity (Dong et al., 1998).

3. Adaptogenic:

    - Schisandra fruit has similar adaptogenic properties as ginseng and Siberian ginseng. It increases human endurance and resistance to diseases but the effect is weaker than ginseng and Siberian ginseng (Brekhman, 1980).

- It increases ribonucleic acid (RNA), glycogen, and enzymes in the kidneys and gonads.
- Schisandra aids in opthalmic darkness adaptation and improves eyesight (Brekhman, 1980).

4. Schisandra fruit increases blood circulation, the contraction of heart muscle, lowers blood pressure, and is a cardiac tonic (Dong et al., 1998).
5. Stomachic: it regulates the secretion of gastric juice and increases bile secretion (Dong et al., 1998).
6. Mental sedation: schisandra alcohol extract is a sedative, induces peace of mind and sleep, and improved sleep duration similar to barbital (Bone, 2001).
7. Other effects:

   - Schisandra stimulates respiration, and is an expectorant and antitussive.
   - Simulates uterus smooth muscle contraction.
   - Increases the amplitude and frequency of respiration.
   - The alcoholic extract of schisandra fruit was inhibitory in vitro on the following bacteria: *Bacillus anthracis, B. dysenteriae, B. neoformans, B. proteus, B. typhosus, P. aeruginosa, S. enteritidis, S. aureas, S. albus,* and vibrio comma (Zhu, 1998).
   - Antitussive, expectorant and antiasthmatic properties were also observed (Dong et al., 1998).

8. Cancer prevention: gomisin A showed a strong inhibitory effect on skin tumors in mice (Jiang Su New Medical College, 1977) and oral administration of gomisin A showed a weak suppressive effect on tumor promotion in rats (Bone, 2001).
9. Oral administration of gomisin A prevented the development of immunologically induced acute hepatic failure (Bone, 2001).

Clinical Findings

1. Clinical studies have demonstrated benefits when used to treat jaundice and hepatitis. Schisandra has astringent, sedative, and antidiarrheal effects (Bone, 2001).
2. Schisandra fruit extract was used to treat acute intestinal dysentery with effective results (Dong et al., 1998).
3. Schisandra fruit extract was used clinically to treat neurasthenia and to relieve the symptoms of insomnia, dizziness, headache, blurred vi-

sion, angina pectoris, and spermatorrhea (Jiang Su New Medical College, 1977; Smith and Stuart, 1973).

4. Schisandrin lignans improve activities requiring concentration and coordination in humans (Bone, 2001).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayurvedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Brekhman, I. I. (1980). *Man and Biologically Active Substances*. New York: Pergamon Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications.* Amsterdam: Harwood Academic Publishers.

WHITE ATRACTYLODES

Rhizoma Atractylodis Macrocephala
Bai zhu

This herb is the rhizome of *Atractylodes macrocephala* Koidz. of the family Compositae. It is grown mainly in the Zhejiang province of China but is also cultivated in the provinces of Hubei, Hunan, Fujian, Anhui, and Jiangxi. The rhizome is collected in the winter, sliced, dried in the sun, and used unprocessed or stir baked with wheat bran, which gives it a brown color (Jiang Su New Medical College, 1977).

Traditionally, white atractylodes is an excellent tonic and diuretic, fetus-calming (tranquilizing), and a stomach remedy, and is used mainly to invigorate the functions of the stomach and spleen. It is included in several valuable traditional recipes for elixir of longevity and elixir of felicity.

Atractylodes has two medicinal varieties. The unprocessed (dried) variety is used mainly for eliminating Dampness and inducing diuresis for the treatment of edema and arthritis. The stir-baked or processed variety is used for invigorating the Spleen-*Qi* and strengthening stomach activity for treating digestive disorders, diarrhea, and sweating (Wang, 1994). White atractylodes is a powerful antiaging medicinal herb.

TCM Properties

Bitter and sweet in taste, and warm, atractylodes acts on the spleen and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Replenishes Spleen-*Qi* and Stomach-*Qi,* and reinforces the functions of the spleen and stomach:

   - For epigastric and abdominal distension, poor appetite, loose stools, lassitude, and asthenia, white atractylodes is prescribed with ginseng root, poria, and licorice root, as in *Si Jun Zi Tang* (R-2). It is also used with ginseng, astragalus, Chinese angelica, and other herbs, as in *Bu Zhong Yi Qi Tang* (R-9), for poor digestion.

- For abdominal pain and severe diarrhea due to extreme cold in the gastrointestinal tract, white atractylodes is combined with dried ginger and codonopsis root, as in *Li Zhong Tang* (R-14) (Dong et al., 1998).

2. Invigorates the spleen, eliminates interior Dampness, and induces diuresis:

   - For the sensation of fullness, and oppression in the chest and upper abdomen, white atractylodes is used with cinnamon twig, poria, and licorice root in a decoction known as *Ling Gui Zhu Gan Tang* (R-74).
   - To treat edema, white atractylodes is mixed with poria, alisma rhizome, cinnamon twig, polyporus, and dried ginger, as in *Wu Ling San* (R-68) (Zhang, 1988).

3. Prevents miscarriage, threatened miscarriage, and continuous movement of the fetus (continuous movement of the fetus means it is not stable or quiet in the womb; continuous movement may easily lead to miscarriage).

   - To prevent and treat threatened miscarriage, morning sickness, and associated symptoms after pregnancy, white atractylodes is prescribed with scutellaria root, orange peel, poria, and bambusa *(zhu gu).*
   - For soreness and pain in the back, or abdominal pain after pregnancy, this herb can be combined with eucommia bark, donkey-hide gelatin, and dipsacus (Wang, 1994).

Dosage

In a decoction of 5 to 15 g.

Precautions

This herb should not be used by those who are yin deficient or deficient in body fluids.

Side Effects and Toxicity

At the normal suggested dose levels, the herb is safe. Toxicological studies showed that rats, with oral administration of the decoction of the herb at 0.5 g/kg daily for two months, had no observable toxic reactions. The LD_{50}

of its decoction in mice was 13.3 g/kg by intraperitoneal administration (Wang, 1994).

Modern Research Findings

Chemical Constituents

White atractylodes contains essential oil (0.25 to 1.42 percent) with atractylol and atractylone as its major components. Other components are lactones of atractylenolide-I, II, III, and 8-beta-ethoxy-asterolide, scopoletin, acetylene, hutenolides, and vitamin A. It also contains atractylodes polysaccharides (Leung and Foster, 1996; Zhu, 1998).

Pharmacological Findings

1. As a tonic, it enhances immunity and improves resistance against diseases in mice. White atractylodes increases body weight and muscle strength. An oral administration of white atractylodes showed an increase in body weight and endurance in a swimming test using mice (Wang, 1983).
2. Diuretic: white atractylodes significantly increases the excretion of urine and sodium ion electrolytes (Dong et al., 1998).
3. Hypoglycemic properties: in animal tests, both rabbits and rats showed lowered blood serum glucose levels (Dong et al., 1998).
4. Anticoagulative: elevates prothrombin time in rats, and protects the liver.
5. Endocrine action: in many animal experiments, white atractylodes increased the assimilation of glucose and lowered plasma sugar levels.
6. Hematologic properties: white atractylodes increases red blood cell count and hemoglobin, and at the same time increases the number of white blood cells, and potentiates therapeutic activity during chemotherapy and radiation therapy.
7. Stomachic: white atractylodes increases the secretion of gastric juice and increases digestion.
8. White atractylodes volatile oil has a sedative effect in rabbits and is anticancerous in mice. It inhibits the growth of intestinal and liver cancer (Dong et al., 1998).
9. An anti-inflammatory, its polysaccharides were shown to be immunopotentiating (Dong et al., 1998).
10. Protects the liver (Dong et al., 1998).

REFERENCES

Dong, K. W., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CHINESE ANGELICA ROOT

Radix Angelica sinensis
Dang gui, Tang kuei, Dong quai

Angelica sinensis (Oliv.) Diels of the family Umbelliferae has a fleshy fusiform root. It grows mainly in the Gansu, Guizhou, Shaanxi, Sichuan, and Yunnan provinces of China, and is harvested in the late autumn. The rootlets are removed and it is smoke dried on gentle heat, sliced, and used unprocessed or stir baked with wine (Jiang Su New Medical College, 1977).

Chinese angelica is a well-known gynecological medicine, traditionally used to promote blood circulation and to treat menstrual cramps, and chlorotic and puerperal diseases of women (Smith and Stuart, 1973). It is also used to treat hemorrhages of all kinds, colds, dyspeptic complaints, and ague, as well as many other health problems. Chinese angelica is one of the best known and most consumed Chinese herbs in China and the United States. It is a powerful blood tonic and antiaging medicinal herb.

TCM Properties

Sweet and pungent in taste, and warm, it acts on the liver, heart, and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Treats female menstrual ailments:
   - For irregular menstruation, amenorrhea, menorrhalgia, premenstrual syndrome (PMS), metrorrhagia, infertility, and menopause, Chinese angelica can be used alone, as in *Dang Gui Wan* (R-17), or combined with processed rehmannia root, red peony, and cnidium rhizome, as in *Si Wu Tang* (R-15) (Dong et al., 1998).
   - For menstrual problems due to stagnation of the blood, Chinese angelica root is prescribed with cnidium rhizome, red peony root, peach kernel, and carthamus, as in *Tao Hong Si Wu Tang* (R-16) (Wang, 1994).

- For menstrual difficulties, if the condition is mainly due to stagnation of Liver-*Qi,* Chinese angelica is dispensed with cyperus tuber, bupleurum root, and curcuma root, as in *Xuan Yu Tong Jing Tang*.

2. Invigorates blood circulation and stops arthralgia:

   - For pain due to stagnation of blood circulation, Chinese angelica is mixed with red salvia, mastic, and myrrh, as in *Huo Luo Xiao Ling Dan.*
   - For rheumatic arthralgia, Chinese angelica is combined with notopterygium root, siler, and curcuma, as in *Juan Bi Tang.*
   - For numbness in the extremities, Chinese angelica is blended with millettia and loranthus. For pain caused by traumatic injuries, it is used with rhubarb, peach kernel, safflower, and bupleurum (Zhang, 1988).

3. Nourishes the blood: for blood deficiency, with symptoms of a sallow complexion and pale lips, for distension and pain in the chest, dizziness, anorexia, loose stools, irregular menstruation, and cramps, *Dang Gui Bu Xue Tang* is used. For deficiency of blood, stagnation of Spleen-*Qi* and Liver-*Qi,* dizziness, and pale nails, Chinese angelica is prescribed with astragalus root, ginseng, processed rehmannia, white atractylodes rhizome, cinnamon bark, peony, and licorice, as in *Shi Quan Da Bu Wan* (R-80) (Zhang, 1988).
4. Invigorates both *Qi* and blood, and strengthens the function of the spleen and stomach: For general debility, loss of appetite, lassitude, and habitual miscarriage, Chinese angelica extract is made into a patent medicine such as *Dang Gui Wan* (R-17). It can be combined with rehmannia root, cnidium, white peony, poria, white atractylodes, and licorice root, as in *Ba Zhen Wan* (R-18). A similar formula, *Wu Ji Bai Feng Wan* (R-19), has been used to treat menstrual disorders, and the deficiency of *Qi* and blood, with good results (Fang and Shen, 1994).
5. Nourishes blood and strengthens the function of the spleen and liver: for distension and pain in the chest, dizziness, anorexia, loose stools, irregular menstruation, cramps, headaches, and dry mouth and throat due to a deficiency of blood and stagnation of Spleen-*Qi* and Liver-*Qi,* Chinese angelica is combined with bupleurum root, white peony, atractylodes rhizome, poria, licorice root, ginger, and peppermint, as in the popular patent medicine of *Xiao Yao Wan* (R-41) (Wang, 1994).

   When moutan and gardenia are added to the previous recipe *(Xiao Yao Wan),* a new recipe, *Dan Zhi Xiao Yao Wan* (R-42), is created,

which effectively treats menstrual disorders, menopausal syndrome, emotional imbalance, and depression due to stagnation of Liver-*Qi* and deficiency of blood.

6. Helps moisten the bowels: for constipation, Chinese angelica is mixed with cistanche, polygonum, and hemp seed (Wang, 1994).

Dosage

In a decoction of 6 to 15 g.

Precautions

Chinese angelica should not be used in cases of excessive Dampness manifested as abdominal distension and loose stools, if there is a tendency for heavy menstrual periods or excessive bleeding, or for acute viral infection of colds or flu. Do not take Chinese angelica with blood thinners.

Side Effects and Toxicity

At the recommended dose, the herb is safe. No side effects or toxicity have been reported.

Modern Research Findings

Chemical Constituents

Chinese angelica root and rhizome are rich in coumarins and volatile oil. The main ingredients of the volatile oil include ligustilide and butylidene phthalide. Others are d-a-phellandrene, alpha-pinene, limonene, beta-caryophyllene, linalool, borneol, acetaldehyde, and lactones (Bone, 2001; Wang, 1983). Coumarins include osthol, angelicin, osthenol, umbelliferone, and others. Other components in the herb so far isolated are plant acids (including angelic, aconitic, citric, ferulic, malic, folic, and others), resin, starch, sugars, archangelone, beta-sitosterol palminate and arachinate, amino acids, and vitamins A, E, and B_{12} (Bone, 2001; Wang, 1983).

Pharmacological Findings

1. Effects on uterine muscles:

   - The essential oil portion or organic solvent relaxes the isolated uterus, but the aqueous extract (cooked for a long time to evaporate the volatile oil) increases contractions in the uterus. Uterine contractions can speed up birth (Wang, 1983).
   - In one study, an isolated uterus relaxed more than a life model (Dong et al., 1998).

2. Prevents the decrease of liver glycogen, protects the liver, and regenerates liver cells.
3. Invigorates blood circulation, including micro and peripheral circulation systems. Increases coronary blood supply. It also dilates blood vessels and increases blood circulation as it lowers blood pressure. Intravenous administration of 2 g/kg of the extract to anesthetized dogs decreased coronary resistance and peripheral resistance, increased coronary flow, and decreased myocardial oxygen consumption (Wang, 1983).
4. Inhibits cholesterol formation and prevents arteriosclerosis in rabbits and rats (Bone, 2001).
5. Has a mild sedative effect on the central nervous system, and is analgesic (Zhu, 1998).
6. Relaxes the smooth muscles (Dong et al., 1998).
7. Increases blood cell counts. Invigorates production of red and white blood cells, and platelets (Dong et al., 1998).
8. Antiasthmatic: Chinese angelica is shown to improve the capacity of the lungs and relax bronchial muscles (Tao et al., 1984).
9. Antimicrobial: Chinese angelica is inhibitory in vitro against hemolytic *Streptococcus* and *Shigella* (Wang, 1994; Dong et al., 1998).

Clinical Findings

- Treats thromboangitis obliterans (Buerger's disease) and constrictive arthritis, relieves pain, increases local blood circulation, increases the temperature of the skin, prevents the development of necrosis, and promotes the healing process (Bone, 2001).
- Chinese angelica decoction showed reduced thymoturbidity in eighty-eight cases of chronic hepatitis or liver cirrhosis (Bone, 2001).
- Treats dysmenorrhea: when combined with red peony root, corydalis, and ligasticum fruit in a decoction, it demonstrated a 93 percent improvement rate in the treatment of dysmenorrhea (Bone, 2001).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayurvedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Fang, D. Y. and Shen, G. N. (1994). *Zhong Cheng Yao Lin Chuang Ying Yung Zhi Nan* [Directions on Clinical Applications of Chinese Patent Medicines]. Beijing: Science and Technology Documents Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

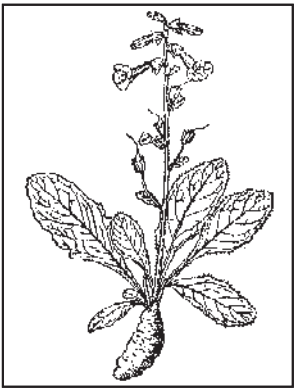
Tao, J. Y., Ruan, Y. P., Mei, Q. B., Liu, S., Tian, Q. L., and Chen, Y. Z. (1984). Studies on the antiasthmatic effect of ligustilide of *dang gui, Angelica sinensis* (Oliv.) Diels. *Acta Pharmaceutica Sinica* 19: 561-565.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (Ed.) (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.



PROCESSED REHMANNIA ROOT

Radix Rehmanniae Preparata
Shu di huang *or* Shu di

This herb is the steam-processed root of *Rehmannia glutinosa* Libosch. of the family Scrophulariaceae. It grows mainly in the Hebei and Henan provinces, as well as Inner Mongolia of China. The root is harvested in autumn and dried in the sun after the rootlets are removed (Dong et al., 1998).

There are two kinds of rehmannia: unprocessed dry rehmannia and processed rehmannia root. Processed, prepared, or cured rehmannia root is the dry root mixed with rice wine, amomum fruit, and tangerine peel, then steamed and dried again in the sun until the root turns black inside.

Processed rehmannia root, which resembles Chinese angelica, was used traditionally as a tonic for all wasting diseases and weakened conditions of the body (Smith and Stuart, 1973). Today, cured rehmannia root is used as a hematonic for the purpose of nourishing the blood and yin, and treating menstrual disorders (Wang, 1994). Processed rehmannia root is a good antiaging medicinal herb.

TCM Properties

Sweet in taste and slightly warm, it acts on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the blood and the kidney yin:

   - For dizziness, blurred vision, tinnitus, deafness, and early graying of hair due to a deficiency of the Vital Essence and blood, processed rehmannia root is blended with polygonum, ligustrum, cornus, and herba eclipta *(han lian cao)* in a decoction (Wang, 1994).
   - For tidal fever, night sweats, seminal emission, thirst, and diabetes due to deficiency of the kidney yin, processed rehmannia is combined with Chinese yam, cornus, moutan, hoelen, and alisma, as in

the patented recipe *Liu Wei Di Huang Wan* (R-22). When schisandra and ophiopogon root are added to the recipe *Liu Wei Di Huang Wan*, a new recipe, *Mai Wei Di Huang Wan* (R-23) or *Ba Xian Chang Shou Wan* (longevity pills), is created. This formula is used for symptoms caused by kidney-yin deficiency (Wang, 1994).

- When anemarrhena *(zhi mu)* and phellodendron bark *(huang bai)* are added to *Liu Wei Di Huang Wan*, the recipe *Zhi Bai Di Huang Wan* is created. This formula is effective for symptoms due to deficiency of liver yin and kidney yin (Wang, 1994).

2. Nourishes the spleen and the heart: for neurasthenia, amnesia, palpitations, insomnia, forgetfulness, lassitude, anorexia, blood in the stool, and purple discoloration of the skin, processed rehmannia root is mixed with astragalus root, Chinese angelica, poria, polygala root, longan aril, zizyphus, processed licorice root, ginseng or codonopsis, and Chinese dates, as in the patented recipe *Gui Pi Tang* (R-6) (Dong et al., 1998).
3. Invigorates *Qi* and blood: for weakness of the body, weight loss, aching and lassitude in bones and knees, irregular menstruation, metrorrhagia, metrostaxis, and leukorrhea due to deficiency of *Qi* and blood, processed rehmannia root is often prescribed with black bone chicken, degluted antler powder, turtle shell, oyster shell, ginseng, astragalus root, Chinese angelica, white peony root, cyperus tuber, licorice root, dried rehmannia, cnidium, Chinese yam, salvia root, and other ingredients, as in the famous patented recipe *Wu Ji Bai Feng Wan* (R-19) (Wang, 1994).

Dosage

In a decoction of 9 to 15 g.

Precautions

Processed rehmannia is sticky and greasy in nature, and can hinder digestion. Patients afflicted with stagnation of *Qi,* profuse phlegm, gastric and abdominal distension, poor appetite, and loose stools should avoid this cured herb (Dong et al., 1998).

Side Effects and Toxicity

The herb is safe at recommended therapeutic levels. No side effects or toxicity are known.

Modern Research Findings

Chemical Constituents

Processed rehmannia root contains iridoid glycosides; catalpol was the first glycoside isolated. Other ingredients include rehmannine, rehmaglutin, vioglutins, jionosides A, B, C, and D, catalpol, jioglutoside, beta-sitosterol, r-aminobutyric acid, manitol, stigmasterol, campesterol, saccharides, vitamin A, and amino acids (Leung and Foster, 1996). Furthermore, rehmaglutins H-D and chlorine-containing iridoid glycoside and glutinoside have also been isolated (Zhu, 1998).

Pharmacological Findings

1. Invigorates production of red and white blood cells, and platelets. Potentiates therapeutic activity during chemotherapy and radiation (Dong et al., 1998).
2. Oral administration of processed rehmannia demonstrated protective effects on hematopoiesis, immunity, and heart, liver, and kidney functions during chemotherapy in tumor-bearing mice (Dong et al., 1998).
3. Cardiotonic, diuretic, and anti-inflammatory (Dong et al., 1998).
4. Lowers blood pressure (Wang, 1994).
5. Lowers blood sugar and decreases lipid cholesterol levels (Dong et al., 1998).

Clinical Findings

- Prevents corticosteroid drugs' suppression of endogenous levels of corticosteroids (Leung and Foster, 1996).
- Treats inflammatory disorders involving the immune systems, such as allergies, skin rashes, and autoimmune disorders (Leung and Foster, 1996).
- Antisclerotic action (Leung and Foster, 1996).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

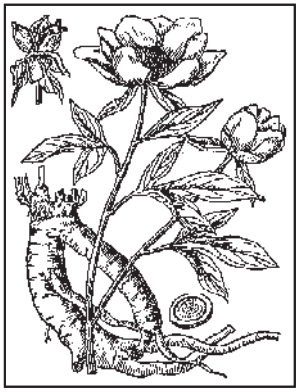
Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

WHITE PEONY ROOT
Radix Paeoniae Alba
Bai shao



The herb is the root of *Paeonia lactiflora* Pall. of the family Ranunculaceae. It grows chiefly in the Anhui, Sichuan, and Zhejiang provinces of China. The root is dug in autumn or summer, and washed clean after removal of the lateral roots and skin, boiled, dried in the sun, then sliced and used unprocessed or stir baked with rice wine as processed medicine (Jiang Su New Medical college, 1977).

Peony root is highly valued by Chinese doctors, who use it as a tonic, alterative, astringent, and general remedy in diseases of women (Smith and Stuart, 1973). White peony root is commonly used to nourish the blood, regulate menstrual flow, and to relieve muscular spasm, facial spasm, restless legs, and premenstrual syndrome (PMS) spasms and pain (Wang, 1994).

TCM Properties

Bitter and sour in taste, and slightly cold, it acts on the liver and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes blood and regulates menstruation: for abnormal menstrual flow, dysmenorrhea, metrorrhagia, and metrostaxis, white peony root is used with Chinese angelica root, *chuan xiong* rhizome, and processed rehmannia root, as in the patented recipe *Si Wu Tang* (R-15) (Wang, 1994).
2. Relieves spasms and pain:

    - For abdominal spasms and pain, as well as pain in the hypochondriac region due to stagnation of Liver-*Qi,* white peony root is combined with bupleurum root, cyperus tuber, cnidium, and bitter orange.

- For gastrointestinal pain and spasm of the calf muscles, it is used with cinnamon twig, licorice root, and ginger, as in the patented recipe *Xiao Jian Zhong Tang* (R-60) (Dong et al., 1998).

3. Relieves liver hyperactivity: for headaches, hypertension, and vertigo due to liver-yang hyperactivity, white peony root is blended with dried rehmannia root, achyranthes root, and red ochre *(dai zheu shi),* as in the recipe *Jian Ling Tang,* or it is blended with chrysanthemum flower and tribulus (Dong et al., 1998).
4. Induces diuresis: to treat retention of urine and body fluid, oliguria, and chronic nephritis, white peony root is mixed with poria, ginger, atractylodes rhizome, and processed aconite, as in the patented recipe *Zhen Wu Tang* (R-75) (Wang, 1994).

Dosage

In a decoction of 6 to 12 g.

Precautions

People with yang exhaustion, manifestations of deficiency, or liver disorders should not take white peony. It is incompatible with veratrum root.

Side Effects and Toxicity

The therapeutic dose does not produce side effects or toxicity. An overdose or long-term use may damage liver function (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

Peony root contains about 1 to 2 percent of paeoniflorin (a monoterpene glycoside) and benzoylpaeoniflorin, paeonol, paeonin, alblflorin, oxypaeoniflorin, and paeoniflorigenone. Other ingredients including pentagalloylglucose, paeonilactone A, B, and C, riterpenoids, sitosterol, a natural polysaccharide, peonan SA, peonan SB, acidic polysaccharide peonan PA,

and tanin were also isolated (Bone, 2001; Tonoda et al., 1994; Yin and Guo, 1993; Zhu, 1998).

Pharmacological Findings

1. White peony root extract is mildly antispasmodic in laboratory-tested animals (Wang, 1994).
2. It exhibits significant antiatherogenic activity in cholesterol-fed rabbits (Dong et al., 1998).
3. White peony prohibits excess production of stomach acid and prevents ulcer formation (Dong et al., 1998).
4. Peony is a sedative, hypnotic, and antispasmotic (Dong et al., 1998).
5. Peony and paeoniflorin are strong analgesics (Bone, 2001; Dong et al., 1998).
6. It inhibits platelet aggregation and increases fibrinolytic activity. Peony also has been shown to prolong prothrombin time (Bone, 2001).
7. Peony has shown blood vessel dilation and transient blood pressure-lowering properties (Wang, 1994).
8. It exhibits antimicrobial and anti-inflammatory activities in rats (Zhu, 1998).
9. At an oral dose of 1 mg/kg in rats, paeoniflorin attenuates the performance deficit produced by scopolamine in the radial maze. Also, the glycoside showed reduced learning impairment in aged rats. An oral dose of albiflorin, pentagalloylglucose, and aqueous extract of paeonia showed inhibition of convulsion activity induced by the drug pentylenetetrazol in rats (Bone, 2001).

Clinical Findings

- The effects of a peony and licorice combination on polycystic ovary syndrome was specifically examined in Japan. After twenty-four weeks, the LH to FSH ratio was significantly lower in the treatment group over the control group (Bone, 2001). This combination also promotes fertility (Dong et al., 1998).
- Peony is used for intestinal smooth muscle spasm, dysmenorrhea, and vaginal muscle spasm (Dong et al., 1998).
- Peony is good for treating muscle cramps and epilepsy (Bone, 2001).
- It is used to treat menstrual dysfunction and leukorrhea (Wang, 1994).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayurvedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Tonoda, M., Matsumoto, K., Shimizu, N., Gonda, R., Ohara, N., and Hirabashi, K. (1994). An acidic polysaccaride and immunological activity from the root of *Paeonia lactiflora*. *Biological and Pharmaceutical Bulletin* 17: 1161-1164.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Yin, J. and Guo, L. G. (1993). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 1)*. Beijing: Academic Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

POLYGONUM

Radix Polygoni multiflori
He shou wu *or* Shou wu

This medicinal herb is the root tuber of *Polygonum multiflorum* Thunb. of the family Polygonaceae. Also called fleece flower root, it is grown in all parts of China. The root tuber is harvested in autumn, washed clean, sliced thin, and dried in the sun. The unprocessed material is mixed with black soybean milk, then steamed and dried. The process is repeated until the root is black in color, then it is dried in the sun, resulting in processed polygonum (Jiang Su New Medical College, 1977).

Wonderful restorative and reviving powers are ascribed to this herb. Polygonum is prescribed for blood deficiency, menstrual difficulties, colds, and it also promotes fertility. It nourishes the blood and is useful for the treatment of anemia, early grey hair, and aching back and knees (Smith and Stuart, 1973). Unprocessed polygonum is good for moistening the bowels and detoxification. Processed polygonum is good for kidney and liver toning, vital essence replenishment, and prevention of premature grey hair (Wang, 1994). Polygonum is a powerful antiaging medicinal herb.

TCM Properties

Bitter, sweet, acrid in taste, and slightly warm, it acts on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Replenishes the vital essence (yin) and invigorates the circulation of blood, liver, and kidneys:

   - For symptoms caused by yin and blood deficiency, characterized by premature grey hair or loss of hair, dizziness, blurred vision, lassitude of loins and knees, seminal emission and spermatorrhea, infertility, uterine bleeding, and morbid leukorrhea, polygonum is used alone, as in *He Shou Wu Wan* (R-29), or with Chinese angelica root, lycium fruit, and cuscuta, as in the well-known medicine *Qi Bao Mei Ran Dan* (R-26). It is also dispensed with white peony,

Chinese angelica, salvia root, schisandra fruit, and zizyphus to treat general debility, blurred vision, dizziness, angina, insomnia, and neurasthenia.

- For andropausal (male menopausal) syndromes, polygonum is prescribed with processed rehmannia root, alisma, schisandra fruit, polygonum stem, and scrophularia, as in *Geng Nian An* (R-20) (Wang, 1994).

2. Detoxifies: as a detoxicant, polygonum is good for boils, sores, and swelling. Polygonum is often combined with sophora root *(ku shen),* peppermint, and dandelion (Wang, 1994).
3. Moistens the bowels: for chronic constipation due to dryness of the bowels, it is used with Chinese angelica root and hemp seed (Wang, 1994).
4. Helps senility disorders. To treat blurred vision, vertigo, ringing in the ears, numbness of the extremities, and lumbago due to kidney and liver yin deficiency, processed polygonum is blended with dried rehmannia, achyranthes root, eucommia bark, rubus, ligastrum, siegesbekia, as in *Yan Shou Dan* (longevity pill) (Dong et al., 1998; Wang, 1994).

Dosage

In a decoction of 9 to 15 g.

Precautions

People with diarrhea and phlegm-Damp disorders should use this herb with caution.

Side Effects and Toxicity

This herb is safe at the recommended therapeutic dose levels. However, an extremely high dose may cause gastrointestinal tract discomfort, diarrhea, abdominal pain, nausea, and vomiting. Certain patients may develop skin rashes, numbness of limbs, excessive sweating, and fever (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

Polygonum contains anthraquinones, stilbene derivatives, tannins, phospholipids, and trace elements. The stilbene tetrahydroxystilbene glucoside may be the major bioactive ingredient (Bone, 2001). Other ingredients are:

chrysophenol, chrysophanic acid, oloe-emodin, rheum-emodin, glucogallin, rhein, chrysophanic acid, digitolutein, antherine, glucogalin, phospholipids such as lecithin, and trace elements (Bone, 2001; Zhou, 1993; Zhu, 1998).

Pharmacological Findings

1. Antioxidant and antiaging properties:
   - Polygonum decreased levels of lipid peroxides in senile quails and was more effective than vitamin E in human tests. The life span of senile quails was prolonged (Bone, 2001).
   - In isolated rat hearts, polygonum inhibited oxygen consumption and malondialdehyde formation, thereby demonstrating an inhibition of lipid peroxidation (Bone, 2001; Dong et al., 1998).
2. Lowers blood cholesterol and triglyceride levels: polygonum reduced the absorption of cholesterol in the intestines, prevented the deposition of cholesterol in the liver, and prevented the formation of arteriosclerosis in rabbits. Also, polygonum was inhibitory on chemically induced triglyceride accumulation in the livers of mice (Dong et al., 1998; Wang, 1994).
3. Heart tonic: polygonum showed excitatory action on isolated frog heart (Dong et al., 1998).
4. Lowers blood sugar: polygonum lowered the blood sugar concentration in mice (Dong et al., 1998).
5. Lowers blood pressure: processed polygonum lowered blood pressure in rats (Dong et al., 1998).
6. As an antimicrobial, polygonum inhibits the growth of *Mycobacterium tuberculosis, Bacillus dysenteriae,* and *S. flexneri* (Dong et al., 1998).
7. Invigorates peristalsis of the intestines (Wang, 1994).
8. Polygonum and its processed products reduced carbon tetrachloride-induced liver enlargement in mice (Dong et al., 1998).

Clinical Findings

1. A dosage of 12 g per day significantly lowered serum cholesterol levels in 62 to 82 percent of patients (Bone, 2001).
2. After taking polygonum extract, good results were reported with reduced insomnia (Bone, 2001).

3. Polygonum has shown effectiveness in treating peripheral neuritis in diabetic patients (Dong et al., 1998).
4. For cardiovascular ailments of the elderly, polygonum combined with *dan shen* (*Salvia miltiorrhiza), ling zhi (Ganoderma lucidum),* and *sang ji sheng (Taxillus chinesis)* in a decoction provided good results (Bone, 2001).
5. For the treatment of arteriosclerosis, hypertension, coronary disease, and high blood cholesterol levels, polygonum mixed with ginkgo leaves and gambir *(gou teng)* provided good results (Wang, 1994).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayuruedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Zhong Yao Da Ce Dian* [Encyclopedia of Chinese Materia Medica]. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica*. Beijing: China Medical and Pharmaceutical Science Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

Chapter 6

Herbs That Adjust the Yin and Yang: Defending Homeostasis and Harmony of the Body

The medicinal herbs discussed in this section are yin (vital essence) nourishing and yang (vital function) tonic herbs. These herbs, similar to blood-nourishing and *Qi* tonic herbs, are vital for treating deficiency disorders of either the yin or yang. Yin deficiency represents a parasympathetic nerve system dysfunction that causes yang excess or sympathetic stimulation.

It does not matter whether yin or yang is deficient or in excess: the yin-yang balance is destroyed. A breakdown in the yin-yang balance between viscera is believed to be the general origin of internal ailments. This loss of yin-yang balance will automatically occur if there is a development of *Xu* (Deficiency) or *Shi* (Excess) of either the yin or yang in any organ or anywhere in the energy circulation meridians of the body (Chen and Chen, 1992; Dong et al., 1998). Yin deficiency refers to an insufficiency of vital essence fluids of the viscera or of the body, which is quite common in a great number of people. Hyperactivity of yang, invasion of exopathogens, poor nutrition, and lack of proper rest and relaxation are the common causes of the development of yin deficiency. Symptoms are characterized by a low-grade afternoon fever, night sweats, a dry mouth and throat, dry eyes, dry cough, constipation, a feverish sensation in the palms and soles, nervousness and fatigue, frequent micturition, a red tongue, and rapid pulse. The clinically observed yin-deficiency syndrome involves principally the kidney yin, the liver yin, the lung yin, the heart yin, and the stomach yin. An explanation of the symptoms of each type follows (Zhou, 1991).

Symptoms caused by a kidney-yin deficiency are weariness of the lower back, knees, and legs, weakness in and soreness of the waist and knees, dizziness, a hot sensation in the palms of the hands and the soles of the feet, heel pain, memory loss, tinnitus, insomnia, baldness, deafness, night sweating, weight loss, diminished sexual function, seminal emission, dry mouth and throat, deep yellow urine, constipation, a red tongue without coating, and a rapid pulse (Dong et al., 1998). Female patients with symptoms or

conditions of irregular menstruation, functional uterine bleeding without ovulation, or infertility and hyperthyroidism are likely due to kidney yin deficiency. These conditions can be corrected with yin tonic herbs (Zhang, 1991).

Symptoms caused by a liver-yin deficiency are blurred vision, conjunctival dryness of the eyes, night blindness, night sweating, dizziness, ringing in the ears, poor memory, insomnia, feverish sensation in the palms of the hands and the soles of the feet, thirst, dry throat, limb numbness, irregular menstruation, pain in the epigastric region, red tongue with little coating, and a taut, thready pulse (Chen and Chen, 1992; Dong et al., 1998).

Symptoms caused by the lung-yin deficiency are dry skin, a dry cough with a little sputum, dryness of the throat and mouth, and occasionally a very sticky sputum, dry tongue, and a thready pulse (Chen and Chen, 1992; Dong et al., 1998).

Heart-yin deficiency causes mental irritability, hectic fever, palpitations, vexation, insomnia, a negative effect on the spirit or mental activities, a red tongue, and a fine, rapid pulse (Chen and Chen, 1992; Dong et al., 1998).

Stomach-yin deficiency causes body-fluid deficiency, dry mouth and lips, thirst, anorexia, a lack of digestive juices and enzymes with an occasional feeling of nausea, stomachache, acid regurgitation, dry stools, poor digestion, a deep red and dry tongue, and a rapid pulse (Chen and Chen, 1992; Dong et al., 1998).

To correct these yin-deficiency disorders, yin tonic herbs should be used. The purpose of yin tonic herbs is to nourish the yin, promote the production of body fluids, digestive juice enzymes, and saliva, nourish and maintain normal organ moisture, and prevent dryness of the lungs, eyes, mouth, throat, and the intestines.

Yang deficiency refers to an insufficiency of Kidney-*Qi* and mainly involves the kidneys. Kidney-yang deficiency is often manifested as an aversion to cold, cold limbs, weariness, cold sensations in the extremities, soreness and weakness in the loins and knees, painful heels, pallor, dizziness, diarrhea, dyspnea, impotence and spermatorrhea, frequent urination, edema of the lower limbs, a white coating on the tongue, and a deep, thready pulse. The symptoms may also include lucid and light leukorrhea, as well as infertility in females because of coldness in the uterus (Chen and Chen, 1992; Dong et al., 1998).

When the kidney-yang deficiency affects the spleen, it causes diarrhea. When it affects the lungs, it causes shortness of breath and difficulty in breathing.

Studies based on Western pharmacology and clinical investigations in China found that patients with kidney-yang deficiency usually develop the following symptoms or conditions (Zhang, 1991):

1. dysfunction of autonomic nervous system, hyperfunction of the parasympathetic nervous system, and hypofunction of the sympathetic system;
2. myocardial infarction;
3. low basal metabolic rate, and low pulse and respiratory rates;
4. decreased urinary catecholamines;
5. degeneration or dysfunction of an endocrine gland, such as adrenal and pituitary glands, testes, and ovaries;
6. hypofunction or dysfunction of the gonads, resulting in male impotence and other symptoms of gonadal dysfunction;
7. anemia, Sheehan's syndrome, and Addison's disease; and
8. marked atrophy of spleen, thymus, and endocrine glands.

All of these symptoms were clinically treated with kidney-yang tonic herbs. The site of actions of yang tonics is in the hypothalamus or the higher central nervous system and the effect on the adrenal cortex is only secondary (Zhang, 1991).

The liver rarely displays hypoactivity or liver-yang deficiency. On the contrary, most of the time, imbalances involving the liver involve hyperactivity of the liver. This is actually quite common in the United States. Liver-yang hyperactivity is common in the United States because of lifestyles, stress, and the Western diet. Men or women, even children, who have symptoms of dizziness, a distending sensation in the head, headache, red eyes, a bitter taste in the mouth, a flushed complexion, a short temper, a red tongue with yellow coating, a rapid pulse, and sometimes even hematemesis and epistaxis (nose bleeding), may be showing signs of hyperactivity of the liver yang. In TCM, this is commonly referred to as "flare-up of the fire of the liver." This condition does not need a tonic remedy but rather a sedative herb. (For more on the hyperactivity of liver yang, see Chapter 8.)

The purpose of yang tonic herbs is to reinforce the vital functions of the kidneys, improve the functions of the adrenal glands and sexual functions, strengthen the bones and muscles, promote normal growth, and enhance the immune system.

In practice, yin or yang tonic herbs are often used in combination with *Qi* tonic or blood tonic herbs, or *Qi* or blood-regulating herbs, in order to have a holistic and broader efficacy (see Chapter 7 for more information).

Table 6.1 lists commonly observed symptoms in the internal organs due to a deficiency of yin or yang and commonly used herbal remedies.

Table 6.2 describes the common and individual actions of the most frequently used yin and yang tonic herbs.

TABLE 6.1. Herbal Remedies for Normalizing Yin-Yang Balance

Etiology	Symptoms	Herbal Remedies
Deficiency of liver yin	Blurred vision, night blindness, conjunctival dryness of the eyes, dizziness, tinnitus, poor memory, insomnia	Herbs American ginseng, dendrobium stem, glehnia root, polygonum, lily bulb, lycium fruit, ophiopogon root, polygonatum root *(huang jing),* polygonatum rhizome *(yu zhu)* Patent Medicines *Da Bu Yin Wan, Liu Wei Di Huang Wan, Tian Wang Bu Xin Wan*
Deficiency of kidney yin	Weakness of the lower back, knees, and legs, soreness of waist and knees, deafness, night sweating, hectic fever, seminal emission, hot sensation in palms and soles, constipation, toothaches, dry mouth and throat, red tongue, rapid pulse	
Deficiency of lung yin	Dry cough, and dry skin, mouth, and tongue	
Deficiency of stomach yin	Dry mouth and throat, thirst, deep red and dry tongue with thin coating	
Deficiency of heart yin	Mental irritability, hectic fever, palpitations, vexation, insomnia, negative effect of the spirit, red tongue	
Deficiency of kidney yang	Aversion to cold, cold limbs, aches and weariness, soreness in the loins and knees, impotence, spermatorrhea, frequent urination, enuresis, sterility, lucid and light leukorrhea, pale or white coating of tongue, deep and thready pulse	Herbs cistanche, curculigo, cordyceps, cynomorium, cuscuta seed, dodder seed, epimedium, eucommia bark, ginseng, pilose antler, psoralea fruit, *wu jia shen,* morinda root Patent Medicines *Shen Qi Wan (Jin Gui Shen Qi Wan) Shi Quan Da Bu Wan, Si Shen Wan*

TABLE 6.2. The Actions of Yin-Yang Tonic Herbs

Name of Herbs	Dosage (grams)	Individual Actions	Common Actions
American Ginseng *(hua qi shen)*	3-6	Invigorates *Qi,* nourishes the stomach and lungs	Yin tonics nourish yin, promote the production of body fluid
Ophiopogon Root *(mai men dong)*	10-15	Moistens the lungs, and relieves heart fire, vexation, and constipation	
Lycium Fruit *(gou qi zi)*	6-15	Strengthens the kidneys, replenishes the vital essence, nourishes the liver, improves eyesight, moistens the lungs	
Asparagus *(tian men dong)*	6-12	Removes heat from the lungs, invigorates the kidneys	
Polygonatum Root *(huang jing)*	5-15	Invigorates *Qi,* strengthens the spleen, moistens the lungs	
Epimedium *(yin yang huo)*	6-15	Dispels rheumatic, relieves asthma, improves impotence	Yang tonics invigorate the kidneys, strengthen yang, correct sexual disorders, and enhance resistance to diseases
Eucommia Bark *(du zhong)*	5-15	Nourishes the liver and kidneys, strengthens the bones and muscles, prevents miscarriage	
Psoralea Fruit *(bu gu zhi)*	5-10	Warms up the spleen, relieves diarrhea, relieves asthma	
Cordyceps *(dong chong xia cao)*	9-15	Replenishes the vital essence, relieves coughs and asthma	
Cistanche *(rou cong rong)*	10-20	Replenishes the vital essence and relieves constipation	
Curculigo rhizome *(xian mao)*	3-9	Treats male impotence and premature seminal ejaculation	
Cuscuta *(tu si zi)*	6-15	Nourishes the liver, improves the acuity of vision, nourishes spleen, strengthens *Chong-Ren* meridians.	

TABLE 6.2. *(continued)*

Name of Herbs	Dosage (grams)	Individual Actions	Common Actions
Pilose Antler *(lu rong)*	0.5-2	Strengthens the bones and muscles, replenishes the vital essence and blood.	

Tonic herbs frequently used to treat a yin deficiency include American ginseng, glehnia root, ophiopogon root, polygonum, asparagus, lycium fruit, polygonatum rhizome *(yu zhu),* polygonatum root (yellow essence), dendrobium, ligustrum fruit, and lily bulb.

To treat a yang deficiency, tonic herbs often used include pilose antler, curculigo, ginseng, cornus, cuscuta seed, cistanche, morinda root, cordyceps, psoralea fruit, Siberian ginseng, eucommia bark, epimedium, cynomorium, cnidium fruit, and placenta.

In the following section, sixteen medicinal herbs that adjust the yin and yang are introduced and further discussed.

REFERENCES

Chen, Z. L. and Chen, M. I. (1992). *A Comprehensive Guide to Chinese Herbal Medicine*. Long Beach, CA: Oriental Health Arts Institute Press.

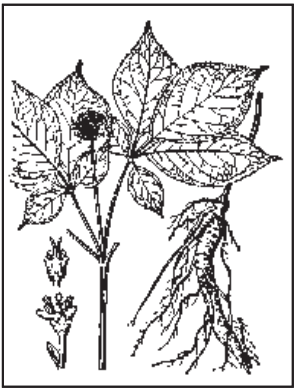
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Zhang, J. Q. (1991). Clinical and experimental studies on yang deficiency. In Zhou, J. H. and Liu, G. Z. (Eds.), *Recent Advances in Chinese Herbal Drugs*. Beijing: Science Press, pp. 47-64.

Zhou, J. H. (1991). Immunopharmacological activities of yin and yang biomodulatory drugs. In Zhou, J. H. and Liu, G. Z. (Eds.), *Recent Advances in Chinese Herbal Drugs* (pp. 126-132). Beijing: Science Press.

AMERICAN GINSENG

Radix Ginseng Quinquefolium
Xi yang shen *or* Hua qi shen



This herb is the dried root of *Panax quinquefolius* Linn. of the family Araliaceae. It grows naturally on the slopes of ravines and shady, well-drained areas in hardwood forests in North America, from Quebec to Manitoba, and from Maine and Minnesota southward to the mountains of Georgia, Arkansas, and Louisiana. It is harvested in autumn, cleaned, and dried after removal of the rootlets. Today, American ginseng is mostly grown on ginseng farms, particularly in the state of Wisconsin. It is also cultivated in northern China (Jiang Su New Medical College, 1977; Hou, 1975).

American ginseng is only slightly different both in chemical constituents and medicinal properties from the plant native to Korea and China *(Panax ginseng).* Its nicknames include sang, red berry, and five fingers (Hou, 1975).

Traditionally, American ginseng has been used to replenish the Vital Essence (yin), reduce internal Heat, promote the secretion of body fluids (cooling and thirst quenching), to treat debility, spontaneous night sweating, and chronic fatigue. American ginseng is a good antiaging medicinal herb (Wang, 1994).

TCM Properties

Sweet, slightly bitter in taste, and cool, it acts on the lung, heart, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the stomach and lung yin, and benefits *Qi:* to treat a dry mouth and tongue, American ginseng can be used alone in a decoction or with Chinese yam, trichosanthes root *(tian hua fen),* and dendrobium stem *(shi hu)*. It also helps to nourish and moisten the lungs (Wang, 1994).
2. Promotes the production of body fluids and reduces internal Heat: for febrile disease, dysphoria, lassitude, thirst, night sweating, and fatigue, American ginseng is prescribed alone or with ophiopogon root

(mai dong), dried rehmannia root, and dendrobium stem, as well as other herbs (Wang, 1994).

Dosage

In a decoction of 3 to 6 g.

Precautions

People who are Cold and have a Dampness in the stomach should avoid American ginseng (Wang, 1994). One should not mix American ginseng or other ginsengs with the following drugs: drugs that lower blood sugar, such as insulin, Amaryl, DiaBeta, Diabinese, Glucophage, Grucotrol, Precose, or Rezulin, or drugs that relieve depression, such as MAO inhibitors, Marplan, and Nardil (Vetrow and Avila, 1999).

Side Effects and Toxicity

No side effects were observed at the recommended doses.

Modern Research Findings

Chemical Constituents

American ginseng root contains 6 to 8 percent of total ginseng saponin, called panaquilins. At least eighteen different saponins are found in American ginseng and they are all triterpinoids. In addition, many other ingredients are similar to those found in Chinese ginseng. American ginseng root contains slightly more saponin but less proteinous and oily substances. It also contains inorganic salts, sugars, phytosterol esters, terpene, panacene, and fatty acids, as well as eighteen different amino acids (Hou, 1975).

In their extensive analyses of American ginseng, Professor E. John Staba of the School of Pharmacy of the University of Minnesota and his research team discovered that ginseng root contains panaquilins A, B, C, D, E_1, E_2, E_3, G_1, and G_2. The ingredients panaquilin E_1 and G_2 are not found in *P. ginseng*. American ginseng contains about 17.3 percent of the sapongenin panaxadiol but only 0.44 percent panaxatriol, a ratio of about 39:1. On the other hand, the sapongenins panaxadiol and panaxatriol in Chinese or Korean ginseng are about equal, in a ratio of 1:1 (Kim, 1974). According to traditional Chinese beliefs, the higher ratio of panaxadiol to panaxatriol in the

American ginseng root makes it cool, whereas the Chinese or Korean ginseng root is hot in nature (Hou, 1975).

Pharmacological Findings

1. Ginsenoside R_{b-1} reportedly is a CNS tranquilizer and sedative, a hypotensive, antipyretic, antipsychotic, and protects against ulcers. It inhibits a conditioned avoidance response in animal tests, is weakly anti-inflammatory, antihemolytic, increases gastrointestinal mobility, accelerates glycolysis, and accelerates serum and liver cholesterol, nuclear RNA, and protein synthesis (Leung and Foster, 1996).
2. Ginsenoside R_{g-1} reportedly is a broad CNS stimulant. It has hypertensive and antifatigue activity, aggravates stress ulcers, and increases motor activity. Also, in pole-climbing tests and Y-maze tests on mice (Foster, 1991; Leung and Foster, 1996) in accelerated discrimination behavior.
3. American ginseng regulates, normalizes, and inhibits arteriosclerosis (Hou, 1975).
4. An aqueous extract of American ginseng was shown to be antioxidant and nonmutagenic in human erythrocytes in vitro (Leung and Foster, 1996).

Clinical Findings

A hematogenic in nature, American ginseng is therapeutic for treating yin-deficiency syndromes, particularly with diabetes, and it treats physical fatigue, chronic prostatitis, central retinitis, chronic nephritis, Guillain-Barré syndrome, and other diseases associated with depletion of yin (Zhou, 1993).

REFERENCES

Foster, S. (1991). *American Ginseng—Panax quinquefolium, Botanical Series. No. 308.* Austin, TX: American Botanical Council.

Hou, J. P. (1975). *The Myth and Truth About Ginseng*. South Brunswick, NJ: A. S. Barnes and Co.

Jiang Su New Medical College (1977). *Zhong Yao Da Ce Dian* [Encyclopedia of Chinese Materia Medica]. Shanghai: Shanghai Science and Technology Press.

Kim, J. Y. (1974). *Saponin and Sapogenin Prescription in American Ginseng Plant*. PhD Thesis. Ann Arbor, MI: University of Michigan Microfilms.

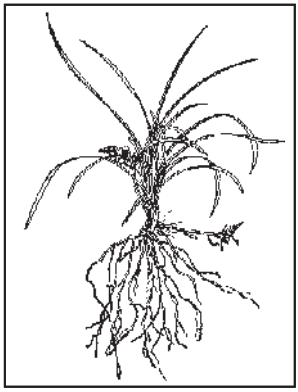
Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Willey and Sons, Inc.

Vetrow, C. W. and Avila, J. R. (1999). *Herbal Medicines*. Springhouse, PA: Springhouse.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhou, J. H. (1991). *Recent Advances in Chinese Herbal Drugs*. Beijing: Science Press.

OPHIOPOGON ROOT
Radix Ophiopogonis
Mai men dong *or* Mai dong



This herb is the dried root tuber of *Ophiopogon japonicus* (Thunb.) Ker-Gawl. of the family Liliaceae. It grows in all parts of China. Ophiopogon is harvested in summer, washed clean, the rootlets are removed, and it is dried in the sun. Ophiopogon produced in the Zhejiang and Sichuan provinces is of the best quality and is said to benefit the heart, promote the production of body fluids, and relieve tension and constipation (Jiang Su New Medical College, 1977). It is a tonic and aphrodisiac, promoting fertility and the secretion of milk (Smith and Stuart, 1973). Ophiopogon root is an excellent antiaging medicinal herb.

TCM Properties

Sweet, slightly bitter in taste and slightly cool, it acts on the lungs, heart, and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves vexation and insomnia: To relieve annoyance, vexation, and sleep disturbances, ophiopogon root is used with coptis root, salvia *(dan shen),* and lophatherum in a decoction, or with scrophularia root *(xuan shen),* dried rehmannia root, and wild jujube seed, along with other ingredients, as in *Tian Wang Bu Xin Wan* (R-45) (Zhang, 1988).
2. Nourishes the heart yin: for wasting disorders, shortness of breath, and exhaustion, it is often blended with codonopsis and schisandra to eliminate irritability, palpitations, and excessive sweating, or with schisandra fruit and ginseng root, as in *Sheng Mai San* (R-5) (Dong et al., 1998).
3. Moistens lungs and nourishes lung yin: to treat a dry cough with sticky, thick sputum and a dry throat, it is prescribed with mulberry leaf, bitter apricot kernel, donkey hide, gelatin, and unprocessed gypsum (Wang, 1994).

4. Moistens the bowels and nourishes the stomach: for a dry mouth, tongue, and throat, and dry bowels, and to prevent chronic constipation, it is mixed with glehnia root, dried rehmannia root, and polygonatum rhizome, as in *Yi Wei Tang* (Zhang, 1988).
5. Nourishes the lungs and stomach *Qi:* For congestive lung disease, shortness of breath, and a dry throat, ophiopogon root is combined with pinellia tuber, ginseng root, licorice root, and other herbs, as in *Mai Men Dong Tang* (R-69) (Wang, 1994).

Dosage

In a decoction of 10 to 15 g.

Precautions

Those suffering from spleen-stomach deficiency and dampness, or Wind-Cold should either not take ophiopogon or take with caution.

Side Effects and Toxicity

A therapeutic dose does not cause side effects. An intravenous injection of ophiopogon extract (1,000 to 1,225 times the dosage for humans) produced no side effects (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Ophiopogon root contains free sterols, stigmasterol, sterol glycoside, ophiopogonins A, B, C, and D, ruscogenin, beta-sitosterol, campesterol, and homoisoflavonoids (Zhu, 1998).

Pharmacological Findings

1. Lowers blood sugar. Regenerates beta cells of the islets of Langerhans of the pancreas in diabetic rabbits and the level of glycogen in the test group was higher than the control group (Wang, 1994).
2. Increases the contraction of cardiac muscles and increases the oxygen tolerance in experimental animals if injected with ophiopogon extract under anaerobic and low atmospheric pressure conditions. Clinically relieves coronary heart disease and angina (Dong et al., 1998).

3. As an antimicrobial, it inhibits the growth of *Staphylococci, Escherichia coli, B subtilis,* and *B. typhi.*
4. Increases immunology in mice (Yin, 1995; Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

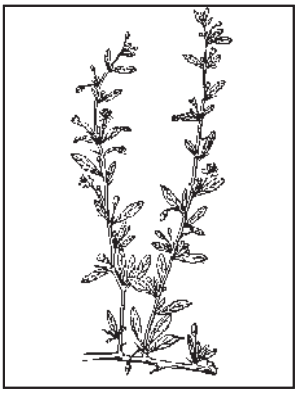
Yin, J. (1995). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 2)*. Beijing: Chinese Medical Classics Press.

Zhang, E. (Ed.) (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

LYCIUM FRUIT

Fructus Lycii
Gou qi zi



This herb is the dried, red, ripe fruit of *Lycium barbarum* L. or *L. chinesis* Miller of the family Solanaceae. It grows abundantly in northwest China, especially in the Gansu, Ningxia, and Qinghai provinces, and the Inner Mongolia region of China, and is naturalized in the United States. It is harvested in summer and autumn, dried in the shade until the skin is shrunk, then further dried in the sun, and used unprocessed (Jiang Su New Medical College, 1977). The top grade lycium fruit is a bright red color and soft to the touch with a sweet taste. Lycium fruit is traditionally used to replenish the Vital Essence of the liver and kidneys, and to improve immunity and eyesight, and is a blood tonic herbal remedy (Smith and Stuart, 1973). It is nicknamed wolfberry fruit and is a good antiaging medicinal herb.

TCM Properties

Sweet in taste and neutral, it acts on the liver, kidney, and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the liver yin and improves acuity of vision: for blurred vision, dizziness, darkness adaption, and disturbed eyesight, lycium fruit is prescribed alone as a decoction (Dong et al., 1998) or with chrysanthemum, processed rehmannia root, cornus *(shan zhu yu),* and Chinese yam, as in the patent medicine *Qi Ju Di Huang Wan* (R-25) (Dong et al., 1998; Zhang, 1988). Lycium fruit is also combined with glehnia root, Chinese angelica root, ophiopogon, and dried rehmannia root, as in *Yi Guan Jian* (R-11) for treating symptoms due to kidney-yin and liver-yin deficiency (Dong et al., 1998).
2. Strengthens the kidneys and replenishes the Vital Essence: for weariness of the loins and legs due to deficiency of the kidney Essence, lycium fruit is blended with polygonatum root *(huang jing)* and astragalus root (Dong et al., 1998).
3. Strengthens the liver and kidneys: for antiaging and to prevent premature aging, lycium fruit is mixed with poria, cuscuta seed, achyranthes

root, psoralea root, and other herbs, as in *Qi Bao Mei Ran Dan* (R-26). For lassitude of the loins and legs, fatigue, dizziness, tinnitus, and arteriosclerosis, lycium fruit is commonly used with processed rehmannia root and asparagus, as in *Qi Ju Wan* (Dong et al., 1998).

4. Nourishes the kidney and relieves chronic diabetes: to treat the symptoms of diabetes, polyuria, and fatigue, lycium fruit is prescribed with trichosanthes fruit, mantis cocoon, and astragalus root in a decoction (Wang, 1994).
5. Treats the damaging side effects of chemotherapy and radiation (Leung and Foster, 1996).

Dosage

In a decoction, in wine, or a tincture preparation of 6 to 15 g.

Precautions

People with yin deficiency, hyperactivity of liver yang, or those with profuse diarrhea should use lycium fruit with care.

Side Effects and Toxicity

A therapeutic dose does not produce side effects. The LD_{50} of water extract of lycium fruit is 8.03 g/kg in mice by subcutaneous administration (Wang, 1983).

Modern Research Findings

Chemical Constituents

Lycium fruit *(Ningxia gou qi zi)* contains a large amount (8 to 10 percent) of amino acids: aspartic acid, proline, glutamic acid, alanine, arginine, serine, and nine others. Other constituents include pigments (zeaxanthin, physalien, and cryatoxanthin), betaine, beta-carotene, vitamins B_1, B_2, and C, nicotinic acid, sugars, scopoletin, taurine, and gama-aminobutyric acid, cinnamic acid, fats, proteins, and different trace minerals (Leung and Foster, 1996).

Pharmacological Findings

1. Hypoglycemic: the lycium fruit extract significantly prolonged a decrease in blood sugar and increased the carbohydrate tolerance in rats (Wang, 1983).
2. Immunoregulating

   - A daily oral administration of 0.4 ml of 100 percent water decoction of lycium fruit for three days, or one intramuscular injection of 0.1 ml of the same decoction in mice significantly increased phagocytosis of the reticuloendothelial system (Wang, 1994).
   - In mice, lycium barbarum polysaccharides (LBP) at an intraperitoneal dose of 5 or 10 mg/kg increased T-lymphocyte proliferation (Wang, 1994).

3. Hematopoietic: oral administration of 0.5 ml of a 10 percent decoction of lycium fruit for ten days promoted the hematopoietic effect in mice, increasing the number of leukocytes (Wang, 1983).
4. Lycium is hypolipemic, hypotensive, hypnotic, antimicrobial, and sedative, prevents fatty liver, increases weight gain in mice, increases uterine muscle contraction, and enhances vision (Dong et al., 1998).
5. Antitumorous: immunopharmacological studies on effects of lycium fruit polysaccharides on T lymphocytes, cytotoxic T lymphocytes (CTL), and natural killer cells (NK) in normal and tumor-bearing mice were conducted. LBP had multiple effects on the immune system, on T lymphocytes, CTLs, NKs, macrophages, and B lymphocytes. These cells form a closely linked network of immune signals, releasing different lymphokines and activating factors to coordinate the defense system against tumor cells (Zhou, 1991).

Clinical Findings

1. Lycium invigorates the immune system. Oral administration of 50 g per day of lycium fruit extract for ten days raised significantly the value of lysozyme, IgG, IgA, lymphocyte blastogenesis, cyclic AMP, and testosterone in thirty patients (Leung and Foster, 1996).
2. In a double-blind placebo-controlled study, oral administration of lycium fruit extract to normal subjects, ages fifty-six to eighty-one, significantly improved their immune functions, reduced senility symptoms, and increased the total peripheral white blood cell count and neutrophils (Leung and Foster, 1996).

3. Recent clinical studies indicate that polysaccharides are responsible for most of the biological activities of lycium fruit. Also, in recent years, lycium fruit was used to treat the damage caused by the side effects of chemotherapy and radiation therapy. The fruit has also shown antiperoxidative effects on cell membranes of *Xenopus* oocytes, with activity comparable to that of superoxide dismutase (SOD), preventing physical stress- and carbon tetrachloride-induced lipid peroxidation in the liver, spleen, and brain tissues of rats and mice (Leung and Foster, 1996).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

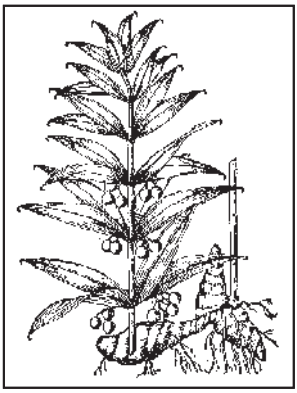
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhou, J. H. (1991). Immunopharmacological activities of yin and yang biomodulatory drugs. In Zhou, J. H. and Liu, G. Z. (Eds.), *Recent Advances in Chinese Herbal Drugs* (pp. 126-132). Beijing: Science Press.

POLYGONATUM ROOT

Rhizoma Polygonati
Huang jing



This medicinal herb consists of the dried rhizome *Polygonatum sibiricum* Red., *P. kingianum* Coll. et. Hemsl., or *P. cyrtonema* Hua of the family Liliaceae. It grows in the Hebei, Heilongjiang, Henan, Jiangsu, and Shandong provinces, and the Inner Mongolia region of China. Harvested in autumn and dried in the sun, it is sliced for use unprocessed or steamed to an oily state to use as processed polygonatum root. Polygonatum root is a famous tonic remedy for the *Qi* and replenishes the Essence of the spleen, stomach, and lungs, treats blood disorders, promotes digestion, and relieves coughs (Jiang Su New Medical College, 1977).

The roots, leaves, flowers, and fruit are all edible. For medicinal use, the rhizome is steeped in wine or administered as a powder. Taoists laud this plant and call it the food of the immortals (Smith and Stuart, 1973).

Polygonatum sibiricum rhizome *(huang jing)* is similar to *Polygonatum odoratum* rhizome *(yu zhu).* The former is more for toning the *Qi* and nourishing the spleen, while the latter is more for nourishing the yin. Both polygonatum root and *Polygonatum odorati* rhizome are good antiaging medicinal herbs (Wang, 1994).

TCM Properties

Sweet in taste and neutral, it acts on the spleen, lung, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Replenishes the spleen and stomach, and invigorates the *Qi:* for general debility, weakness of the stomach and spleen, lack of appetite, poor digestion, and weariness, polygonatum root is often prescribed with codonopsis, Chinese yam, and white atractylodes *(bai zhu)* (Wang, 1994).
2. Nourishes the yin and moistens the lungs: for a chronic dry cough, it is blended with glehnia root, dried rehmannia root, fritillaria bulb *(bei mu),* stemona root *(bai bu),* ophiopogon root, and polygonatum rhizome.

3. Nourishes the kidney Essence and benefits the liver: to improve fatigue and strengthen bones and tendons, it is combined with lycium fruit, asparagus root, and atractylodes. It also prevents gray hair, vertigo, and blurred vision, as well as the slowing of mental faculties caused by aging (Wang, 1994).
4. Treats diabetes: To relieve the associated symptoms of diabetes, polygonatum root is commonly mixed with trichosanthes root, Chinese yam, dried rehmannia, astragalus, and scrophularia in a decoction (Dong et al., 1998).

Dosage

In a decoction of 5 to 15 g.

Precautions

Those who suffer from indigestion, diarrhea, stagnation of *Qi* as obstruction of phlegm, and Dampness should avoid polygonatum root or use with caution.

Side Effects and Toxicity

The therapeutic dose of the processed polygonatum root is safe. Extracts of both the unprocessed root and processed root were given to mice orally at 450 g/kg. The mice who received unprocessed root extract died. None died from ingesting the processed root, suggesting that it is safe (Yin, 1995).

Modern Research Findings

Chemical Constituents

Polygonatum root contains the steroidal saponins sibiricosides A and B, as well as neoprazerigenin A 3-o-beta-lycotetraoside and its methyl prototype congener. Polysaccharides A, B, and C, consisting of glucose, mannose, and galacturonic acid, and oligosaccharides A, B, and C, consisting of glucose and fructose were also isolated from the root (Son et al., 1990; Zhou, 1993; Zhu, 1998).

Pharmacological Findings

1. Effects on blood sugar levels: oral administration of the herb's extract to rabbits gradually and transiently increased blood glucose levels but decreased it afterwards. This is probably due to the carbohydrate con-

tent of the herb. The extract also inhibited epinephrine-induced hyperglycemia (Wang, 1983).

2. Cardiovascular properties: the aqueous and 30 percent alcoholic extract of the herb was hypotensive in anesthetized animals (Wang, 1994).
3. Effect on blood lipids and arteriosclerosis: oral administration of the herbal decoction to rabbits with experimental hyperlipidemia at 5 ml twice daily for thirty days markedly decreased blood triglycerides, beta-lipoprotein, and cholesterol levels (Wang, 1983). The decoction also increased coronary blood supply and prevented the development of arteriosclerosis.
4. Antimicrobial: the aqueous extract of the herb at 1:320 inhibited *Salmonella typhi, S. aureus,* and acid-fast bacilli in vitro (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica.* Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Son, K. H., Do, J., and Kang, S. S. (1990). Steroidal saponins from the rhizomes of *Polygonatum sibiricum. Journal of Natural Products* 53: 333-339.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

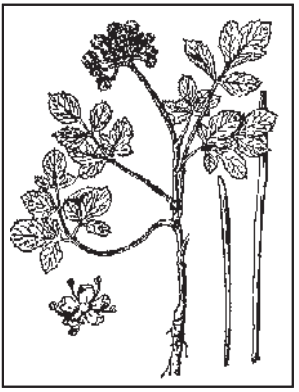
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yin, J. (1995). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 2)*. Beijing: Chinese Medical Classics Press.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica*. Beijing: China Medical and Pharmaceutical Science Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

GLEHNIA
Radix Glehniae
Bei sha shen



This herb is the root and rhizome of *Glehnia littoralis* Fr. Schimidt ex. Miq. of the family Umbelliferae. It grows mainly in the Hebei, Jiangsu, Liaoning, and Shandong provinces of China. Harvested in summer and washed clean, the rootlets are discarded. The roots are skinned after scalding in boiling water, then sliced or cut into small segments, dried in the sun, and used unprocessed (Dong et al., 1998; Wang, 1994).

Traditionally, glehnia is a yin tonic herb, promoting the production of body fluids to moisten the eyes, throat, and mouth, relieve a dry cough and bronchitis, and treat tuberculosis.

TCM Properties

Sweet and slightly bitter in taste, and slightly cool, it acts on the lung and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Removes Heat from the lungs and relieves bronchitis:
   - For a dry cough due to Heat in the lungs and chronic bronchitis, glehnia is blended with ophiopogon root, polygonatum rhizome *(yu zhu),* trichosanthes root, licorice root, dolichos nut *(bai bian dou),* and mulberry leaf in a decoction (Dong et al., 1998).
   - For dry, itchy skin in the winter, glehnia is prescribed with ophiopogon root, Chinese angelica, and polygonatum rhizome in a decoction (Wang, 1994).
2. Strengthens the stomach and improves the production of body fluids: for dry mouth, thirst, poor appetite, and constipation, it is often mixed with dried rehmannia and ophiopogon root (Wang, 1994).

Dosage

In a decoction of 10 to 15 g, or 6 g in powder form for oral use.

Precautions

People with a cough caused by Wind-Cold cold and a feeling of weakness should avoid this herb. Glehnia should not be used with veratrum root.

Side Effects and Toxicity

The therapeutic dose is safe. No adverse reactions have been reported.

Modern Research Findings

Chemical Constituents

Glehnia root contains the alkaloids furanocoumaines imperatorin, psoralen, xanthotoxol, xanthotoxin, isoimperatorin, and bergapten. Other ingredients are essential oils, beta-sitosterol, petroselenic acid, palmitic acid, linoleic acid, and phellopterin (Ling, 1995; Oyanagi et al., 1990; Su and Qiao, 1989).

Pharmacological Findings

1. Expectorant and antitussive (Dong et al., 1998).
2. Analgesic and antipyretic. Lowers body temperature (Dong et al., 1998).
3. Inhibits cardiac activities depending on dosage (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Oyanagi, M., Hiraoka, N., Tomita, Y., Ogawa, T., Mizukami, H., and Ohashi, H. (1990). High performance liquid chromatographic analysis of furocoumarins in *Glehnia littoralis*. *Shoyakugaku Zasshi* 44: 219-224.

Su, Z. W. and Qiao, C. Z. (1989). *Pharmacognosy*. Shanghai: Shanghai Medical University Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

ASPARAGUS

Radix Asparagi
Tian men dong *or* Tian dong

This herb consists of the dried tuberous roots of *Asparagus cochinchinensis* (Lour.) Merr. of the family Liliaceae. The best asparagus is grown in the Shandong province. Today, asparagus, a creeping plant with prickly leaves, is widely cultivated in the Beijing area and in the southern provinces of Guizhou, Jiangxi, and Zhejiang of China (Jiang Su New Medical College, 1977).

The herb is used as an expectorant, tonic, stomachic, and hypoglycemic agent. Its prolonged use is recommended for the treatment of impotence. The root is preserved in sugar as a sweet meat (Smith and Stuart, 1973; Wang, 1994).

TCM Properties

Sweet and bitter in taste, and cold, it acts on the kidney and lung meridians (Jiang Su New Medical College, 1977).

Effects, Medicinal Uses, and Combinations

1. Nourishes the yin and promotes the production of body fluids: for thirst, asparagus is combined with ophiopogon root, anemarrhena rhizome, trichosanthes root, and scute root, as in the patented recipe *Er Dong Tang* (Wang, 1994).
2. Removes pathogenic Heat from the lungs: for a cough with sticky phlegm or a cough with bloody sputum, it is blended with ophiopogon root. For a cough due to tuberculosis, it is blended with ophiopogon root, dried rehmannia root, prepared rehmannia root, donkey-hide gelatin, and notoginseng (Wang, 1994).
3. Nourishes kidney yin and improves sexual functions: For impotence and nocturnal emission, asparagus is used with ginseng, cistanche, amomum, and licorice root in a decoction (Dong et al., 1998).

Dosage

In a decoction of 6 to 12 g.

Precautions

People with diarrhea due to spleen deficiency or with a severe cough should avoid this herb.

Side Effects and Toxicity

The herb is safe at the recommended dose.

Modern Research Findings

Chemical Constituents

Asparagus root tuber contains saponins, methylprotodiocin, pseudoprotodiocin, inuline, and eight fructo-oligosaccharides, glucoside bitter principles (officinalisin I and II), asparagine, citrulline, serine, threonine, proline, clyccine, beta-sitosterol, smilagenin, 5-methoxymethy furfurol, oligosaccharides, asparagusic acid, rhamnose, starch, mucilage, and glucose (Leung and Foster, 1996; Zhu, 1998).

Pharmacological Findings

1. Antitussive and expectorant (Dong et al., 1998).
2. Hypoglycemic. Relieves symptoms of diabetes.
3. Antimicrobial. Inhibits the growth of *Streptococci,* hemolytic *streptococci* (Dong et al., 1998), *Diplococcus pneumoniae, B. diphtheria, B. anthracis, B. subtilis,* and *S. aureus* (Zhu, 1998).
4. Induces abortion and reduces labor time. The extract of asparagus dilates and softens the cervix, contracts the uterine muscles, and dilates the neck of the uterus, thus inducing abortion (Dong et al., 1998).
5. Possesses antileukemic properties and inhibits acute lymphocytic leukemia in vitro (Dong et al., 1998).
6. The herb has antitumor activity against sarcoma 180 and it has exhibited an anticoughing effect against sulfur dioxide-induced cough in mice (Wen et al., 1993).

Clinical Findings

1. Today, asparagus tuber is used as a diuretic in Germany (Leung and Foster, 1996).
2. This herb has also been used to treat lung cancer and diabetes in Chinese hospitals. For breast fibroma, breast tumor, and mastadenoma, fresh asparagus tuber soaked in wine is used (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wen, J. Y., Li, Y., Ding, S. S., and Li, Q. H. (1993). Pharmacological screening of 9 medicinal plants of the genus *Asparagus (Liliaceae)* in China. *Acta Academia Medicine* 20: 107-111.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publisher.

EPIMEDIUM

Herba Epimedii
Yin yang huo *or* Xiang ling pi

This herb is the dried aboveground parts of the whole plant (leaves and stems included) of *Epimedium brevicornum* Maxim., *E. sagittatum* (Sieb et Zacc) Maxim., or *E. koreanum* Nakai of the family Berberidaceae. It is mainly grown in the Guangxi, Hubei, Shaanxi, Shanxi, and Sichuan provinces of China, and in Korea. The plant is collected in the summer and autumn months when the leaves and branches are abundant. It is dried after removing any impurities and subsequently used unprocessed or stir baked with sheep fat (Jiang Su New Medical College, 1977).

In ancient times the Chinese believed that the plant had strong aphrodisiac properties. Goats seen eating the plant were said to be drawn to excessive copulation. Epimedium is also named *xian ling pi* and was used to treat sterility, barrenness, and sexual dysfunctions, and as an antirheumatic (Smith and Stuart, 1973).

TCM Properties

Pungent and sweet in taste, and warm, it acts on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates the kidney yang and improves gonadotrophic activities.

- For impotence, lassitude, weakness of the loins and knees, and frequent urination due to a deficiency of kidney yang, epimedium is commonly used alone in a decoction or tincture, or used along with prepared rehmannia root, cornus *(shan zhu yu),* curculigo rhizome *(xian mao),* morinda root, and lycium fruit (Dong et al., 1998).
- For female infertility due to coldness of the uterus, epimedium is combined with Chinese angelica, cornus, cinnamon bark, curculigo rhizome, and processed aconite root in a decoction (Wang, 1994).

2. For chronic cough, dyspnea, and bronchitis due to deficiency of yang, epimedium is mixed with psoralea fruit *(bu gu zhi),* walnut kernel, and schisandra fruit (Dong et al., 1998).
3. Epimedium dispels Wind and eliminates Dampness: for arthralgia, muscular spasm, and numbness of the hands and feet due to *Bi*-Syndrome, epimedium is blended with clematis root, xanthium fruit *(cang er zi),* cnidium *(chuan xiong),* and cinnamon bark (Dong et al., 1998).
4. Suppresses the hyperactivity of the liver yang: for hypertension due to yin deficiency, high blood pressure, and for female menopause, epimedium is prescribed with curculigo rhizome *(xian mao),* morinda root *(ba ji tian),* schisandra fruit, anemarrhena *(zhi mu),* Chinese angelica, and phellodendron, as in the patented recipe *Er Xian Tang* (R-27) (Dong et al., 1998).

Dosage

In a decoction of 6 to 15 g. In powders or tincture preparations, 6 g or less.

Precautions

People with hyperactivity of the kidney yang, caused by deficiency of yin, should avoid using epimedium.

Side Effects and Toxicity

No abnormalities were observed at the suggested oral dose. Some patients complained about dryness of the mouth, stomach discomfort, nausea, or vomiting with large doses. The symptoms disappeared after patients stop taking the herb. The LD_{50} of the concentrated decoction of the herb in mice was 36 g/kg by intraperitoneal administration (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Epimedium has many species and each contains somewhat different chemical ingredients. The leaves and stems of *E. sagittatum* contain flavonoids, lignans, phenolic glycosides, sesquiterpenes, ionone, and penethylol glycoside. Flavonoids include ikarisoside A-F, icaritin 3-0-L-rhamaoside,

sagittatosides A-C, and sempervirenosides A and B (Wang, 1994). Other isolated ingredients include polysaccharides, flavonol glycoside icariin, olivil epimedine, des-o-ethylicardine, magnoflorine, sterols, tannin, pamitic acid, linolic acid, and vitamin E (Wang, 1983).

Pharmacological Findings

1. Stimulates sexual hormone production, strengthens sexual desire, and serves as an aphrodisiac (Dong et al., 1998). Oral administration of the concentrated decoction of the plant promoted semen secretion (Zhu, 1998).
2. Lowers blood sugar in experimental rats (Dong et al., 1998).
3. Antitussive expectorant and antiasthmatic (Dong et al., 1998).
4. Enhances the immune system. Improves DNA synthesis. The polysaccharide of the plant was found to accelerate the production of T-suppressor cells of immunized mice and to inhibit the antibody production in recipient mice (Zhu, 1998).
5. Lowers blood pressure via enlargement of blood vessels and diuresis (Dong et al., 1998).
6. Regulates cardiac arrhythmia (Dong et al., 1998).
7. Antibacterial and protects against the polio virus and *Staphylocorens aureus* in vitro (Dong et al., 1998).
8. Leukopenia induced by immunosuppressors showed improvement with epimedium (Zhou, 1993).

REFERENCES

Dong, K. S, Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica*. Beijing: China Medical and Pharmaceutical Science Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

EUCOMMIA BARK
Cortex Eucommiae
Du zhong

This herb is the dried trunk bark of *Eucommia ulmoides* Oliv. of the family Eucommiaceae. It is mainly grown in the Guizhou, Hubei, Sichuan, and Yunnan provinces of China. The bark is stripped off the tree between April and June, then dried in the sun after the cork has been removed, and cut into pieces. It is used unprocessed or stir baked with saltwater and dried (Jiang Su New Medical College, 1977). Eucommia bark is also known as *mu mian* (cotton tree), which refers to the fact that if the bark is broken and the fractured edges drawn asunder, a delicate, silvery, silky fiber may be pulled out for several inches without breaking (Wang, 1994).

Traditionally, unprocessed eucommia bark is good for arthralgia and the processed species is good for lumbago, impotence, hypertension, and stabilizing a fetus to prevent miscarriage (Smith and Stuart, 1973; Wang, 1994).

Eucommia bark is used as a tonic to replenish the kidneys and the liver, tranquilize the mind, and strengthen the bones and muscles. It is used today for treating threatened abortion and to prevent miscarriage (Dong et al., 1998). Eucommia bark is a powerful antiaging medicinal herb.

TCM Properties

Sweet in taste and warm, it acts on the liver and kidney meridians (Smith and Stuart, 1973).

Effects, Medicinal Uses, and Combinations

1. Invigorates the kidney yang and liver yang, and strengthens the bones and muscles: for ailments due to yang deficiency manifested as aches and pain in the loins and knees, lassitude of muscles, impotence, and frequent urination, eucommia bark is mixed with morinda, psoralea, cornus, dodder seed, and prepared rehmannia root (Smith and Stuart, 1973).
2. Prevents uterine and vaginal bleeding, soothes the fetus, and prevents habitual miscarriage:

- For profuse uterine bleeding and unstable fetus, eucommia is combined with dipsacus root *(xu duan)* and Chinese dates, as in *Du Zhong Wan,* to stop bleeding, stabilize the fetus, and prevent habitual miscarriage (Wang, 1994).
- Eucommia is also blended with ginseng root, white atractylodes, prepared rehmannia, white peony, loranthus, and donkey-hide gelatin to treat uterine bleeding due to both *Qi* and blood deficiency, and to prevent habitual miscarriage (Smith and Stuart, 1973).

3. Nourishes the kidney yin and liver yin, and lowers blood pressure: for hypertension, dizziness, and light-headedness due to kidney-yin and liver-yin deficiency or an excess of liver yang, eucommia bark is mixed with lycium fruit, loranthus *(sang ji sheng),* achyranthes root, prunella spike, scute root, and chrysanthemum in a decoction (Dong et al., 1998).

Dosage

In a decoction of 5 to 15 g.

Precautions

To lower blood pressure, eucommia alone is less effective for liver-yang hyperactivity than in a compound prescription with other herbs (Wang, 1994).

Side Effects and Toxicity

No side effects were noted at the recommended therapeutic dose. Oral administration of 15 g/kg of the herbal decoction in mice caused no mortality (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Eucommia bark and leaves contain mainly lignans and iridoids. Twenty-six lignan compounds have been isolated from the bark of the plant. The lignans are: pinoresinol, ulmoprenol, dulcitol, epipinoresinol, medioresinol, syringaresinol, hedroxy pinoresinol, cycloolivil kaempferol, ulmoprenol, ducitol, and other lignan compounds. Other ingredients and the iridoid

compounds include aucubin, ajugoside, harpagile acetate, alkaloids, glycosides, vitamin C, caffeic acid, and potassium (Ling, 1995; Zhu, 1998). Pinoresinol diglucoside is believed to be the major antihypertensive component and is mainly found in the phloem part of the bark (Sha and Sun, 1986).

Pharmacological Findings:

1. Lowers blood pressure. An aqueous extract of eucommia bark lowered blood pressure in pigs, rabbits, and dogs (Dong et al., 1998).
2. Reduces blood cholesterol levels in rabbits and reduces the absorption of cholesterol (Wang, 1994).
3. Acts as a tranquilizer and diuretic in animal experiments (Dong et al., 1998).
4. Enhances immune activity and increases resistance against diseases (Dong et al., 1998).
5. Inhibits the contraction of uterine muscles in rats and rabbits (Dong et al., 1998).
6. Other effects include sedative, analgesic, anti-inflammatory, diuretic, and antimicrobial (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Sha, Z. F. and Sun, W. J. (1986). High performance liquid chromatography of pinoresinol diglucoside in *Ecomimmia ulmoides* Oliv. bark. *Acta Pharmaceutica Sinica* 21: 708-711.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs] Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PSORALEA FRUIT

Fructus Psoraleae
Bu gu zhi

This herb is the fruit of the plant *Psoralea corylifolia* L. of the family Leguminosae. It is said to be transplanted originally from Persia (now Iran). Today it is grown in the Henan and Sichuan provinces of China. After collection in autumn, it is dried in the sun, and used unprocessed or stir baked with saltwater (Jiang Su New Medical College, 1977).

Psoralea is a strong aphrodisiac herb. Traditionally, it was used to tone the genital organs and to treat impotence, threatened abortion, the discomforts of pregnancy, insufficient erections, polyuria, incontinence of urine in children, and sexual disorders (Smith and Stuart, 1973).

TCM Properties

Pungent, bitter in taste, and warm, it acts on the kidney and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Stimulates kidney yang:

   - For lumbago, psoralea fruit is commonly prescribed with eucommia bark and walnut kernel. It is also used with cuscuda *(tu si zi)* lycium fruit, epimedium, and walnut kernel, as in *Bu Gu Zhi Wan* (Wang, 1994).
   - For impotence, premature ejaculation, seminal emission, sexual inadequacy, and polyuria, it is blended with dodder seed, epimedium, and lycium fruit in a decoction (Dong et al., 1998).

2. Invigorates deficient kidney and spleen: for diarrhea before dawn, psoralea fruit is used with nutmeg, schisandra fruit, and evodia fruit *(wu zhu yu),* as in *Si Shen Wan* (R-28) (Wang, 1994).
3. Treats skin ailments: The tincture preparation of psoralea fruit can be applied externally on the skin to relieve psoriasis, vitiligo, and alopecia areata (loss of hair) (Wang, 1994).

4. Treats frequent urination and enuresis in children: in its powdered form, 1.5 to 2.5 g daily before sleep is administered, or it is used with fennel in pills or capsules with good results (Dong et al., 1998).

Dosage

In a decoction of 5 to 10 g. For external application, 0.5 to 1.0 percent alcoholic psoralea fruit tincture is used to treat common skin ailments, particularly for leukoderma (vitiligo), psoriasis, and *alopecia areata* (Dong et al., 1998).

Precautions

People who are yin deficient, blood deficient, and have excess Fire, with tooth pain, should use psoralea with caution (Wang, 1994).

Side Effects and Toxicity

No adverse reactions have been reported at the suggested therapeutic dose. LD_{50} of the total oil of the herb, bakuchiol, and isopsoralen in mice by oral administration were 38 C 3.5 g/kg, 2.3 C 0.18 mg/kg, and 180 C 30 mg/kg, respectively (Wang, 1983).

Modern Research Findings

Chemical Constituents

The fruit of the herb contains flavonoids, coumarins, and monoterpenes. The flavonoid compounds isolated include corylifolin, bavachin, corylifolinin, isobavachalone, bavachromene, and neobavachalcone. The coumarins include psoralen, isopsoralen, psoralidin, isopsoralidine, angelicin, and corylidin. In the monoterpene group, the chemical bakuchiol was isolated (Wang, 1983). Other ingredients in the fruit, including volatile oil, fats, and alkaloids, have been isolated (Jiang Su New Medical College, 1977).

Pharmacological Findings

1. Action on the coronary vascular system:
   - Dilates coronary arteries and increases blood circulation (Wang, 1994).
   - Corylifolinin enhanced cardiac contractility in guinea pigs and rats, stimulated a frog heart, and counteracted heart failure due to lactic acid (Wang, 1983).
2. Antitumorous (Wang, 1994).
3. Action on the skin pigments: psoralea preparations increase dermal circulation and can cause the skin to produce new dark pigment (Wang, 1994).
4. Prevents excessive bleeding of the uterus (Wang, 1994).
5. Antisenility, diuretic, and uterine muscle contraction properties have been noted (Wang, 1994).

Clinical Findings

1. The mixture of psoralen and isopsoralen given orally, intramuscularly, or externally was effective in the treatment of vitiligo. In some cases, it was supplemented with sunlight or ultraviolet irradiation (Zhu, 1998). The filtrate of psoralea fruit soaked in a 20 percent alcohol solution for seven days can be used externally for vitiligo. The external application of the herb extract combined with sunlight radiation gave good therapeutic results (Wang, 1994).
2. A 100 percent psoralea decoction was given intramuscularly at 3 ml daily to 120 subjects with psoriasis. After ten treatments, itching was significantly reduced and skin scaling decreased. After forty treatments, seventy-seven subjects had marked beneficial results, thirty-three subjects had moderate results, and ten subjects were unchanged (Jiang Su New Medical College, 1977).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

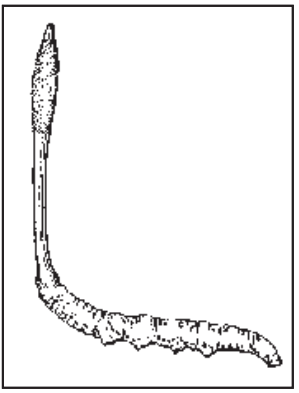
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CORDYCEPS

Cordyceps sinensis
Dong chong xia cao



This medicinal herb is the dried fungus *Cordyceps sinensis* (Berk) Sacc. of the family Hypocreaceae, which grows on the larva of caterpillars. It is usually found in mountains above 3,500 to 4,700 meters in the Gansu, Gueizhou, Hupei, Qinghai, Shanxi, Sichuan, Tibet, Xinjiang, Yunnan, and Zhejiang provinces of China. It is also found in the mountain areas of Japan, France, the United States, Mexico, Canada, Russia, Holland, Australia, Norway, and Italy. Collected in late summer, it is cleaned and dried for use unprocessed (Dong et al., 1998; Song, 1995).

Interestingly, the vegetable portion of the fungus emerges out of the ground, appearing as a round head with a long neck, brown in color, and under the soil is a display of rings, joints, and more or less a characteristic wormlike substance.

The Chinese name *dong chong xia cao,* or *chong cao* for short, literally means "a wormlike plant in the winter time, it becomes a genuine plant in the summer time."

In ancient times in China, cordyceps was as a rare, precious tonic remedy. Today it is used to replenish the kidney yang for the treatment of impotence, night sweating, chronic cough, and many other problems. Clinically, it has been used to treat high cholesterol, respiratory ailments (particularly chronic bronchitis), and sexual debility. Cordyceps is an excellent antiaging medicinal herb (Jiang Su New Medical College, 1977; Song, 1995).

TCM Properties

Sweet in taste and neutral, it acts on the kidney and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates and nourishes both the yin and the yang: for impotence, nocturnal emission, night sweating, and chronic cough, as well as aches in the loins and knees, cordyceps is used with dodder seed, eucommia bark, and morinda root, along with other herbs (Dong et al., 1998).

2. Delays aging: for longevity, cordyceps is prescribed with ginseng, astragalus root, Chinese angelica root, and lycium fruit (Song, 1995).
3. Replenishes the kidneys and soothes the lungs: for a chronic cough with hemoptysis (expectoration of blood) in pulmonary tuberculosis, shortness of breath, and asthma, cordyceps is mixed with ginseng root and peach kernel or with orphiopogon, schisandra fruit, bletilla, and fritillary *(chuan bei mu)* to nourish the lungs, and resolve phlegm and coughs (Wang, 1994).
4. Other actions: cordyceps is a hypnotic, prevents arteriosclerosis and hyperlipidemia, acts as a sedative, invigorates the immune system, and protects the cerebral and coronary tissues (Dong et al., 1998).

Dosage

In a decoction of 9 to 15 g.

Precautions

Persons with external pathogenic symptoms or Heat in the lungs should not use cordyceps.

Side Effects and Toxicity

The aqueous macerated solution of the herb is low in toxicity. At a large dose, patients experience dry mouth, skin rashes, diarrhea, and drowsiness (Dong et al., 1998). An intraperitoneal dose of 5 g/kg was lethal to some mice whereas at 30 to 50 g/kg it was lethal to all mice. Toxic reactions were followed by sedation, spasm, respiratory paralysis and inhibition, followed by death. The macerate extract of the herb given subcutaneously or intravenously had an inhibitory effect on rabbits and mice; large doses induced rapid respiration and pulse, and finally death from respiration spasm. However, the boiled extract was nontoxic (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Cordyceps contains fat, protein, vitamins B_{12} and C, fatty acids, alkaloids, glycosides, cordycepin, cordyceptic acid, and fifteen amino acids. The active ingredients are photosterol, ergosterol, beta-sitosterol, cholesterol, claucosterol, campesterol, and dihydromassicasterol. Also found were

fifteen different minerals and rare elements including P, Mg, Fe, Ca, Na, K, Mn, Cu, Zn, Si, Ni, Al, Ti, Cr, Se, Ga (gallium), V (vanadium), and Zr (zirconum). Selenium (Se), which is found in the plant, is the most important element because it demonstrates antioxidant, anticancer, and antiaging activities (Feng, 1990; Lu, 1981; Song, 1995; Zhang et al., 1988).

Pharmacological Findings

1. The plant is a good sedative, antiasthmatic, hypnotic, and tranquilizer. It reduces rapid cardiac rate, lowers blood pressure, lowers cholesterol, improves immune functions, and an anticancer agent (Wang, 1994).
2. Inhibits blood platelet aggregation (Zhu, 1998).
3. Adaptogenic (Zhu, 1998).
4. Antimicrobial (Wang, 1994).
5. A modern pharmaceutical product of cordyceps in capsules is called *Ning Xin Bao*. Clinically it is used as an antiarrhythmia agent, for atrial premature or ventricular premature heartbeat, chronic nephritis, and chronic renal insufficiency (Song, 1995).

Clinical Findings

1. The cordyceps product sold in the United States is designated as Paecilomyces hepiali Chen (strain C_s-4). A number of clinical trials with C_s-4 under various conditions have been conducted in China on a total number of 2,000 patients. Zhang et al. (1998) carried out a double-blind placebo-controlled study on the effects of 3 g of C_s-4 daily on 358 elderly people with various symptoms of senescence. Those consuming C_s-4 compound showed alleviation of fatigue, cold intolerance, dizziness, frequent nocturia, tinnitus, hyposexuality, and loss of memory (Schulz et al., 2001).
2. A study lasting approximately twenty-six months examined the results of the effectiveness of C_s-4 as an adjuvant treatment in patients suffering from congestive heart failure. Patients taking C_s-4 showed significant improvement in quality of life, increased efficiency of oxygen utilization, free-radical scavenging activity, improved sexual function, and reduced blood lipids. All clinical trials on cordyceps to date have been in China (Schulz et al., 2001).
3. Cordyceps is employed as an adaptogen and tonic remedy. The dosage used ranges from 3 to 9 g daily of the crude drug (Schulz et al., 2001).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Feng, X. (1990). *Chemical Studies on the Active Ingredients of Cordyceps*. Beijing: Union Medical University Annual Book.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Lu, R. J. (1981). Studies on chemical constituents of cordyceps. *Yao Xue Tong Bao* 16: 567.

Schulz, V., Hansel, R., and Tyler, V. (2001). *Rational Phytotherapy.* Heidelberg, Germany: Springer-Verlag.

Song, Z. (Ed.) (1995). *Zhong Cao Yao Xian Dai Yen Jiou* [Modern Studies in Chinese Herbal Drugs]. Beijing: Beijing Medical University and Union Medical University Joint Press.

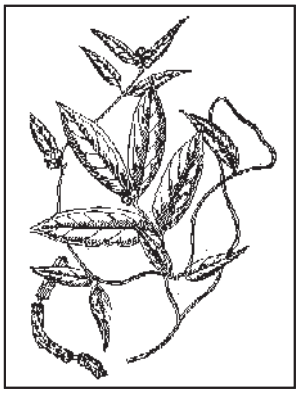
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhang, L. (1988). Pharmacological studies on cordyceps. *Yao Xue Tang Bao* 23: 521.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

MORINDA ROOT

Radix Morindae officinalis
Ba ji tian



This medicinal herb is the dried root of *Morinda officinalis* How of the Rubiacea family. It is a wintergreen and mainly grows in the Fujian, Guangdong, Guangxi, Jiangxi, and Sichuan provinces of China. Harvested in the spring or winter, it is dried in the sun, sliced for use unprocessed, or stir cooked in salt-water (Jiang Su New Medical College, 1977).

The root is traditionally used as a warming agent and a tonic. It strengthens the bones and tendons, reinforces the vital functions of the kidneys, and is especially beneficial for preventing impotence, seminal emission, premature ejaculation, and infertility in women (Smith and Stuart, 1973).

TCM Properties

Sweet and acrid in taste, and warm, it acts on the liver and kidney meridians (Wang, 1994).

Effects, Medicinal Uses, and Combinations

1. Invigorates the kidney yang: to treat male impotence and spermatorrhea, morinda root is blended with cistanche, cuscuta, epimedium, and rubus *(fu pen zi)* (Wang, 1994).
2. Stimulates the *Ren* and *Chong* meridians: for female infertility and irregular menstruation, leukorrhea, and dysmenorrhea, morinda root is combined with rubus, evodia, and prepared aconite, as well as other herbs in a decoction (Wang, 1994).
3. Strengthens the bones and tendons, and eliminates rheumatism and arthralgia: for lumbago and lassitude of the muscles, morinda root is prescribed with ginger, acanthopanax, curcuma, and achyranthes (Wang, 1994).
4. Replenishes the primordial *Qi:* for hemiplegia due to stroke, paralysis of the hands or feet, and impairment of speech, morinda is combined with dried rehmannia, cornus, dendrobium *(shi hu),* and cistanche *(rou cong rong)* (Wang, 1994).

Dosage

In a decoction of 9 to 15 g.

Precautions

This herb should not be used on hyperactive patients or for those who are Damp-Heat and yin deficient (Wang, 1994).

Side Effects and Toxicity

No unwanted effects or toxicity at the suggested therapeutic dose were recorded in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Morinda tuberous root contains stigmasterol, beta-sitosterol, alpha-amyrin, moridin, vitamin C, the minerals Zn, Mn-Ca, Sr, Ba, Mg elements, and sugars (Dong et al., 1998).

Pharmacological Findings

1. The crude extract of morinda root has no androgen-like effect in rats (Dong et al., 1998).
2. Lowers blood pressure, and is a sedative and hypnotic (Wang, 1994).
3. Shows ACTH-like action (Wang, 1994).
4. Builds strong bones and tendons due to high contents of minerals Ca, Mg, Be, and Ba (Dong et al., 1998).
5. Lowers blood cholesterol and prevents coronary heart disease (Dong et al., 1998).
6. Antimicrobial (Dong et al., 1998).

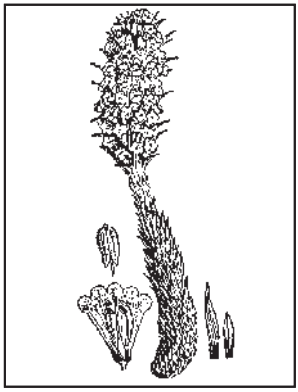
REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

CISTANCHE
Herba Cistanches
Rou cong rong



This herb consists of the pulpy stem, along with the scales, of *Cistanche deserticola* Y. C. Ma. of the family Orobanchaceae. It grows mainly in the Gansu, Inner Mongolia, Qinghai, and Xinjiang provinces of China. Collected in spring, it is dried in the sun and sliced for use unprocessed (Jiang Su New Medical College, 1977).

The herb was traditionally used as a tonic to treat all wasting diseases, an aphrodisiac for men, and to cure impotence, spermatorrhea, menstrual difficulties, gonorrhea, and problems related to the genital organs of women (Smith and Stuart, 1973). Today, it is used to reinforce the vital functions of the kidneys, as a mild laxative for chronic constipation in the elderly, and to treat impotence. Cistanche is a good antiaging medicinal herb (Jiang Su New Medical College, 1977).

TCM Properties

Sweet and salty in taste, warm, and nontoxic, it acts on the kidney and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Stimulates the kidney yang:

   - For impotence, cistanche is mixed with processed rehmannia root, cuscuta seed *(tu si zi),* and schisandra fruit (Dong et al., 1998).
   - For pain in the loins and knees, as well as for lassitude of the muscles, cistanche is used with morinda root and eucommia bark (Dong et al., 1998).
   - To treat female infertility and strengthen the vital essence, cistanche is also combined with other tonic medicinal herbs, such as antler glue, Chinese angelica, and white peony (Zhang, 1999).

2. Moistens the bowels and induces laxation: for chronic constipation due to dryness of the bowel in the elderly, after giving birth, or after laying in bed for a long period, cistanche is prescribed alone in a de-

coction (use up to 30 g) or with hemp seed, aquilaria *(chen xiang),* Chinese angelica, dry rehmannia, and bitter orange in a decoction, as in the patented recipe *Run Chang Wan* (Dong et al., 1998)

Dosage

In a decoction of 10 to 20 g. Up to 30 g may be used for severe symptoms.

Precautions

This herb should not be used in cases of hyperactivity or for those experiencing loose stools due to spleen-yin deficiency or constipation due to excess Heat in the intestinal tract.

Side Effects and Toxicity

No undesirable side effects or toxicity at the therapeutic dose has ever been mentioned in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Cistanche contains 8-epiloganic acid, glycosides, manhitol, and fifteen amino acids (Zhu, 1998).

Pharmacological Findings

1. In laboratory tests of rabbits, cats, and dogs, cistanche reduced blood pressure (Dong et al., 1998).
2. Invigorates immune function (Dong et al., 1998).
3. It is gonadotropic and invigorates sexual hormone secretions (Dong et al., 1998).
4. Acts as a stomachic and aids digestion (Dong et al., 1998).

REFERENCES

Dong, K. S, Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

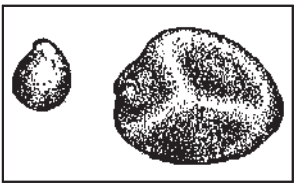
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Zhang, E. Q. (1999). *The Chinese Materia Medica*. Shanghai: Shanghai TCM University Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CUSCUTA

Semen Cuscutae
Tu si zi



This herb is the dried, ripe seeds of *Cuscuta chinensis* Lam. of the family Convolvulaceae. The plant grows mainly in the Hebei, Henan, Jilin, Liaoning, and Shandong provinces of China. The seeds are collected in the autumn after they have ripened. They are dried in the sun, and used unprocessed (Jiang Su New Medical College, 1977).

Diaphoretic, demulcent, tonic, and aphrodisiac properties are ascribed to cuscuta seeds. They are administered in cases of gonorrhea, incontinence, and leukorrhea, and as a nostrum in case of cross-birth (fetal position problem). If taken for a long time, they brighten the eyes, enliven the body, and prolong life (Smith and Stuart, 1973).

Cuscuta is used to replenish the liver and kidneys, to prevent miscarriage, improve eyesight, and to treat sexual debility, impotence, and nocturnal emission (Dong et al., 1998).

TCM Properties

Slightly pungent and sweet in taste, and warm, it acts on the kidney, liver, and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Replenishes the liver and kidneys, and provides gonadotrophic action: for impotence, premature ejaculation, nocturnal emission, and tinnitus, cuscuta is combined with Chinese schisandra fruit, rubus, lycium fruit, and plantago seed, as in *Wu Zi Yan Zong Wan* (Dong et al., 1998).
2. Nourishes the liver and enhances eyesight: to improve eyesight, cuscuta is often used with lycium fruit, processed rehmannia, chrysanthemum, and ligustrum fruit (Wang, 1994).
3. Invigorates the kidneys and prevents miscarriage: to improve general weakness of kidneys and liver during pregnancy and prevent miscarriage, cuscuta (15 g) is prescribed with Chinese yam (9 g), dipsacus root (9 g), white atractylodes (12 g), and loranthus (15 g) in a decoction (Dong et al., 1998).

Dosage

In a decoction of 6 to 15 g.

Precautions

People with symptoms of yin deficiency, hyperactive yang, constipation, and scanty yellow urine should use the herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica. Toxicological studies show LD_{50} of the ethanolic extract of the herb was 2.465 g/kg in mice by subcutaneous administration. No toxic reactions were observed at an oral dose of 30 to 40 g/kg (Yin, 1995).

Modern Research Findings

Chemical Constituents

Cuscuta seeds contain flavonoids, compounds, quercetin, quercetin-3-0-galactoside, quercetin-3-0-apiosy-galactoside, kaempferol, astragalin, and hypetrin (Yahera et al., 1994; Yin, 1995), lignans, cuscutosides A and B, and other gylcosides, arbutin, chlorogenic acid, caffeic acid, and p-coumaric acid (Yahera et al., 1994). Other ingredients include cholesterol, campesterol, beta-sitosterol, vitamin A, and acylated trisaccharides cus-1 and cus-2 (Miyahara et al., 1996).

Pharmacology Findings

Cuscuta seed is immunostimulating, gonadotrophic, anticataract, anticarcinogenic, uterus contracting, cardiotonic, hypotensive, and antimicrobial (Dong et al., 1998).

1. An intragastric administration of the 85 percent alcoholic extract of the seeds to mice with burn injuries increased the serum hemolysin level and the phagocytosis of peritoneal macrophages. The serum colony-stimulating factor (CSF) level was significantly elevated in a dose-dependent manner in mice receiving a single dose or five intra-

peritoneal doses of 1.6 to 25.6 mg/kg of the alcoholic extract of the seeds (Yin, 1995).

2. Oral administration of 10 g/kg of the herb's decoction to rats increased the weight of the lobus anterior of hypophyseos, the ovary, and the uterus. It also increased the functions of the ovarian hcG/LH receptor (Yin, 1995).
3. An oral dose of 1 g/kg three times a week as a decoction markedly delayed the appearance and retarded the growth of papillomas and the incidence of carcinoma in mice (Yin, 1995).
4. Other actions: cuscuta seed increased cardiac blood flow, enlarged blood vessels, and was antidiuretic (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Miyahara, K., Du, X. M., Watanabe, M., Sugimma, C., Yahara, S., and Nohara, T. (1996). Resin glycosides XXIII. Two novel acetylated trisaccharides related to resin glycoside from seeds of *Cuscuta chinensis. Chemical and Pharmaceutical Bulletin* 44: 481-485.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Yahara, S. et al. (1994). An alkaloid and two lignens from cuscuta chinensis. *Phytochemistry* 37: 1755-1757.

Yin, J. (1995). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 2)*. Beijing: Chinese Medical Classics Press.

CORNUS
Fructus Corni
Shan zhu yu

This herb is the pulp of the ripe fruit of *Cornus officinalis* Sieb. et Zucc. of the family Cornaceae. It grows mainly in the mountainous districts of Anhui, Henan, Shaanxi, and Zhejiang provinces of China. After collection in late autumn, the fruit stone is removed, and the pulp is baked and air-dried (Jiang Su New Medical College, 1977).

The fruit has a subacid taste and contains considerable oil. It has excellent tonic and astringent properties, and has been used as a diuretic, astringent, tonic, anthelmintic, and antilithic. It was recommended for menorrhagia, impotence, and the urinary difficulties of the elderly (Smith and Stuart, 1973).

Today cornus is used for sexual dysfunction, impotence, seminal emission, aching back and knees, vertigo, urinary difficulties of the elderly, and frequent urination caused by kidney-yang debilitation associated with age (Wang, 1994). It also induces astringency.

TCM Properties

Sour in taste and slightly warm, cornus acts on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the kidney and liver for the treatment of sexual dysfunction: for kidney-yang and liver-yang deficiencies, cornus is prescribed with psoralea fruit and Chinese angelica root in a decoction; or with eucommia, deer antler, lycium fruit, processed rehmannia, schisandra fruit, cuscuta, Chinese yam, and other herbs, as in *Shi Bu Wan,* to treat sexual dysfunctions and polyuria in the elderly (Dong et al., 1998).
2. Replenishes both liver yin and kidney yin: for spontaneous perspiration, ringing in the ears, and dizziness, cornus is used with lycium fruit, ligustrum fruit, chrysanthemum, and tribulus (Wang, 1994). It is often blended with processed rehmannia, alisma, hoelen, Chinese yam, and moutan bark, as in the recipe *Liu Wei Di Huang Wan* (R-22),

for replenishing the Vital Essence and to treat yin-deficiency syndromes (Zhang, 1988).

3. Induces astringency, and stops metrorrhagia and excess menstrual bleeding. Cornus arrests the continued and excessive loss of body fluid or blood, as in cases of metrorrhagia, metrostaxis, and menorrhagia. For these conditions, cornus is prescribed with astragalus root, white peony, oyster shell, cuttlebone, carbonized palm, rubia root *(xi cao),* and white atractylodes in a decoction, as in the recipe *Gu Chong Tang* (Wang, 1994).
4. For hypertension due to liver and kidney deficiency: cornus fruit is dispensed along with acornus, eucommia, milletia, and other herbs.
5. For polyuria and enuresis caused by Kidney-*Qi* deficiency and dysfunction of the bladder, cornus fruit can be mixed with Chinese yam, alpinia fruit, and cuscuta in a decoction (Wang, 1994).

Dosage

In a decoction of 5 to 10 g. Up to 30 g can be used for severe symptoms.

Precautions

People suffering from hyperactivity of liver yang, Damp Heat, dysuria, or difficult urination should avoid using this herb or use with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Cornus fruit contains iridoid glycosides cornin, cornuside, morroniside, loganin, sweroside, and ursolic acid. Other ingredients include the volatile components benzyl cinnamate, isobutyl alcohol, isoamyl alcohol, methyl eugenol, isoasarone, beta-phenylethyl alcohol, saponin, tannins (isoterchebin, tellimagradins), ursolic acid, gallic acid, tantaic acid, sugar, and vitamin A (Yin et al., 1993; Zhu, 1998).

Pharmacological Findings

Cornus fruit showed cardiotonic, diuretic, blood-pressure lowering, hypoglycemic, antihemorrhagic, antiplatelet aggregation, and white blood cell-generating properties (Wang, 1994).

The othanolic extract of the herb decreased blood sugar in rats with diabetes caused by alloxan, epinephrine, or STZ but did not affect the blood glucose level in normal rats.

An injection of the herb's solution in vitro significantly inhibited the ADP-, collagen-, or arachidonic acid-induced platelet aggregation of rabbits in a concentration-dependent manner. Intravenous administration of the solution also suppressed ADP-induced platelet aggregation in rabbits (Yin et al., 1993).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Yin, J. and Tuo, L. G. (1993). *Modern Research and Clinical Applications of Chinese Materia Medica*. Beijing: Academic Publisher.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CURCULIGO RHIZOME

Rhizoma Curculiginis
Xian mao

This herb is the dried rhizome of *Curculigo orchioides* Gaertn. of the family Amaryllidaceae. It grows in the provinces of Fujian, Guangdong, Guangxi, Jiangsu, Taiwan, and Zhejiang in China. It is harvested in the early spring or late autumn, cleaned, dried in the sun, and sliced and used unprocessed (Jiang Su New Medical College, 1977).

Curculigo rhizome is used to warm up the kidneys, to reinforce the vital functions of the sexual organs, and to treat impotence and sexual disabilities (Dong et al., 1998; Jiang Su New Medical College, 1977).

TMC Properties

Pungent in taste, warm, and slightly toxic, it acts on the kidney and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates the kidneys and reinforces the vital functions of the kidney yang: for an aching back and knees, premature ejaculation, impotence, polyuria, enuresis, and nocturnal seminal emission, curculigo rhizome is often prescribed with epimedium *(yin yang huo)* and morinda root (Dong et al., 1998).
2. Relieves *Bi*-Syndrome: for Cold-Damp-*Bi*-Syndrome and arthralgia, curculigo rhizome is used with cyathula root, ginger, cinnamon bark, notopterygium root, and acanthopanax to strengthen the bones, tendons, and joints (Dong et al., 1998).
3. Relieves hypertension: to treat climacteric (menopausal) hypertension, curculigo rhizome is dispensed with epimedium (Dong et al., 1998).

Dosage

In a decoction or pills, 3 to 9 g.

Precautions

People with hyperactivity of yang or deficiency of yin should use curculigo with care.

Side Effects and Toxicity

At the suggested therapeutic dose, no adverse side effects or toxicity have been reported.

Modern Research Findings

Chemical Constituents

Curculigo rhizome contains resins, tannin starch, and fatty oils (Jiang Su New Medical College, 1977).

The rhizome contains cycloartane triterpene saponins, including curculigo saponins A-M. Other ingredients are triterpenes curculigol and 31-methyl-3-oxo-2-0-ursen-28-oic acid. Phenyl glycosides, curculigoside-B, curculigines B and C, and aliphatic compounds have been isolated (Zhu, 1998).

Pharmacological Findings

1. Curculigo is a yang and cardiac tonic.
2. Gonadotrophic: oral administration to rats of 10 g/kg of the herb's decoction significantly increased the weight of the lobus anterior hypophyseos, ovary, and uterus (Zhu, 1998).
3. Analgesic and antirheumatic (Dong et al., 1998).
4. Antimicrobial (Dong et al., 1998).
5. Antitumorous (Dong et al., 1998).

REFERENCES

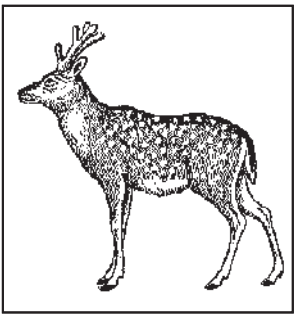
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PILOSE ANTLER

Cornu Cervi Parvum
Lu rong



This herb is the tender, nonossific, velvet antler of the young adult male deer, scientifically known as *Cervus nippon* Temminck or *Cervus elaphus* Linnaeus of the family Cervidae. The former is the spotted deer and the latter is the horse deer. Both are found in the northern and northeastern provinces as well as in the Xinjiang, Tibet, Qinghai, and Gansu provinces, and Inner Mongolia of China. Spotted and horse deer populations are found in other parts of the world, including North America, Europe, Siberia, India, and New Zealand (Jiang Su New Medical College, 1977).

When these tender antlers begin to grow, they are blood-filled tissue and covered with a soft, furry skin. If the velvet horn is not removed in a timely manner, it hardens into a bonelike substance (Dong et al., 1998).

The pilose antler (three to five inches) is usually sawed off in the summer or early autumn. It is then cleaned, dried in the shade or baked dry in low heat, then sliced or ground into powder for use. Pilose antler is used to reinforce the vital function of the kidneys, strengthen the bones and muscles, and to treat sexual dysfunction, neurasthenia, and anemia (Dong et al., 1998).

TCM Properties

Sweet and salty in taste, and warm, it acts on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Tones the kidney yang: the powder of pilose antler can be used for symptoms such as male impotence, spermatorrhea, female infertility due to coldness of the uterus, frequent urination, soreness of the loins or knees, dizziness, tinnitus, listlessness as a result of insufficiency of kidney yang, and consumption of the Vital Essence *(Jing)* and blood. Pilose antler is combined with other yang tonic herbs, such as ginseng root, processed rehmannia root, lycium fruit, schisandra fruit, Chinese yam, eucommia, cornus, achyranthes, cuscuta, and ophiopogon, as in *Shi Bu Wan,* and used to treat male impotence (Dong et al.,

1998). Another complex recipe containing pilose antler, *Gui Ling Ji,* is an excellent patent medicine for the treatment of kidney-yang deficiency, and male and female sexual debility (Wang, 1994).

2. Strengthens the vigor of muscles, tendons, and bones: for deficiency of the kidney and liver, characterized by weakness of extremities, insufficient infantile growth or abnormal development, and skeletal deformities in youth, pilose antler is taken with the patented medicine of *Jia Wei Di Huang Wan* or it is blended with Chinese angelica, processed rehmannia, cornus fruit, and Chinese yam (Wang, 1994).
3. Nourishes *Qi* and blood, and speeds up wound healing: for carbuncles, chronic or prolonged ulceration, or boils that do not heal easily, pilose antler is often combined with astragalus root, cinnamon bark, and Chinese angelica (Wang, 1994).
4. Regulates the *Chong* and *Ren* meridians, normalizes the *Dai* meridian, and corrects the symptoms of yang deficiency: for metrorrhagia or metrostaxis, pilose antler is used in conjunction with donkey-hide gelatin, cuttlebone, Chinese angelica, white peony, and processed rehmannia (Wang, 1994).

Dosage

As a fine powder (in capsules or tablets), 0.5 to 2 g daily. Pilose antler can also be soaked in wine for oral administration. A modern herbal product, Pantocrin, is a pharmaceutically prepared liquid form of pilose antler. This product can be taken orally, thirty to forty drops, three times a day. Intramuscular injections can be administered at a dosage of 1 milliliter (ml), three times a day. Pilose antler should be taken with caution and in small doses in the beginning (i.e., less than one gram) gradually increasing the dose as needed (Wang, 1994). Never overdose with this herb.

Precautions

People with kidney-yang hyperactivity or with yin deficiency, fever, and Heat in the lungs, or with epidemic febrile disease should avoid taking pilose antler and its preparations (Wang, 1994).

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Deer velvet contains pantocrinum lecithin, lipids, oestrone, prostaglandin, nucleotide, choline, vitamins, enzymes, twenty-five different amino acids (alanine, arginine, asparagine, cysteine, glutamate, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tryptophan, tyrosine, valine, and others), minerals (Ca, Cu, P, Fe, Mn, Zn, Se, S, Na, K, and Mg), and trace minerals (Jiang Su New Medical College, 1977)

Pharmacological Findings

1. Used as a general tonic, pilose antler increases ability, endurance, and efficiency of working, decreases muscle fatigue, improves sleep and appetite, and regulates CNS functions.
2. As an immunological agent pilose antler increases the regeneration of red blood cells, hemoglobin, and reticulocytes and increases immune function.
3. As a gonadotrophic it improves male and female sexual function, and increases secretion of semen.
4. A medium dose increases heart contractions, heart rate and output. This action is more noticeable in patients with heart fatigue.
5. Stomachic and antiulcer properties were observed in rats.
6. Increases the tension of the uterus and rhythmic contraction (Dong et al. 1998; Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Chapter 7

Herbs That Invigorate Circulation of Vital Energy, *Qi,* and Blood: Preventing Discomfort and Pain, and Cerebral and Coronary Heart Diseases

The medicinal herbs discussed in this section regulate the gastrointestinal tract, and cerebral and cardiac vascular systems. A majority of gastrointestinal, cerebral, and cardiovascular ailments are directly or indirectly related to stagnation of *Qi* and blood. The normal circulation of the *Qi* and blood in the body is essential to maintain normal physiological activities and good health.

Various pathogenic factors, such as injuries, improper diet, infections, and emotional depression, can impede the normal circulation of *Qi* and result in its stagnation. Numbness, stiffness, aches, and pain are the most common signs of stagnant *Qi,* which generally occurs along certain meridians or within certain internal organs of the body. Pain has many causes. However, TCM believes that long-standing or severe stagnation of *Qi* may also lead to stagnation of blood, causing discomfort and localized tenderness and pain, or even lumps or mass formations (Chen and Chen, 1992; Dong et al., 1998).

The stagnation of *Qi* usually affects the stomach, spleen, liver, and lungs. For example, chest and abdominal distension and pain, belching, gas formation, acid regurgitation, nausea and vomiting, and hiccups are likely to be related to stagnant Spleen-*Qi* and Stomach-*Qi,* or due to failure of the stomach in descending Stomach-*Qi* (Chen and Chen, 1992; Dong et al., 1998).

Swelling in the chest, pain in the flanks, distending pain in the epigastric region, loss of appetite, anxiety, depression, insomnia, dreamy sleep, hernial pain (in severe cases), tenderness, swelling and pain in the breast, and painful menstruation may be caused by stagnant Liver-*Qi*. Discomfort in the chest, a stifling sensation, cough with dyspnea, and wheezing may be due to impairment of the normal function of the lungs in dispersing and descending the Lung-*Qi*.

Herbs discussed in this section that regulate *Qi* can promote the normal flow of *Qi,* eliminate the stagnation of *Qi,* prevent or correct the upward adverse flow of *Qi,* relieve localized pain, and dissolve masses in tissues. Once the Stomach-Spleen-*Qi,* Liver-*Qi,* and Lung-*Qi* resume to normal flow, these symptoms disappear.

As with *Qi,* the normal flow of blood can be slowed or stagnant, as well. When blood flow becomes retarded or static, it is referred to in TCM as blood stasis. Blood stasis refers to the formation of a viscous substance over the end or within the walls of blood vessels. This results in a slowing down, or even complete stoppage, of the normal blood flow and thrombosis or blood clot. Blood stasis can lead to discomfort and pain in the chest. Many other serious health problems of the cardiac, cerebral, lymphatic, and vascular systems may also follow, and it may cause internal abscesses, ulcer formation, or hemorrhages (Dong et al., 1998; Weng, 1993).

Static blood circulation is the primary cause of hypertension, angina, arteriosclerosis, aneurysm, and even myocardial infarction (heart attack). It can lead to a cerebral vascular accident (CVA), commonly known as a stroke. Many elderly people sometimes suffer, unknowingly, from mild CVA. Even a brief case of CVA can cause an individual to black out or become partially paralyzed, along with many other complications. Blood stasis may also lead to mental impairment or memory loss (Yan, 1993).

Blood stasis involves broad physiological and pathological changes of an organ, a system, or even the entire body. Factors such as stagnation of *Qi,* deficiency of *Qi,* cold environment, Heat in the blood, and trauma are general factors that cause blood stasis. The most common signs of blood stasis are a deep red or purple tongue, localized tenderness or pain, a localized sharp pain in the chest, lower abdomen and pelvic areas, or a lump, tumor, or cyst formation, and the development of ecchymosis (Dong et al., 1998).

Disorders of blood stasis in TCM are understood in Western medicine as general hematological disorders (blood circulatory retardation, hemorrhage, thrombosis, congestion, and local ischemia) or localized tissue disorders (Weng, 1993).

Phytomedicines are capable of invigorating blood circulation and dissolving blood stasis. These herbs are valuable and effective in clinically treating cardiac ailments, angina pectoris, thrombosis, vasculitis, phlebitis, acute pelvic inflammation, amenorrhea, dysmenorrhea, functional uterine bleeding, ulcers, cirrhosis, and cyanoderma.

In addition to blood stasis, the disorders of blood may also involve deficiency of blood, Heat in the blood, and bleeding. Herbs that nourish the blood are used for deficiency of blood. Those that arrest bleeding are hemostatic agents (see Chapter 5).

Qi and blood-activating phytomedicines will be discussed in the following section. Table 7.1 lists the ailments of stagnation of *Qi* and stagnation of blood, and commonly used herbal remedies. Table 7.2 describes the com-

TABLE 7.1. Herbal Remedies for Regulating and Invigorating *Qi* and Blood

Etiology	Symptoms	Herbal Remedies
Stagnation of Meridians-*Qi*	Numbness and pain of limbs, varicose veins, difficult walking	I. *Qi*-Regulating Herbal Remedies Herbs tangerine peel, blue citrus *(qing pi),* bitter orange, aucklandia root, magnolia bark, cyperus tuber, curcuma root, raphinus seed Patent Medicines *Ban Xia Hou Po Tang, Yue Ju Wan, Ping Wei San, Mu Xiang Bing Long Wan, Zhi Shi Dao Zhi Wan*
Stagnation of Liver-*Qi*	Swelling in the chest, pain in the flanks, distending pain in the hypocondrium, hernial pain, tenderness and pain in the breast, painful menstruation	
Stagnation of Spleen-*Qi* and Stomach-*Qi*	Abdominal distension and pain, belching, gas, acid regurgitation, nausea, vomiting, hiccups	
Stagnation of Lung-*Qi*	Discomfort of chest, stifling sensation, cough with dyspnea, wheezing	
Blood stasis in general	Purple discoloration of tongue with spots, hesitant pulse, hypertension, angina, atherosclerosis, numbness of limbs, periodic mental disorders	II. Blood-Regulating Herbal Remedies Herbs cnidium, hawthorn, salvia root, notoginseng, carthamus, moutan bark, curcuma root, vaccaria seed, achyranthes root, red peony root, leonurus, peach kernel, pubescent holly root, acronychia, ginkgo biloba leaves, sappan wood, zedoaria, Patent Medicines *Xue Fu Zhu Yu Tang, Bu Yang Huan Wu Tang, Fu Fang Dan Shen Yin, Dan Shen Yin, Huo Xue Tong Mai Pian Tao Hong Si Wu Tang, Chuan Xioing Cha Tiao San*
Blood stasis in the heart	Chest pain, cardiovascular accident (CVA), coronary heart disease, palpitation, pectoral pain, cyanosis of the lips and tongue	
Blood stasis in the brain	CVA, stroke, paralysis, mental impairment, memory loss, speech difficulty	
Blood stasis in the lungs	Blood spitting, spitting dark red blood	
Blood stasis in the abdominal cavity	Liver-spleen enlargement or hardness, and tumor with fixed, stabbing pain	
Blood stasis in the gatrointestinal tract	Difficulty swallowing, spitting dark red blood, black stool, stabbing pain, ulcer and pain in gastrointestinal tract	
Blood stasis in the uterus	Stagnant menstruation, amenorrhea, dysmenorrhea, dark menses, sharp pain	
Blood stasis in the skin tissues	Trauma, skin discoloration, blood stasis due to ecchymosis or petechiae	
Blood stasis in the vascular and lymphatic systems	Varicose veins, microcirculation disorders, thromboangitis	

TABLE 7.2. The Actions of *Qi*-Regulating Herbs

Name of Herbs	Dosage (grams)	Individual Actions	Common Actions
Tangerine peel *(Chen pi)*	5-10	Normalizes the functions of the spleen and stomach, eliminates Dampness, resolves phlegm	Invigorates the circulation of *Qi,* checks upward adverse flow of *Qi,* removes stagnation of *Qi,* and dissolves masses, relieves pain
Immature bitter orange *(zhi shi)*	3-10	Removes food stagnation, resolves phlegm, normalizes the function of the spleen and stomach	
Cyperus tuber *(xiang fu)*	6-12	Soothes the liver, regulates menstruation, relieves menstrual pain and coital pain	
Aucklandia root *(mu xiang)*	3-10	Regulates the functions of the spleen and stomach, relieves Dampness and abdominal pain, treats jaundice	
Curcuma root *(yu jin)*	3-9	Promotes blood circulation, clears away Heat in the blood, treats pain of the liver and gallbladder	
Magnolia bark *(hou po)*	3-10	Eliminates Dampness, removes food stagnation, allays asthma	
Cynanchum root *(xu chang qing)*	6-12	Eliminates Dampness, relieves arthralgia, detoxifies and relieves swelling	

mon and individual actions of the most frequently used *Qi*-regulating herbs and Table 7.3 lists the most common and individual actions of frequently used blood-regulating herbs.

Commonly used *Qi*-regulating herbs are pungent and hot. They include orange peel, immature bitter orange, aucklandia root, cyperus tuber, magnolia bark, blue citrus *(qing pi),* and raphanus seed. These herbs also act as a stomachics.

Herbs used for promoting blood circulation, and treating or preventing blood stasis are pungent and warm. They include acronychia, gingko biloba leaf, pubescent holly root, peach kernel, leonurus, red peony root,

TABLE 7.3. The Actions of Blood-Regulating Herbs

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Salvia root *(dan shen)*	5-15	Tranquilizes the mind, nourishes the heart and cools the blood, treats vexation and carbuncles	Promotes blood circulation, dissipates stagnation of blood (blood stasis). Treats ailments due to stagnation of blood. Relieves pain due to blood stasis.
Cnidium *(chuan xiong)*	3-9	Invigorates *Qi,* eliminates Wind and relieves menstrual pain and headaches	
Carthamus *(hong hua)*	3-9	Normalizes menstruation and relieves pain, treats various pains due to stagnation of *Qi*	
Curcuma root *(yu jin)*	6-12	Invigorates *Qi* circulation, clears away Heat in the blood and heart, treats jaundice	
Vaccaria *(wang bu liu xing)*	6-15	Treats amenorrhea, diuresis, and prostate disorders, breast tumor, improves lactation	
Achyranthes root *(huai niu xi)*	6-15	Invigorates the kidneys, strengthens the muscles and bones, relieves menstrual disorders and strangury	
Red peony *(chi shao)*	6-15	Removes pathogenic Heat in the blood, relieves menstrual pain	
Leonurus *(yi mu cao)*	10-15	Invigorates blood circulation, and treats edema, sores, carbuncles, pruritus, and skin urticaria	
Peach kernel *(tao ren)*	6-10	Moistens the bowels and relieves constipation	
Pubescent holly root *(mao dong qing)*	15-60	Treats coronary heart ailments, angina, and thromboangiitis obliterans, relieves Heat	
Acronychia *(jiang xiang)*	3-6	Invigorates circulation of *Qi,* relieves pain, and hemostasis	
Moutan bark *(mu dan pi)*	6-12	Removes pathogenic Heat in the blood, treats premenstrual syndromes and fever	

achyranthes root, vaccaria seed, curcuma root, carthamus, sappan wood, salvia, cnidium, notoginseng, zedoaria, hawthorn, lycopus, mastic, myrrh, and pyrite.

In this chapter, eighteen medicinal herbs that regulate and invigorate the flow of *Qi* and blood are introduced and further discussed.

REFERENCES

Chen, Z. L. and Chen, M. I. (1992). *A Comprehensive Guide to Chinese Herbal Medicine*. Long Beach, CA: Oriental Health Arts Institute Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Weng, W. L. (1993). *Huo Xue Hua Yu Zhi Liao Yi Nan Bing* [Blood Invigorating Stagnation Dispersing for the Treatment of Difficult Disease]. Beijing: Academia Press,.

Yan, D. (1993). *Zhong Guo Li Dai Zhong Yi Kang Shuai Lao Mi Yao* [Secret Essentials for Combating Senility with Chinese Medicine Through Various Dynasties). Shanghai: Wen Huei Publishing House,.

TANGERINE (ORANGE) PEEL

Pericarpium Citri Reticulatae
Chen pi

This herb is the dried peel of the ripe fruit of *Citrus reticulata* Blanco and many other species of the citrus genus of the family Rutaceae. Several species, with many varieties, all indigenous to China and the East Indies. The plant is mainly grown in the Fujian, Guangdong, and Sichuan provinces of China. The peel is collected from the ripe fruit, dried, cut into shreds, and used unprepared (Dong et al., 1998).

Tangerine peel is also called orange peel. The herb is considered by Chinese doctors as a panacea for all sorts of ills. It is a stomachic, stimulative, antispasmodic, antiphlogistic, and dissipates phlegm. Also, it is used for marasmus in children, dyspnea in the elderly, for fish and crab poisoning, pinworms, and mastitis due to stagnation of milk in the breast. It is commonly used in pills and as a decoction with ginger and other carminatives (Jiang Su New Medical College, 1977; Smith and Stuart, 1973). Tangerine peel is a carminative, *Qi*-regulating stomachic, and mild expectorant for many gastrointestinal and respiratory tract disorders (Dong et al., 1998).

TCM Properties

Pungent, bitter in taste, and warm, it acts on the spleen and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Helps regulate *Qi* and normalize the functions of the spleen and stomach: for abdominal distension, belching, nausea, and vomiting, which are symptoms of the stagnation of *Qi,* tangerine peel is dispensed alone or with aucklandia root, amomum fruit, and bitter orange. If lassitude and tiredness are present in addition to these symptoms because of stagnation and deficiency of Stomach-*Qi* and Spleen-*Qi*, tangerine peel is prescribed with the *Qi*-invigorating herbs of codonopsis, white atractylodes, and licorice root, as in *Yi Gong San* (Jiang Su New Medical College, 1977).
2. Eliminates dampness and resolves phlegm:

- For a heavy, pressured feeling in the chest, abdominal distension, poor appetite, listlessness, loose stools, and a thick greasy coating of the tongue due to retention of Dampness in the Middle-*Jiao,* tangerine peel is blended with atractylodes rhizome, licorice root, and magnolia bark, as in *Ping Wei San* (R-59) (Wang, 1994).
- For accumulation of phlegm in the lungs, coughing, profuse sputum, and a full and oppressed feeling in the chest, tangerine peel is mixed with pinellia tuber and poria, as in *Er Chen Tang* (Wang, 1994).

3. Tangerine peel has other notable uses, including for alcoholic intoxication and acute mastitis caused by hyperlactation (Wang, 1994).

Dosage

In a decoction of 3 to 9 g.

Precautions

Tangerine peel is pungent and warm. It should not be administered to those who suffer from the excess type of interior Heat, yin deficiency, blood spitting, or those who have a dry cough.

Side Effects and Toxicity

The therapeutic dose is safe. No undesirable side effects or toxicity have been reported at the therapeutic dose in classical Chinese materia medica. In toxicological tests, no acute toxicity was observed in animals when the decoction was given orally or intravenously (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Orange peel contains 1 to 2 percent essential oil, with d-limonene and citrol as the major components of the oil. Other components in the oil include isopropenyltoluene, delta-elemene, alpha-copaene, alpha-humulene, beta-sesquiphol-landrene, alpha-humulenol acetate, and 1,8 menthadien-10-ol-acetate (Jiang Su New Medical College, 1977). Flavonoids (hesperidin, neohesperidin, narigin, tangeretin, auranetin, and nobiletin) and other components of hesperidin, carotene, cryptosanthin, vitamins B, C, and P (Jiang

Su New Medical College, 1977), alkaloid synephrine, and N-methyltyramine have been isolated (Zhu, 1998).

Pharmacological Findings

1. General findings:

   - The volatile oil of tangerine peel stimulates the gastrointestinal tract, eliminates accumulated toxic gas, and increases the secretion of gastric juice (Dong et al., 1998).
   - The volatile oil is an antitussive and mild expectorant (Wang, 1994).
   - Fresh tangerine peel showed antiasthmatic activity.

2. Action on the cardiovascular system:

   - Increases blood pressure and stimulates the activity of the heart, although a large dose may be inhibitory.
   - Decreases the fragility of blood vessels and reduces bleeding time (Wang, 1994).

3. Acts as an anti-inflammatory and reduces edema. The flavon component of nobiletin significantly inhibited the egg-white-induced allergic contraction of isolated ileum and bronchus of a guinea pig (Wang, 1983).
4. Antibacterial.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y.S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

IMMATURE BITTER ORANGE

Fructus Aurantii Immaturus
Zhi shi

This herb is the dried, unripe or immature, and sour (bitter) fruit of *Citrus aurantium* L. or its sweet variety *C. sinensis* Osbeck of the family Rutaceae. The plant is grown in the Sichuan, Jiangxi, Fujian, and Zhejiang provinces of China. It is collected in the early summer, dried, sliced, and used unprocessed (Jiang Su New Medical College, 1977).

The unripe fruit is cooling, deobstruent (removing food stagnation), and carminative. It was used as an excellent stomachic, and for coughs and dyspnea (Smith and Stuart, 1973). Today, immature bitter orange is used as a carminative, stomachic, and *Qi*-regulating stomachic herb. The ripe fruits of *C. aurantium* L. and *C. wilsonii* Tanaka, called *zhi qiao* (ripe bitter orange), have the same effects as immature bitter orange *(zhi shi)* but are less potent in action and mostly used to promote the flow of *Qi* and to relieve epigastric distension (Dong et al., 1998).

TCM Properties

Bitter and pungent in taste, and cold, it acts on the spleen, stomach, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves stagnation of *Qi* and food: for abdominal distension and pain, constipation, or evacuation with foul odor, immature bitter orange is often used with hawthorn fruit, germinated barley, and medicated leaven (Zhang, 1988). Also, it may be prescribed with magnolia bark and rhubarb, as in *Da Cheng Qi Tang* (R-73), for constipation, abdominal distension, and pain due to Heat accumulation in the bowels (Wang, 1994).
2. Reduces phlegm and removes feelings of stiffness and fullness in the chest and upper abdomen: for chest pain and shortness of breath due to obstruction of *Qi* by phlegm, immature bitter orange is combined with macrostem onion, cinnamon twig, and trichosanthes fruit. It is also dispensed with astragalus root, cimicifuga, and other herbs for

gastroptosis, gastric dilation, and prolapse of the rectum or of the uterus (Wang, 1994).

3. To treat gastroptosis, gastric dilation, prolapse of the rectum, and hysteroptosis, immature bitter orange is mixed with codonopsis, astragalus root, and cimicifuga (Wang, 1994) or with white atractylodes, as in *Zhi Zhu Wan* (Dong et al., 1998).

Dosage

In a decoction of 3 to 10 g.

Precautions

People suffering from hypofunction of the spleen and stomach, and pregnant women should not use immature bitter orange or use with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica. Toxicological tests show that this herb has low toxicity. The intravenous LD_{50} of the injection solution in mice was 71.8 ± 5 g/kg. Intravenous injection to anesthetized dogs at 21 g/kg did not result in any serious reactions (Wang, 1985).

Modern Research Findings

Chemical Constituents

Immature bitter orange contains essential oil, bitter principles, flavones, and alkaloids. The major components in the oil of the fruit are alpha-limonene and linanool (Zhu, 1998). The flavones include hesperidine, neohespiridine, tangeretin, auranetin, 5-hydroxyauranetin, and others. The alkaloids synephrine and N-methyltyramine have been isolated (Zhu, 1998). Other components include organic acids and vitamins A, B, and E (Dong et al., 1998).

Pharmacological Findings

1. The herb's decoction inhibited the movement of the intestinal tract in mice and rabbits. This effect was antagonized by acetylcholine. In contrast, oral administration of 10 ml of 100 percent of the decoction

to conscious dogs was stimulating, increasing the contraction rhythm of gastrointestinal movement, which indicates the herb's value as a gastrointestinal therapeutic remedy (Wang, 1983).

2. Intravenous administration of the decoction or the alcoholic extract of the herb markedly increased blood pressure in anesthetized dogs and rabbits (Zhu, 1998) and the result was similar to norepinephrine.
3. The decoction of the herb's synephrine and N-methyltyramine increased cardiac contractibility, contraction magnitude, and cardiac output (Zhu, 1998).
4. The herb's decoction or its ingredient of N-methyltyramine increased urine output in dogs, which was accompanied by an increase in blood pressure. Diuresis is probably a result of the inhibition of renal reabsorption (Wang, 1983; Zhu, 1998).
5. The flavonoid contents of immature bitter orange are antibacterial, anti-inflammatory, antifungal, and stimulating to the uterine muscles and alimentary tract muscles with force and rhythm (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

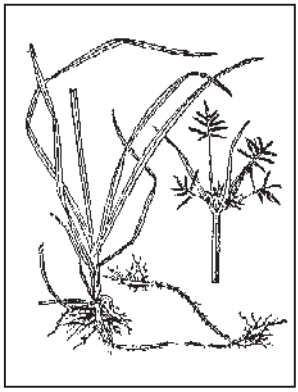
Wang, J. M. (1985). *Chinese Herbal Pharmacology*. Shanghai: Shanghai Science and Technology Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CYPERUS TUBER
Rhizoma Cyperi
Xiang fu



This herb is the dried rhizome of *Cyperus rotundus* L. of the family Cyperaceae. It is grown in all parts of China and other parts of the world. Harvested in autumn, it is washed, dried in the sun, and used unprocessed or stir baked with vinegar (Jiang Su New Medical College, 1977).

Cyperus tuber is a *Qi*-regulating stomachic. The herb was traditionally used as a stimulant, tonic, stomachic, sedative, and astringent, for fluxes of all kinds, colds in every organ, postpartum difficulties, boils, abscesses, and cancers (Smith and Stuart, 1973). Today, it is used as a carminative, antispasmodic, antidepressant, and anodyne for the treatment of PMS, chest and abdominal distension, ulcers, and pain (Dong et al., 1998).

TCM Properties

Pungent, slightly bitter and slightly sweet in taste, and neutral, cyperus acts on the liver and *Sanjiao* meridians.

Effects, Medicinal Uses, and Combinations

1. Regulates *Qi* and soothes the liver:
   - For distension and pain in the chest, hypochondria and abdominal regions due to stagnation of Liver-*Qi,* cyperus tuber is combined with bupleurum, bitter orange, and white peony root, as in *Chai Hu Shu Gan San*.
   - It can also be used with bupleurum, trichosanthes fruit, and tangerine leaf in a decoction for distension and pain in the breasts (Zhang, 1988).
   - To relieve stomach pains caused by stagnation of *Qi* and Cold in the stomach, cyperus tuber is blended with ginger root, as in *Liang Fu Wan* (Wang, 1994).
2. Regulates menstruation and relieves menstrual pain: for irregular menstruation and dysmenorrhea, cyperus tuber is often mixed with

Chinese melia *(chuan lian zi),* Chinese angelica root *(dang gui),* cnidium *(chuan xiong),* corydalis, and white peony root (Wang, 1994).

3. Relieves stagnation and depression: for feelings of helplessness, sadness, depression, anxiety, and stagnation in the chest, cyperus tuber is dispensed with cnidium, atractylodes, medicated leaven, tangerine peel, and pinellia tuber, as in *Liu Yu Tang* (Wang, 1994).

Dosage

In a decoction of 6 to 12 g.

Precautions

People who suffer from *Qi* and blood deficiency, and yin deficiency should not use cyperus tuber or use with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Cyperus tuber contains essential oils with major components of alpha- and beta-cyperone, alpha- and beta-cyperol, and cyperene. Other components of the oil are beta-pinene, camphene, 1,8-cineole, limonene, beta-selinene, selinatriene, isoceperol, cyperolone, rotundone, kobusone, and isokobusone. Other isolated ingredients are triterpenes, alkaloids, flavones, glucose, fructose, and starch (Jiang Su New Medical College, 1977; Wang, 1983).

Pharmacological Findings

1. Cyperus tuber increased the secretion of saliva and gastric juice, increased stomach peristalsis, and improved the elimination of accumulated gas in the gastrointestinal tract (Dong et al., 1998).

2. Action on the uterus: inhibits the contraction of the uterus and relieves spasms. The volatile oil of cyperus has female hormone (estrogenic) action (Dong et al., 1998).
3. The alcohol extract of cyperus tuber is anti-inflammatory, antipyretic, sedative, and analgesic, and decreases the tension of the colon muscles (Dong et al., 1998).
4. Antimicrobial.

REFERENCES

Dong, K. S., Wang, X. Q. and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

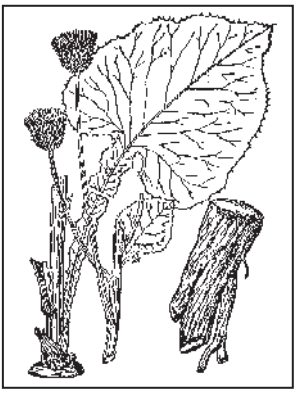
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (Ed.) (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

AUCKLANDIA (SAUSSUREA) ROOT

Radix Aucklandiae
Mu xiang



This herb, also named saussurea, is the dried root of *Aucklandia lappa* Decne. of the family Compositae. It is grown mainly in the Sichuan and Yunnan provinces of China, and in many areas of Burma and India. It is harvested in autumn and early winter, the rootlets are removed and washed and dried in the sun. The herb is then used unprocessed or roasted in hot ash (Jiang Su New Medical College, 1977).

Traditionally, the herb was used to make incense or to protect clothes from moths and other insects. It turns grey hair black. Carminative, stimulative, antiseptic, prophylactic, astringent, sedative, and insecticidal properties are attributed to auklandia (Smith and Stuart, 1973). Today, aucklandia root is used as a carminative, *Qi*-regulating stomachic, anodyne for stomach and chest distension with pain, it is used to treat anorexia and indigestion (Dong et al., 1998).

TCM Properties

Pungent and bitter in taste, and warm, it acts on the spleen, stomach, large intestine, and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Regulates the flow of *Qi,* normalizes the functions of the spleen and stomach, and relieves abdominal pain:

   - For abdominal distension with pain, anorexia, borborygmus, diarrhea, and dysentery, aucklandia root is blended with bitter orange, corydalis, and Sichuan chinaberry *(chuan lian zi).* Aucklandia root is also used with areca seed, bitter orange, rhubarb, phellodendron bark, coptis, zedoaria, cyperus, areca seed, and rhubarb, as in *Mu Xiang Bing Lang Wan* (R-62), for abdominal retention due to undigested food, constipation, and dysentery (Wang, 1994).
   - For distending pain in the hypochondriac region, a bitter taste in the mouth, and a yellow coating of the tongue, aucklandia root is

mixed with bupleurum root, curcuma root, and bitter orange to correct stagnation of Damp-Heat.
- For stagnation of Stomach-*Qi* and Spleen-*Qi,* indigestion, abdominal distension with pain, chronic gastritis, chronic enteritis, and chronic hepatitis, aucklandia root is combined with orange peel, bitter orange, poria, germinated barley, hawthorn, cyperus, and other herbs, as in *Mu Xiang Shun Qi Wan* (Wang, 1994).

2. Regulates the functions of Middle-*Jiao:* for epigastric or abdominal distention, nausea and vomiting, anorexia, and chronic diarrhea, aucklandia root is blended with codonopsis, white atractylodes, poria, licorice root, tangerine peel (processed), and amomum fruit, as in *Xiang Sha Liu Jun Zi Tang* (Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with anemia, dehydration, or who are yin deficient should use aucklandia root with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Aucklandia root contains essential oils. The main components are aplotaxene, betulin, costus lactone, alpha-ionone, alpha- and beta-costene, beta-selinene, saussurealactone, costunolide, costic acid, costol, dehydrocostus lactone, isoalantolactone, phellandrene, and dihydrocostuslactone (Zhu, 1998). Other ingredients in the root are camphene, stigmasterol, betulin, beta-elemen, and saussurine (Jiang Su New Medical College, 1977; Zhu, 1998).

Pharmacological Findings

1. Gastrointestinal action: aucklandia root stimulates peristalsis and large intestinal muscles, and relieves stagnation and gas accumulation.
2. Aucklandia was shown to be excitatory on the heart and to lower blood pressure in anesthetized dogs.
3. Antimicrobial: the volatile oil is antimicrobial against typhoid bacillus, *B. dysenteriae, E. coli,* and fungi, in vitro.
4. Aucklandia promotes bronchial dilation, making it is useful to treat asthma.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

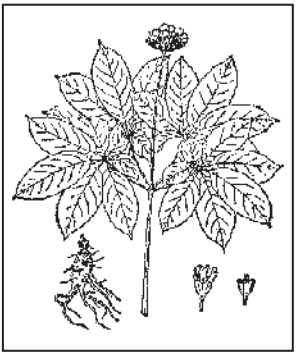
Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

NOTOGINSENG
Radix Notoginseng
San qi (Tian qi)



This herb is the dried root of *Panax notoginseng* (Burk.) F. H. Chen or *P. pseudoginseng* Wall of the family Araliaceae. It grows in the Guangxi and Yunnan provinces of China, is collected in autumn, cleaned after the removal of lateral roots, dried in the sun, and sliced or ground into powder for use unprocessed (Dong et al., 1998).

According to the ancient Chinese materia medica notoginseng had four uses: (1) it eliminates blood stasis, (2) reduces swelling and inflammation, (3) relieves pain, and (4) stops bleeding (Jiang Su New Medical College, 1977). Today, notoginseng is mostly used for the treatment of injuries and soft tissue damages, and as an effective hemostatic agent for both external and internal bleeding. Notoginseng has also been used to treat coronary heart disease and angina pectoris with good results (Dong et al., 1998).

TCM Properties

Sweet and slightly bitter in taste, and warm, it acts on the liver, stomach, heart, and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Stops bleeding: for internal bleeding, it is used for such symptoms as spitting blood, vomiting blood, coughing blood, bleeding in the rectum, hematuria, and uterine bleeding. In powder form, notoginseng can be used for external and internal bleeding (Dong et al., 1998).
2. Promotes blood circulation and resolves blood stasis:
   - Notoginseng is used to promote blood circulation and resolve blood clots.
   - When combined with salvia and borneol, *Fu Fang Dan Shen Pian* (R-32) is created and used for the treatment of angina pectoris and other cardiovascular disorders.
3. Treats swelling and inflammation, and is an anodyne: for soft tissue injuries, notoginseng powder can be used, either externally or internally, as an anti-inflammatory and hemostatic agent (Dong et al., 1998).

Dosage

Taken orally, 1 to 3 g in powdered form or 3 to 9 g in a decoction. The powder can be used externally.

Precautions

Pregnant women and people with symptoms of anemia should take notoginseng with caution. For external application, the powdered form is used but not above the suggested dosage.

Side Effects and Toxicity

Under normal conditions, this herb is safe at the suggested oral dose. However, some patients may experience dry mouth, raised skin temperature, nervousness, and insomnia. A few patients have reported nausea and vomiting. Except in severe cases, these symptoms disappear after discontinuing the medication (Jiang Su New Medical College, 1977).

Toxicological studies show that intravenous LD_{50} of the fluid extract of the herb in rabbits was 2.5 to 3.0 g/kg and its intraperitoneal value was 5.0 to 7.5 g/kg in rats. Oral dose of 4.72 g/kg corresponding to 90 g/kg of the crude herb did not produce a toxic reaction (Wang, 1983).

Modern Research Findings

Chemical Constituents

Notoginseng contains 12 percent saponins and ginsenosides, as in *Panax ginseng*. In addition, notoginsenoide R_1 to R_6 and gypenoside were isolated. Notoginsenoside R_1 is the major notoginsenoside of the root (Zhu, 1998).

Pharmacological Findings

1. The herb's powders or the water decoction decreased blood coagulation time in rabbits. It also was a satisfactory hemostatic for visceral bleeding in the liver and spleen of rabbits (Zhu, 1998).
2. As a hemostatic, it shortens blood-clotting time. Effective for both internal and external bleeding, it shortens bleeding time and increases blood platelet count (Bone, 2001; Chang and But, 1987; Wang, 1983).
3. Blood vessel dilation: increases coronary circulation and reduces systemic blood pressure in many animal models, an effect that was not

blocked or reversed by multiple antagonists, such as atropine. It increases coronary flow after injection, without a change in heart rate (Bone, 2001; Wang, 1983; Wang, 1994).
4. Notoginseng is anti-inflammatory, anabolic, and androgenic. Similar to ginseng, it increases protein synthesis (Dong et al., 1998).
5. Reduces blood lipids and cholesterol levels, and is antiaging (Dong et al., 1998).
6. Antimicrobial against dermatomycoses and Norwalk virus in vitro (Dong et al., 1998).

Clinical Findings

Clinical studies show that notoginseng is effective for angina, arrhythmia, and myocardial ischemia. Notoginseng was as effective as clofibrate in lowering cholesterol levels (Jiang Su New Medical College, 1977).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayurvedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Chang, H. and But, P. (1987). *Pharmacology and Applied Chinese Materia Medica* (Volume 2). Singapore: World Scientific.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SALVIA ROOT

Radix Salvia Miltiorrhizae
Dan shen

This herb, also known as red sage root, is the root and rhizome of *Salvia miltiorrhiza* Bge. of the family Labiatae. It is grown in all regions of China. It is washed clean after collection, dried, sliced, and used unprocessed, or stir baked with wine (Dong et al., 1998).

When fresh, salvia root is red on the outside and purplish on the inside. The interior of the root is soft, and the taste of the whole root is sweet, resembling that of licorice root. Salvia is credited with alterative, antispasmodic, arthritic, tonic, sedative, astringent, and vulnerary properties, and it is highly recommended for all blood circulation disorders, hemorrhages, menstrual disorders, and miscarriages (Smith and Stuart, 1973). Today, salvia is used for cardiovascular conditions such as angina, and to prevent heart attacks, chronic liver disease, and impaired peripheral circulation disorders (Dong et al., 1998). It is a powerful antiaging medicinal herb.

TCM Properties

Bitter in flavor and slightly cold, it acts on the heart, pericardium, and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates *Qi* and blood, and relieves blood stasis:

   - For epigastric and abdominal pain, as a result of stagnation of blood, salvia root is used with sandalwood *(tan xiang)* and amomum fruit *(sha ren),* as in *Dan Shen Yin* (R-31) (Wang, 1994).
   - For gynecological, menstrual, and obstetrical disorders, salvia root is taken alone with wine or with carthamus, red peony, moutan, peach kernel *(tao ren),* and leonurus *(yi mu cao)* to relieve severe pain (Wang, 1994).
   - For traumatic injuries, inflammation, swelling, and pain, salvia root is combined with Chinese angelica root *(dang gui),* carthamus, cyathula, and cnidium (Wang, 1994).

2. Nourishes blood and tranquilizes the mind:

   - For insomnia and vexation caused by the impairment of yin, salvia root is dispensed with dried rehmannia root *(sheng di),* scrophularia *(xuan shen),* coptis *(huang lian),* and lophantherum *(zhu ye)*. It is also used with biota seed, Chinese angelica, poria, schisandra fruit, scrophularia, ophiopogon, codonopsis, licorice root, dried rehmannia, polygala, and zizyphus, as in the popular recipe *Tian Wang Bu Xin Wan* (R-45) (Wang, 1994).
   - Salvia root can be used alone in a tincture or with polygonum stem *(ye jiao teng)* for insomnia, severe palpitations, and forgetfulness due to insufficiency of blood in the heart (Wang, 1994).

3. Salvia root has been used for chronic hepatitis and hepatosplenomegaly (enlargement of both liver and spleen). In China, it has also been used, with good results, to treat coronary heart disease, thromboangiitis obliterans, and ectopic pregnancy. To treat thromboangiitis, the water or alcohol extract of salvia root is combined with cnidium, Chinese angelica, scrophularia, pangolin scale *(chun shan jia),* myrrh, and mastic for oral and external application (Dong et al., 1998).
4. Cools the blood and treats carbuncles: for sores, carbuncles, mastitis, and other pyogenic skin disorders, salvia is blended with lonicera, dandelion, forsythia, mastic, and myrrh in a decoction (Wang, 1994).

Dosage

In a decoction of 6 to 15 g. Stir-baked salvia root with wine has a greater potency for promoting blood circulation and eliminating blood stagnation.

Precautions

People with bleeding problems, pregnant women, and those who use anticoagulant and antiplatelet drugs should avoid salvia root.

Salvia root is not compatible with black hellebore rhizome or with veratrum root.

Side Effects and Toxicity

At the therapeutic dose, the herb is safe. However, some patients may experience mouth dryness, dizziness, lassitude, hand numbness, shortness of breath, chest tightness, mild irritability, tachycardia, nausea, vomiting, and

gastrointestinal disturbance. These symptoms usually automatically disappear after discontinuing the herb (Zhu, 1998).

Toxicological studies show that there was no toxic reaction or any abnormalities in blood profiles, and in hepatic and renal functions after intraperitoneal administration of the solution of the herb to rabbits at 2.4 g/kg for fourteen days. Intragastric administration of 0.5 ml of the 2 percent tanshinone suspension for fourteen days to mice and 2.5 ml for ten days to rats did not produce any toxic reactions (Wang, 1983).

Modern Research Findings

Chemical Constituents

Salvia root contains diterpene diketones known as quinones (tanshinones) and phenolic acids. So far, forty different quinones have been isolated from the root. They include tanshinone I, tanshinone IIA and IIB, miltrione, isotanshinones I, IIA and IIB, 9- hydroxytanshinone IIA, cryptotanshinone, tanshinol, methyltanshinone, and neotanshinone A, B, and C, and it also contains vitamin E (Zhou, 1993; Zhu, 1998). Tanshinone IIA is the main active ingredient of the root (Tang and Eisenbrand, 1992; Zhou, 1993).

Pharmacological Findings

1. Invigorates coronary blood circulation, increases blood flow, regulates cardiac function, improves myocardial contraction, and adjusts the heart rate (Wang, 1994).
2. Improves microcirculation, increases the peripheral circulation, increases anoxia tolerance under normal and low pressure, and increases blood flow in microcirculation (Wang, 1994).
3. Inhibits coagulation of blood and activates fibrinolysis (Wang, 1994). The decoction of the herb was inhibitory in all three stages of the coagulation process. It transformed fibrinogen to fibrin which then degraded into fibrinogen degradation products (FDP) (Wang, 1983).
4. It has sedative and tranquilizer effects on the nervous system (Wang, 1994).
5. Lowers blood cholesterol and blood sugar levels (Dong et al, 1998).
6. Its antimicrobial action inhibits the growth of pseudomonas, *E. coli, Proteus vulgaris, S. typhi, Shigella,* dysentery, *S. fleneri,* and *S. aureus* (Tang and Eisenbrand, 1992; Wang, 1983).
7. The herb protects against carbon tetrachloride liver injuries and experimental cirrhosis, and prevents hepatic fibrosis (Dong et al., 1998).

Clinical Findings

A clinical study in China of 323 angina patients treated with salvia root for one to nine months showed a marked relief in 81 percent of the patients with angina pectoris, particularly when this herb was combined with the *Qi*- and blood-regulating herb acronychia *(jiang xiang),* and there was an improvement in the abnormal electrocardiogram (ECG) in 57.5 percent. Some of the patients showed a decrease in plasma phospholipids and a significant increase in coronary circulation index after six months of medication (Zhu, 1998).

1. Salvia injection is used to treat acute heart attacks in China. The mortality rate in one study fell from 39 percent to 13 percent with administration within twenty-four hours of the attack (Bone, 2001).
2. The effect of nitroglycerin was compared with salvia in twenty patients with ischemic heart disease. Salvia was markedly superior to nitroglycerin, showing more persistence and also improved cardiac function (Bone, 2001).
3. Salvia injections lowered blood pressure in hypertensive patients, improved recovery from stroke, and showed positive results in those with Buerger's disease (Bone, 2001).
4. Salvia showed satisfactory results when used for chronic hepatitis and for acute hepatitis in combination with *di er cao (Hypericum japonicum)* (Bone, 2001).
5. A 69 percent cure rate was obtained in chronic and active hepatitis cases when combined with tumeric and hawthorn *(Cratagus pinnatifida),* (Bone, 2001).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayurvedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Dong, K . S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Tang, W. and Eisenbrand, G. (1992). *Chinese Drugs of Plant Origin: Chemistry, Pharmacology and Use in Traditional and Modern Medicine*. Berlin/Heidelberg: Springer-Verlag.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.
Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica*. Beijing: China Medical and Pharmaceutical Science Press.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CNIDIUM
Radix Ligustici Chuanxiong
Chuan xiong

This herb is the dried rhizome of *Ligusticum chuanxiong* Hort. of the family Umbelliferae. It grows mainly in the Guizhou, Sichuan, and Yunnan provinces of China, is collected in summer, washed, sliced, and used unprocessed or stir baked with wine until dry.

Cnidium promotes blood circulation, and relieves stagnation of *Qi* and blood (Dong et al, 1998). This outstanding herb was traditionally used for a large variety of difficulties, such as colds, headaches, anemia, menstrual difficulties, sterility, and pains and aches of all kinds, including toothaches, headaches, and rheumatalgia (Smith and Stuart, 1973). Today, cnidium is widely used for coronary heart disease and cerebral embolism (Dong et al., 1998). Cnidium is an excellent antiaging medicinal herb.

TCM Properties

Pungent in taste and warm, it acts on the liver and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Promotes the circulation of *Qi* and blood, and relieves stagnation and pain:

   - For menstrual pain caused by stagnation of *Qi* and blood, cnidium is commonly prescribed with Chinese angelica root and red peony root *(chi shao).* Cnidium is also used with bupleurum for pain in the hypochondriac region or with red peony root and carthamus *(hong hua)* for numbness in the extremities and for traumatic injuries.
   - Cnidium is blended with Chinese angelica, peach kernel, carthamus, and astragalus root, as in *Bu Yang Huan Wu Tang* (R-34), for hemiplegia and after-stroke symptoms (Wang, 1994).

2. Dispels pathogenic Wind, and eliminates associated headaches and pain:

- For migraine headaches due to Wind-Cold pathogens, a stuffy nose, sinus headaches, fever, and pain in the limbs, cnidium is combined with dahurian angelica root *(bai zhi),* siler *(fang feng),* notopterygium, schizonepeta, licorice root, mentha, and asarum root *(xi xin),* as in the *Chuan Xiong Cha Tiao San* (R-49) (Wang, 1994).
- To treat headaches caused by Wind-Heat pathogens, cnidium is mixed with chrysanthemum, gypsum *(shi gao),* and silkworm *(jiang can)*.
- For headaches due to Wind-Damp pathogens, cnidium is dispensed with notopterygium root, pubescent angelica, licorice root, ligusticum root *(gao ben),* and siler *(fang feng),* as in the *Qiang Huo Sheng Shi Tang* (R-57) (Wang, 1994).
- For headaches due to blood deficiency, cnidium is often combined with Chinese angelica root, prepared rehmannia root, white peony root, and chrysanthemum.
- For headaches caused by stagnation of blood circulation, cnidium is mixed with salvia root, red peony root, carthamus, peach kernel, bupleurum, and platycodon root, as in *Xue Fu Zhu Yu Tang* (R-38) (Wang, 1994).
- For rheumatic arthralgia, cnidium is prescribed with siler, pubescent angelica root, large-leaf gentian root *(qin jiao),* and loranthus *(sang ji sheng).*

3. Invigorates the circulation of blood and regulates menstruation:

- For menstrual disorders, irregular menstruation, dysmenorrhea, amenorrhea, dystocia (difficult labor), postpartum lochiostasis, or lower abdominal pain due to stagnant blood, cnidium is used with red peony root and cyperus tuber, or with peach kernel, carthamus, Chinese angelica, and white peony, as in *Tao Hong Si Wu Tang* (R-16).
- For early onset of menstruation, excessive blood loss, shortness of breath, or fatigue, cnidium is prescribed with ginseng, astragalus, processed rehmannia, and Chinese angelica in a decoction, as in *Sheng Yu Tang*.
- For metrorrhagia, metrostaxis, dysmenorrhea accompanied by blood clots, or uterine functional bleeding as a result of *Ren* and *Chong* meridian imbalance, cnidium is dispensed with donkey-hide gelatin, artemisia leaf, Chinese angelica, white peony, processed rehmannia, and licorice root, as in *Jiao Ai Tang* (Wang, 1994).

Dosage

In a decoction of 3 to 9 g.

Precaution

This herb should be used cautiously by those who have a deficiency of yin and *Qi,* those who have headaches due to hyperactivity of liver yang, or those who suffer from profuse menstruation.

Side Effects and Toxicity

The therapeutic dose of cnidium is safe. No severe adverse reactions have been reported, however, the following symptoms may occur in a minority of patients: gastrointestinal discomfort and, in rare cases, advanced menstruation and menorrhagia (Zhu, 1998). A daily oral dose of 5 or 10 mg/kg of the alkaloid from the herb, tetramythylpyrazine (TMZ), for four weeks showed no significant abnormalities in body weight, blood profiles, liver and kidney functions, and in pathological examination (Wang, 1983; Zhu, 1998).

Modern Research Findings

Chemical Constituents

Cnidium root and rhizome contain alkaloids, phthalides, phenols, and volatile oil. The alkaloids include ligastrazine, chuanxiongzine, cnidilide, tretramethylpyrazine (TMZ), and perlolyrine. The phthalides include ligastilide, chuanxiongol, butylphthalide, butylidene phthalide, and senkyunolide. The phenols include ferulic acid, chrysophanol, vanilic acid, caffeic acid, and sedanoic acid (Wang, 1983). The volatile oil contains phthalides.

Pharmacological Findings

1. Action on uterus: 10 percent cnidium extract increased the contractions of the uterus in pregnant rabbits and even caused spasms. Large doses caused paralysis and stopped contractions (Dong et al., 1998).
2. Action on the heart in rabbits: chuanxiongzine increased the contractions of heart muscles and left ventricle activity, increased consumption of oxygen in the cardiac muscles, and increased the heart rate (Dong et al., 1998).

In anesthetized dogs and rabbits, cnidium aqueous extract and chuanxiongzine both lowered blood pressure, enlarged the peripheral blood vessels, improved peripheral circulation, and decreased the consumption of oxygen in the cardiac muscles and the resistance of the peripheral blood vessels.

3. Action on CNS: a sedative, tranquilizing and anticonvulsive reactions have been observed. A small dosage is excitatory on the respiratory center, the medullary cardiovascular center, and cerebral reflex. A large dosage showed opposite effects (Wang, 1983).
4. Reduces the agglutination and peripheral activities of blood platelets: TMZ inhibited ADP- or collagen-induced platelet aggregation in rabbits and human patients with coronary heart disease (Wang, 1983).
5. Antimicrobial (Dong et al., 1998).

Clinical Findings

Cnidium is now widely used in Chinese hospitals to treat ischemic cerebrovascular diseases, coronary heart disease, and angina pectoris satisfactorily, without side effects. In nineteen patients with angina pectoris treated with the extract of the herb, significant symptomatic improvement of the ST segment of electrocardiogram (ECG) was reported in one-third of the cases. Blood pressure was normalized in six of the twelve cases complicated with hypertension (Wang, 1983; Yu et al., 1987).

Cnidium has been used to treat migraines. Oral administration of sodium ferulate (a salt of ferulic acid isolated from the herb) was tested in 187 migraine patients. The effective rate was 89.3 percent in an open clinical trial and 86.9 percent in a double-blind trial. The clinical effect was associated with the inhibitory rate of platelet aggregation (Han and Tang, 1988).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Han, D. L. and Tang, W. Y. (1988). Effect of sodium ferulate on migraine in open and double-blind controlled trials. *Chinese Journal of Internal Medicine* 27: 637-640.

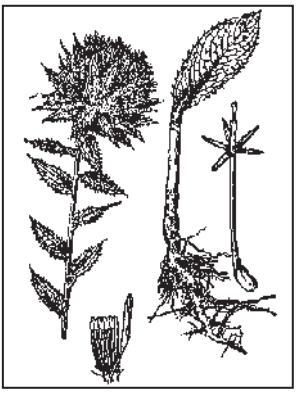
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica.* Beijing: People's Health Publisher.

Yu, Z., Chen, K. J., Qian, Z. H., Weng, W. L., Yu, Y. Q., and Tu, X. H. (1987). Effects of *Chanxiong* granule on platelet function and prostaglandin metabolism in coronary disease patients. *Chinese Journal of Integrated Traditional and Modern Medicine* 7: 8-11.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications.* Amsterdam: Harwood Academic Publishers.



CARTHAMUS OR SAFFLOWER

Flos Carthami
Hong hua

This herb is the dried tubular corolla of *Carthamus tinctorius* L. of the family Compositae. It is grown in the Henan, Hubei, Sichuan, and Zhejiang provinces in China. It is picked in the summer after the flower has turned red, and then dried in the shade (Dong et al., 1998). According to the ancient Chinese materia medica, this herb was brought from Arabia at the time of the Yuan (Mongol) dynasty (A.D. 1271) and was used in cooking, as a dye, and as a medicine for blood disorders.

Today, carthamus is used to stimulate blood flow and relieve chest, abdominal, and menstrual pains caused by stagnation of blood circulation (Smith and Stuart, 1973). A similar herb, saffron *(zang hong hua)* from *Crocus sativus* L. of the family Iridaceae, grown mostly in the Xizang (Tibet) province of China and in southern European countries, has the same actions and uses as carthamus but with much stronger effects (Dong et al., 1998).

TCM Properties

Pungent in taste and warm, it acts on the heart and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates blood circulation, eliminates blood stagnation, and reduces pain:

   - For chest pain due to the obstruction of *Qi* and blood in the chest, carthamus is prescribed with salvia root *(dan shen),* red peony root, and cnidium rhizome (Wang, 1994).
   - For coronary heart disease, carthamus is used with cnidium, salvia root, red peony, and acronychia root *(jiang xiang),* as in the famous patent medicine, *Guan Xin Bing II Fang* (R-33) (Dong et al., 1998).
   - For pain in the hypochondriac region due to blood stasis, carthamus is blended with mastic *(ru xiang),* myrrh, and peach kernel *(tao ren)* (Zhang, 1988).

- For soft tissue injuries and traumatic pain, carthamus is combined with sappan wood *(su mu),* calamus gum *(resina draconis),* and musk (Zhang, 1988).

2. Invigorates blood circulation and normalizes menstruation: to treat menstrual ailments, such as amenorrhea, dysmenorrhea, and postpartum abdominal pain, carthamus is often used with peach kernel *(tao ren),* Chinese angelica root, and cnidium to stimulate menstrual flow, as in *Tao Hong Si Wu Tang* (R-16) (Smith and Stuart, 1973).

Dosage

In a decoction of 3 to 9 g.

Precautions

Carthamus should not be used by pregnant women and those who have profuse menstruation.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica. Toxicological studies show that the intraperitoneal MLD of the decoction of the herb in mice was 1.2 g/kg. The intravenous LD_{50} of the alcoholic extract of the herb was 5.3 g/kg in mice and carthamin was 2.35 g/kg (Wang, 1983).

Modern Research Findings

Chemical Constituents

Carthamus contains a complex mixture of red pigments, carthamin, and yellow pigments including safflor yellow A, safflor yellow B, safflomin A (Tang and Eisenbrand, 1992), SY-2, SY-3, chalcones, and other ingredients including glycosides of chalcone and quinone. It also has colorless flavonoids and flavonoid glycosides (Leung and Foster, 1996). The flavone luteolin, and pyranoside, β-sitosterol, and pyranoside were also isolated (Tang and Eisenbrand, 1992).

Pharmacological Findings

Safflower extract showed the following important biological actions (Dong et al., 1998; Wang, 1994):

1. Action on the circulatory system and blood:
   - Dilates the coronary arteries and increases blood flow.
   - Lowers blood pressure on anesthetized animals by dilating the blood vessels.
   - Slight stimulator of the heart.
   - Constricts the renal blood vessels and increases the blood flow to the kidneys.
   - Inhibits the aggregation of platelets, increases the activity of plasmin, and inhibits the formation of thrombi (Dong et al., 1998).
2. Carthamus is a sedative and tranquilizer on the nervous system (Dong et al., 1998).
3. Carthamus demonstrated a tonic or contractive action on the uterus. A large dose can increase the rate of contractions and spasms. This action is more obvious in a pregnant uterus (Dong et al., 1998).
4. As an antimicrobial, it inhibits the growth of *Mycobacterium tuberculosis* and cholera in vitro.
5. Lowers serum cholesterol levels in rabbits (Dong et al., 1998).
6. Safflor yellow is an immunosuppressive and a strong anticoagulant. Safflor polysaccharides are immunopotentiating (Leung and Foster, 1996).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Tang, W. and Eisenbrand, G. (1992). *Chinese Drugs of Plant Origin: Chemistry, Pharmacology and Uses in Traditional and Modern Medicine*. Berlin/Heidelberg: Springer-Verlag.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.
Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

CURCUMA ROOT

Radix Curcumae
Yu jin

This herb is the dried tuberous root of a fragrant plant of several varieties *Curcuma kwangsiensis* S. G. Lee et C. F. Liang, *C. zedoaria* Rosc., *C. wenyujin* Y. H. Chen et C. Ling, or *C. longa* L. of the family Zingiberaceae. It is grown mainly in the provinces of Guangdong, Guangxi, Sichuan, and Zhejiang in China. Collected in the winter, the hairy rootlets are removed before it is washed, boiled thoroughly, dried in the sun, sliced, and used (Jiang Su New Medical College, 1977).

The root has a taste similar to turmeric. Traditionally, it was used for all sorts of hemorrhages and wounds. Curcuma was also recommended for treating primary syphilis, mania, and worm poison (Smith and Stuart, 1973). Today, curcuma root is used to invigorate the flow of *Qi* and blood to treat pain in the chest, abdomen, and costal region, hepatitis, profuse menstruation, and other menstrual disorders (Dong et al., 1998).

TCM Properties

Pungent and bitter in taste, and cold, it acts on the heart, liver, and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates the flow of Liver-*Qi* and relieves pain by normalizing blood circulation:

   - To treat distending pain in the chest, pain in the hypochondriac region, stomach, and abdomen, and hepatosplenomegaly, curcuma root is used with salvia root *(dan shen),* bupleurum root *(chai hu),* cyperus tuber, and bitter orange (Dong et al., 1998).
   - For painful menstruation and distending pain in the breasts, curcuma is prescribed with bupleurum root *(chai hu),* Chinese angelica, cyperus tuber, and white peony root (Wang, 1994).
   - Curcuma root can also be blended with salvia root, turtle shell, lycopus *(ze lan),* and green tangerine peel for resolving masses in the abdomen that cause distension and pain (Dong et al., 1998).

2. Clears internal Heat in the blood combined with blood stasis: for vomiting of blood, blood in the urine, epistaxis (nose bleeding) during the menstrual period, or profuse menstruation, curcuma root can be dispensed with dried rehmannia root, moutan bark *(dan pi),* gardenia *(zhi zi),* and achyranthes root *(huai niu xi)* (Wang, 1994).
3. Removes Damp Heat: for jaundice due to Damp-Heat pathogens, curcuma root is mixed with capillaris and gardenia (Dong et al., 1998).

Dosage

In a decoction of 6 to 12 g.

Precaution

Curcuma root is incompatible with clove *(ding xiang).* Use with caution during pregnancy.

Side Effects and Toxicity

The herb is safe at the recommended dose. The toxicological studies on *C. longa* showed that curcuma fed to rats at a dose up to 125-fold corresponding to normal human intake caused no adverse effects on growth, feed efficiency ratio, blood counts, and clinical blood chemistry (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Curcuma wenyujin rhizome contains curcumin, curdione, beta-elemene, carvone, camphene, camphor, and chuanxioongzine (Ling, 1995). The volatile oil contains alpha- and beta-pinene, camphene, limonene, curcumol, and curdione as main ingredients (Zhu, 1998).

Curcuma longa rhizome contains curcumin, hexahydrocurcumin, and furmerone. The essential oil contains tumerone, alpha-tumerone, cinole, curcumol, and caryophyllen as the main ingredients. It also contains phenolic pigments, curcumin, and desmethoxycurcumin (Zhu, 1998).

Pharmacological Findings

1. Hypolipidemic: oral administration of the ethanolic or ether extract of the herb, curcumin, and the essential oil of the herb to rats and rabbits

with experimental hyperlipidemia significantly decreased serum cholesterol and beta-lipoprotein levels. These agents also reduced liver cholesterol levels and corrected the imbalanced ratio of the alpha- and beta-lipoproteins but did not affect the endogenous cholesterol (Wang, 1983).

2. A reduction in plaque formation in the aortas and coronary arteries in rabbits and white rats has been demonstrated (Dong et al., 1998).
3. Effective treatment for viral hepatitis and jaundice (Dong et al., 1998).
4. As a cholagogue, curcuma increases the secretion and excretion of bile, and decreases the amount of urobilinogen in urine (Dong et al., 1998).
5. Inhibits liver cell damage (Dong et al., 1998).
6. Antibacterial and antifungal (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

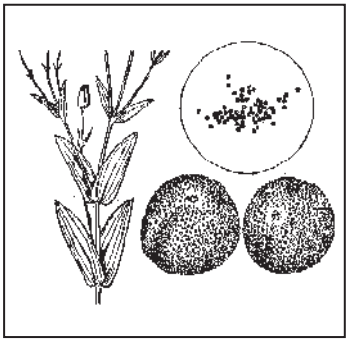
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

VACCARIA SEED
Semen Vaccariae
Wang bu liu xing



This herb is the dried, ripe seeds of *Vaccaria segetalis* (Neck) Garcke of the family Caryophyllaceae. It grows mainly in the Hebei, Heilongjiang, Liaoning, and Shandong provinces of China. The herb and its seeds are harvested during the summer months, dried in the sun, and used unprocessed.

Traditionally, vaccaria seed was used to cure gynecological disorders, promote menstrual flow (emmenagogue), relieve menstrual pain, and promote the production of milk (galactagogue) after childbirth (Dong et al., 1998; Jiang Su New Medical College, 1977).

TCM Properties

Acrid and sweet in taste, and neutral, it acts on the liver and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates blood circulation and regulates menstruation: For amenorrhea and menstrual disturbances, vaccaria seed is combined with cnidium rhizome, carthamus, Chinese angelica root, and cyperus seed (Wang, 1994).
2. Promotes production of milk: for deficiency of lactation after childbirth, vaccaria seed is used in combination with Chinese angelica, trichosanthes root, and akebia stem. The seed is also blended with dandelion, prunella spike, and trichosanthes seeds for mastitis (inflammation of the breast) (Dong et al., 1998).
3. Promotes urination and helps remove stones in the urinary system: to treat calculus formation in the urinary system, such as kidney or bladder stones, vaccaria seed is dispensed with achyranthes, lygodium spores, and lysimachia in a decoction (Wang, 1994).
4. Relieves inflammation of the prostate glands: for prostate inflammation, vaccaria seed is mixed with peach kernel, carthamus, patrinia herb *(bai jiang cao),* and lycopus *(ze lan)* in a decoction (Wang, 1994).
5. Vaccaria seed is also useful in treating uterine fibrositis and to relieve shingles pain.

Dosage

In a decoction of 6 to 15 g.

Precautions

Pregnant women should avoid using this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Vaccaria seed contains vaccaroside, lactosin, vacsegoside, gyosogenin, glucoronic acid, glucone, arabinose, xylose, rhamuose, isosaponarin, saponaretin, and vitexin (Dong et al., 1998; Ling, 1995).

Pharmacological Findings

1. Stimulatory: the water or alcohol extract of the herb was significantly stimulatory on the uteruses of rats (Dong et al., 1998).
2. Antitumorous: demonstrated inhibitory action on lung and intestinal cancer (Dong et al., 1998).
3. Promotes the production of milk (Dong et al., 1998).

Clinical Findings

Powdered toasted vaccaria seed made into a paste with sesame oil was applied on the skin of patients with herpes zoster, twice a day, and left in place for thirty minutes. The pain stopped and the condition cleared within five days. Extract of vaccaria seed has been shown to be inhibitory on lung cancer cells (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

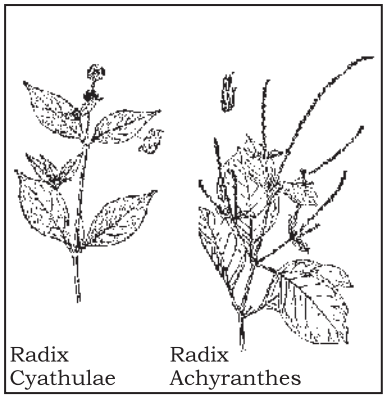
Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

ACHYRANTHES ROOT

Radix Achyranthes Bidentatae
Huai niu xi



This herb is the dried root of *Achyranthes bidentata* Bl. of the family Amaranthaceae, known as *huai niu xi. Cyathula officinalis* Kuan and *C. capitata* (Wall) Miq. of the family Amaranthaceae are known as *chuan niu xi*. These herbs share similar actions and uses. Achyranthes root is produced mainly in the city of Huaiqing in the Henan province in China, and cyathula root is produced in the Sichuan province. The roots are collected in autumn or early winter, washed after the removal of the hairy rootlets, dried in the sun or smoked with sulfur fumes, then sliced or stir baked with rice wine (Jiang Su New Medical College, 1977).

Traditionally, these herbs were used for ague, fever, urinary difficulties, and puerperal and cutaneous diseases (Smith and Stuart, 1973). Today, achyranthes root *(huai niu xi)* is used to strengthen the tendons, bones, and joints, to relieve pain in the lower extremities, and to invigorate the circulation of *Qi* and blood in the kidneys and liver. Cyathula root *(chuan niu xi)* is mostly used for promoting blood circulation to relieve stagnation, regulate menstruation, and relieve rheumatic muscular pains and aching joints. Achyranthes root is considered to be a good antiaging medicinal herb (Dong et al., 1998; Wang, 1994).

TCM Properties

Bitter and sour in taste, and neutral, these herbs act on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates blood circulation, eliminates blood stasis, and relieves pain: to treat irregular menstruation, dysmenorrhea, amenorrhea, retention of the placenta caused by stagnation of blood, and to alleviate postpartum abdominal pain and pain resulting from traumatic inju-

ries, achyranthes root is combined with carthamus, peach kernel, Chinese angelica root, and cnidium rhizome in a decoction (Wang, 1994).
2. Eliminates *Bi* syndrome and reinforces the kidneys and liver: for aches and pains in the loins and knees, as well as pain in the lower extremities and lassitude of the legs caused by Wind-Damp *Bi* syndrome, achyranthes root is prescribed with pubescent angelica root, loranthus, large leaf gentian root, siler, eucommia bark, cnidium, ginseng root, Chinese angelica, and poria, as in *Du Huo Ji Sheng Tang* (R-58) (Wang, 1994).
3. Induces the downward movement of blood: to relieve hyperactivity of liver-yang-induced headaches, vertigo, dizziness, and toothache, achyranthes is dispensed with white peony, haematite, oyster shell, scrophularia, capillaris, and asparagus, as in *Zhen Gan Xi Feng Tang* (Wang, 1994).

Dosage

In a decoction of 6 to 15 g.

Precautions

This herb should not be used by pregnant women and should be avoided by any woman who has profuse menstruation.

Side Effects and Toxicity

The therapeutic dose does not cause side effects and is not toxic according to Chinese materia medica. Toxicological studies show that the LD_{50} values of the alkaloids of the herb, ecdysterone and inokosterone, administered intraperitoneally in mice were 6.4 g/kg and 7.8 g/kg, respectively. The oral dose value of these alkaloids was > 9 g/kg (Ling, 1995).

Modern Research Findings

Chemical Constituents

Achyranthes bidentata Bl. root contains triterpenoid saponins, inokosterone, ecdysterone, stigmasterol, beta-sitosterol, beta-amyrin, polysaccharides, and oleanolic acid. *Cyathula officinalis* Kuan root contains rubrosterone, capitasterone, and cyasterone. *Cyanthula capitata* contains capitasterone, cyasterone, amarasterone A and B, ecdysterone, isoecdysterone, sengosterone, and inokosterone (Ling, 1995).

Pharmacological Findings

1. Achyranthes alcohol extract has been demonstrated to be anti-inflammatory, analgesic, and mildly diuretic (Dong et al., 1998).
2. Effect on the uterus: achyranthes root causes contractions in rabbits and mice. It causes relaxation in the nonpregnant uteri of cats and contractions in pregnant cats (Dong et al., 1998).
3. Action on the cardiovascular system: an injection of either the decoction or alcohol extract of achyranthes root into isolated hearts of frogs, dogs, cats, and rabbits showed a reduction in blood pressure due to peripheral vasodilation. Other studies showed a dual action of temporary hypertensiveness followed by transient hypotensiveness (Dong et al., 1998; Wang, 1983).
4. Action on gastrointestinal tract: achyranthes root extract was inhibitory on the motility of intestinal specimens and relieved smooth muscle cramps in mice but increased contractions in guinea pig intestines (Dong et al., 1998).

Clinical Findings

In treating *Bi* syndromes, Chinese materia medica recorded that achyranthes root, combined with eucommia, dipsacus, cibotium, chaemomeles, acanthopananx, and loranthus in a decoction produced good results in the treatment of fibromyositis, fibrositis, sciatica, rheumatic arthritis, and swelling and pain in the lumbar region, knees, and ankles. Achyranthes blended with phellodendron bark, clematis, chaemomeles, acanthopanax, and tokoro relieved rheumatoid arthritis in the lower limbs (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

RED PEONY ROOT
Radix Paeoniae Rubra
Chi shao *or* Chi shao yao

This herb is the dried root of *Paeonia lactifora* Pall., *P. obavata* Maxim, or *P. veitchii* Lynch of the family Ranunculaceae. It is grown mainly in the Inner Mongolia region and Sichuan province of China. Collected in autumn, it is sliced, dried in the sun, and used unprocessed (Jiang Su New Medical College, 1977).

Red peony root was prized by ancient Chinese doctors who used it as a tonic, alterative, astringent, and general remedy for diseases afflicting women (Smith and Stuart, 1973). Today, red peony root is used to invigorate blood circulation, eliminate pathogenic Heat from blood, and relieve pain during the treatment of menorrhalgia, amenorrhea and swelling, hematemesis, and epistaxis (Dong et al., 1998). The stir-baked red peony is more effective for invigorating blood and preventing blood stasis (Dong et al., 1998; Wang, 1994).

TCM Properties

Bitter in taste and slightly cold, it acts on the liver and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates blood circulation, dissipates blood stasis and associated symptoms, and relieves pain:

   - For amenorrhea and menorrhalgia, red peony root is combined with Chinese angelica, cnidium, and moutan bark *(dan pi),* as in *Zi Xue Tang*.
   - For coronary heart disease, cerebral thrombosis, chest pain, traumatic injury, swelling, and pain, red peony root is mixed with peach kernel, carthamus (safflower), dried rehmannia, cyathula root, Chinese angelica, bupleurum root, platycodon root, and licorice root, as in *Xue Fu Zhu Yu Tang* (R-38).
   - For treating hemiplegia and post-stroke syndromes, red peony is prescribed with cnidium, safflower, Chinese angelica, astragalus root, peach kernel, and dried earthworm, as in *Bu Yang Huan Wu Tang* (R-34).

2. Removes pathogenic Heat from the blood system:

   - For epidemic febrile disease, which is manifested as fever, maculae, epistaxis, or bleeding caused by the invasion of pathogenic Heat, red peony root is blended with rhinoceros horn, dried rehmannia root, and moutan bark, as in *Xi Jiao Di Huang Wan* (R-70).
   - Red peony root is also dispensed with chrysanthemum, gardenia, shave grass, and prunella spike for bloodshot eyes due to excessive Heat in the liver.

Dosage

In a decoction of 6 to 15 g.

Precautions

People with blood deficiency, cold limbs, or amenorrhea should avoid this herb or take it with caution. It is incompatible with hellebore root *(Radix veratri)* (Dong et al., 1998).

Side Effects and Toxicity

A slight toxicity was recorded in the classical Chinese materia medica. Toxicological studies show that the acute toxicity of the herb is very low. The LD_{50} value of paeoniflorin in mice was 3.53 g/kg by intravenous administration and 9.53 g/kg by intraperitoneal administration. The LD_{50} values of the aqueous extract and the 70 percent ethanolic extract of the herb, by intraperitoneal administration in mice, were 10.8 ± 1.39 g/kg and 2.9 ± 0.19 g/kg, respectively (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Red peony *(P. lactiflora)* root contains paeoniflorin as the main active ingredient in the root. Other ingredients isolated from the root include albiflorin, oxypaeoniflorin, paeonilactones A-B, lactiflorin, paeonol, beta-sitosterol, benzoic acid, resin, tannin, fatty oil, starch, mucilages, and protein (Jiang Su New Medical College, 1977; Zhu, 1998).

Pharmacological Findings

1. As an antispasmodic, red peony was shown to be inhibitory on the smooth muscles of the stomach, intestines, and uterus in vitro.
2. Anti-inflammatory, antipyretic, sedative, and analgesic.
3. Anticoagulative on platelets, retards blood-clot formation, and increases coronary circulation (Dong et al., 1998).
4. As an antimicrobial, red peony is a strong in vivo inhibitor against *Shigella sonnei, S. aureus,* herpes zoster virus, and various pathogenic *dermatomycoses*.
5. CNS action: red peony effectively counteracts convulsions caused by strychnine (Dong et al., 1998).

Clinical Findings

1. For coronary heart disease and angina pectoris, red peony is effective when combined with cnidium, carthamus, salvia, and dalbergia in a decoction (Wang, 1994).
2. For chronic prostatitis, red peony is effective when blended with dandelion, thiaspi, *(bai jingcao),* and lycopus *(ze lan)* (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*, San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

LEONURUS

Herba Leonuri
Yi mu cao *or* Kun cao

This herb is the entire plant of *Leonurus heterophyllus* Sweet of the family Labiatae. It is grown in all parts of China, as well as in Asia, Africa, and the United States, harvested in the summer, cleaned, dried in the sun, and used unprocessed (Jiang Su New Medical College, 1977).

Leonurus is also called Chinese motherwort. The name of the herb in Chinese means "benefits the mother." Traditionally, it was used for fevers, postpartum hemorrhage, menorrhagia, and loss of virility. Prolonged use promotes fertility. The juice is used internally for dropsy, difficult labor, dysmenorrhea, fluxes, and constipation, and externally for boils, cancer, ear abscesses, and serpent and insect bites. The extract is administered in cases of complicated or difficult labor (Smith and Stuart, 1973).

Today, the herb is prescribed to normalize blood circulation, regulate menstrual flow, and for other gynecological ailments, and as an effective diuretic for nephrotic edema. Leonurus is a good antiaging medicinal herb (Dong et al., 1998).

TCM Properties

Pungent and bitter in taste, and slightly cold, it acts on the heart, liver, and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates blood circulation and normalizes menstruation: for irregular or stagnant menstruation, distending pain in the lower abdomen, amenorrhea, and postpartum abdominal pain, leonurus can be used alone or with Chinese angelica root *(dang gui),* cnidium rhizome, and red peony root *(chi shao),* as in *Yi Mu Wan.* Leonurus extract is therapeutic for dysmenorrhea and amenorrhea caused by blood stasis (Wang, 1994).

2. Dissipates blood stasis and alleviates pain: leonurus is dispensed in a decoction to treat traumatic injury, bruising, and soft-tissue damage with accumulation of blood, swelling, and pain (Wang, 1994).
3. Reduces edema by inducing diuresis: leonurus can be taken alone in a decoction or with hoelen *(fu ling),* imperata rhizome *(bai mao gen),* plantain herb, and white atractylodes rhizome *(bai zhu).* It also can be used when urination is difficult because of nephrotic edema and in urination with hematuria (Dong et al., 1998).
4. Treats hypertension: to treat hypertension, leonurus is blended with prunella spike, scute root, gambir, eucommia bark, licorice root, and loranthus (Dong et al., 1998). For primary (essential) hypertension, it is combined with siegesbeckia, prunella, and gambir in a decoction (Wang, 1994).

Dosage

In a decoction of 10 to 15 g.

Precautions

People who are yin deficient, anemic, or pregnant should not use leonurus herb. Do not overdose.

Side Effects and Toxicity

The herb has low toxicity. Multiple and long-term oral use produced no toxic reactions. Intramuscular administration of the injection solution of the herb did not cause any side effects except dry mouth or shortened sleep (Zhu, 1998). Toxicological studies showed that the LD_{50} value of the injection solution of the herb was 30 to 60 g/kg in mice by intravenous administration (Wang, 1983).

Modern Research Findings

Chemical Constituents

Leonurus contains the alkaloids leonurine, stachydrine, leonurine A and B, leonuridine, and leonurinine. Other ingredients include rutine, fumaric acid, lauric acid, linolenic acid, sitosterol, stachyose, 4-guaridino-1-butanol, 4-guanidino-gutyric acid, carotene, and vitamins A, B, C, and K (Dong et al., 1998; Jiang Su New Medical College, 1977).

Pharmacological Findings

1. Action on the uterus: the aqueous decoction, alcohol extract, and alkaloid leonurine decoction was excitatory on rat, rabbit, dog, and cat uteruses. It increased the tension and contractions of the uterus, and speeded up the frequency of contractions (Dong et al., 1998).
2. Action on blood pressure: an oral leonurus decoction lowers blood pressure, dilates blood vessels (particularly on peripheral blood vessels) and is a diuretic (Dong et al., 1998).
3. Inhibits blood coagulation and fibrinolysis, and prevents blood clots (Dong et al., 1998).
4. Demonstrated inhibition on the CNS in experimental frogs and stimulated respiration (Dong et al., 1998).
5. Antimicrobial and antifungal (Dong et al., 1998).

Clinical Findings

A decoction of leonurus was given to patients with acute glomerulonephritis, and all were healed. The shortest recovery was within five days; the longest recovery was within thirty-six days. The cases were followed up for five years and there was no recurrence or sequelae (Jiang Su New Medical College, 1977).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PEACH KERNEL OR PERSICA

Semen Persicae
Tao ren

This herb is the dried kernel of *Prunus Persica* (L.) Batsch or *P. davidiana* (Carr.) Franch. of the family Rosaceae. It is grown in all parts of China. The fruit is picked when ripe, and the seed is removed and dried for use unprocessed (Jiang Su New Medical College, 1977).

The kernel of the seed was traditionally used for coughs, blood diseases, rheumatism, amenorrhea, ague, postpartum hemorrhage, and worms. It can be substituted for the kernel of the apricot seed (Smith and Stuart, 1973). The peach kernel is a very strong medicinal herb and is currently used to promote blood circulation, eliminate blood stagnation to treat menstrual pain, moisten the bowels, and relieve chronic constipation in the elderly (Dong et al., 1998).

TCM Properties

Bitter in taste and neutral. It acts on the heart, liver, lung, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Promotes blood circulation and dissipates blood stasis*:* for amenorrhea and dysmenorrhea due to blood stasis, or postpartum abdominal pain caused by mass formation, peach kernel is used with carthamus *(hong hua),* Chinese angelica root *(dang gui),* cnidium rhizome, and red peony root *(chi shao),* as in *Tao Hong Si Wu Tang* (R-16) (Wang, 1994).
2. Moistens the bowels and relieves constipation: peach kernel is prescribed with hemp seed *(ma ren)* and trichosanthes seed *(gua lou ren)* to treat constipation caused by dry intestines (Dong et al., 1998).
3. Eliminates abscess: peach kernel can be combined with rhubarb, moutan, waxgourd seed, and mirabilite to treat the early stages of intestinal abscess (Wang, 1994).
4. Treats vasculitis: for vasculitis due to thromboembolism, peach kernel mixed with safflower, Chinese angelica, salvia, achyranthes, astra-

galus, dandelion, scrophularia, and licorice root in a decoction provides satisfactory results (Dong et al., 1998).

Dosage

In a decoction of 6 to 10 g.

Precautions

Care should be taken to avoid an overdose. Peach kernel should not be used by women with profuse menstruation or who are pregnant. Chemical hydrolysis revealed that peach kernel contains hydrocyanic acid (HCN), which is a nerve poison. Large doses can cause breathing paralysis and death. The lethal dose of HCN for a human is about 0.05 g (Dong et al., 1998).

Side Effects and Toxicity

Peach kernel is a potent agent that promotes blood circulation and removes blood stasis. A small amount at the therapeutic dose is safe. Do not overdose.

Modern Research Findings

Chemical Constituents

Peach kernel seeds contain 3.6 percent of amygdalin, multiflorines A and B, compesterol, and sitosterols. Other ingredients include 0.4 percent of volatile oil, 45 percent of fatty oil, proteins, emulsin, oleic acid, glyceric acid, linoleic acid, vitamin B_1, and allantoinase (Zhu, 1998).

Pharmacological Findings

1. In rats, it is an anticoagulant, activates blood flow, and lowers blood pressure (Dong et al., 1998).
2. Antiallergenic: peach kernel inhibited allergenic antibody formation. It is used for urticaria and dermatitis (Dong et al., 1998).
3. Protects the liver.
4. Antitussive and antiasthmatic. Slight amounts of hydrocyanic acid are antitussive and antiasthmatic (Dong et al., 1998).
5. Mild laxative.
6. Antimicrobial.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

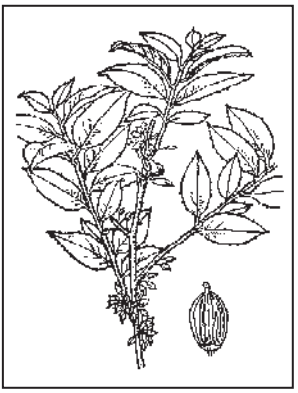
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PUBESCENT HOLLY ROOT

Radix Ilicis Pubescentis
Mao dong qing



This herb is the dried leaves and roots of a small tree botanically known as *Ilex pubescens* Hook. et Arn. of the family Aquifoliaceae. It is mainly grown in the Guangdong, Guangxi, and Fujian provinces of China (Jiang Su New Medical College, 1977).

It is harvested year-round, washed, sliced, and dried in the sun. It has small white flowers and pea-sized red berries. The leaves can be used to produce a red dye and the young shoots are used for food. The roots, bark, and leaves are all used for medicinal purposes.

The herb was traditionally a carminative and tonic remedy. The ashes of the herb are used for skin diseases and poison wounds. A spirit prepared from the seeds is highly recommended for hemorrhoids (Smith and Stuart, 1973).

Pubescent holly root invigorates blood circulation, activates the meridians, *Qi* circulation, and coronary heart circulation, is effective against inflammation, and is a detoxicant. Pubescent holly root is also a good antiaging medicinal herb (Dong et al., 1998).

TCM Properties

Pungent and bitter in taste, and cool, it is nontoxic and acts on the heart, liver, and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Promotes blood circulation and eliminates blood stasis:

   - Pubescent holly root can be used alone or with salvia root, cnidium rhizome, curcuma root, peach kernel, and carthamus to increase blood flow around the heart muscles. It has a distinct dilating effect on the coronary arteries, benefits those who suffer from angina pectoris, and reduces cardiac muscular oxygen consumption (Wang, 1994).
   - This herb lowers blood pressure: to sustain lower blood pressure, pubescent holly root is mixed with other blood-pressure-lowering

herbs, such as cnidium, leonurus, red peony, and salvia (Dong et al., 1998).

- Pubescent holly root invigorates blood circulation, and is anti-inflammatory and antimicrobial. It is beneficial for Buerger's disease (thromboangiitis obliterans) and is commonly prescribed with Chinese angelica root, scrophularia root, lonicera flower, and licorice root in a decoction for oral use (Dong et al., 1998).

2. Resolves coughs and inflammation in the lungs: pubescent holly root is blended with isatis root, licorice root, and platycodon root for its antifebrile, detoxification, and anti-inflammatory properties (Dong et al., 1998). It aids in the treatment of acute tonsillitis, sore throat, and Wind-Heat-type colds. Pubescent holly root is also good for treating cough caused by Heat in the lungs (Dong et al., 1998).

Dosage

In a decoction of 15 to 60 g or used externally.

Precautions

Should not to be used by pregnant women. People with a history of liver disorders should take this herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Pubescent holly root contains flavonoids and 3.4-dehydroxyacetophenone, triterpenoids, lyconides, phenols, amino acids, tannin, and sugars. The leaves contain oleanolic acid and ursolic acid (Jiang Su New Medical College, 1977).

Pharmacological Findings

1. Pubescent holly root dilates the blood vessels, which increases coronary blood circulation to coronary arteries, lowers blood pressure, and acts as an anticoagulant (Dong et al., 1998).

2. Reduces cardiac muscular oxygen consumption.
3. Antitussive, expectorant, and antiasthmatic.
4. Antimicrobial.
5. Antitumorous.

Clinical Findings

Clinical studies have shown that pubescent holly root steadily and persistently lowers blood pressure (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

ACRONYCHIA
Lignum Dalbergiae Odorifera
Jiang xiang *or* Jiang zhen xiang

This herb is the wood portion of the trunk and root of *Dalbergia odorifera* T. Chen of the family Leguminosae. It is mainly grown in the Guangdong, Guangxi, Yunnan, and Hainan provinces of China, and is collected year-round, skinned, sliced, and dried in the sun for use unprocessed (Jiang Su New Medical College, 1977). Acronychia is commonly used as a *Qi*-regulating hematostatic agent and anodyne for treating various types of pains, such as angina pectoris, gastrointestinal pain, and pain in the costal area (Dong et al., 1998).

TCM Properties

Acrid and warm, it acts on the liver, spleen, and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates circulation of *Qi,* activates blood circulation, and relieves pain:

   - Acronychia can be used to relieve epigastric and abdominal pain caused by stagnation of *Qi* and blood in the spleen, and to relieve stomach and chest pain caused by blood stagnation. It is used alone or with salvia root and bulrush *(pu huang)* (Wang, 1994).
   - Acronychia is often mixed with cnidium, red peony, salvia, safflower, and other herbs to treat angina pectoris (Wang, 1994).

2. Stops bleeding:

   - Acronychia is a hematostatic agent that treats bleeding from internal injuries, trauma, sprains, or fractures. The powdered form of the herb is used alone or with gall *(wu bei zi)* externally, or ingested with orange peel, moutan bark, curcuma root, and Chinese angelica in a decoction to treat spitting of blood. It is also applied externally as a hematostatic remedy (Dong et al., 1998).

- To treat coronary heart disease, and gastrointestinal distension and pain, acronychia is blended with *chuan xiong,* carthamus, red peony, and salvia root to treat angina pectoris and pain in the chest. Acronychia is also used with ginseng root, salvia, and notoginseng, as in *Huo Xue Tong Mai Pian* (R-39) (Wang, 1994).

Dosage

In a decoction, 3 to 6 g, or 1 to 3 g in powdered form.

Precautions

People with Heat in the blood or yin deficiency should be cautious when using acronychia.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Acronychia contains volatile oils. The chemical compounds dalbergin, nordalbergin, isodalbergin, o-methyldalbergin, dalbergenone, and dalbergichromene have been isolated (Jiang Su New Medical College, 1977).

Pharmacological Findings

1. Anticoagulating and antithrombotic. The oil of the plant inhibited thrombosis in rats (Zhu, 1998).
2. Acronychia and norbalbergin applied to rabbit heart specimens had a positive inotropic effect, increased cardiac output, decreased heart rate, and no arrhythmias were noted (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

MOUTAN BARK

Cortex Moutan Radicis
Mu dan pi or Dan pi

This herb is the dried root bark of Moutan Radicis or *Paeonia suffruticosa* Andr. of the family Ranunculaceae. It is mainly grown in the Anhui and Shandong provinces of China, and is also cultivated in Europe and North America. The root bark is collected in autumn, washed, skinned, sliced, and dried in the sun, and used unprocessed or stir baked with wine (processed moutan) (Jiang Su New Medical College, 1977).

Traditionally, the bark was prescribed for fevers, colds, nervous disorders, hemorrhages, headaches, and menstrual difficulties (Smith and Stuart, 1973). Today, moutan bark is used to eliminate pathogenic Heat from the blood, promote blood circulation, and remove blood stasis (Dong et al., 1998).

TCM Properties

Bitter and pungent in taste, and cold, it acts on the heart, liver, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates blood circulation and eliminates blood stasis: to treat amenorrhea and menorrhalgia, and abdominal masses due to blood stasis, moutan bark is used with cinnamon twig and peach kernel, as in *Gui Zhi Fu Ling Wan* (Wang, 1994).
2. Removes excess Heat in the blood:

   - For epidemic febrile diseases of the blood manifested as macular eruptions, hematemesis (vomiting blood), epistaxis (nosebleed), blood in the sputum, subcutaneous bleeding, or frequent and profuse menstruation, moutan bark is combined with dried rehmannia and rhinoceros horn, as in *Xi Jiao Di Huang Wan* (R-70).
   - To relieve fever occurring before the menstrual cycle, moutan bark is blended with white peony root, bupleurum root, and scute root, as in *Xuan Yu Tong Jing Tang.*

3. Relieves ascending liver Fire: to treat symptoms such as headaches, red eyes, eye pain, flank pain, flushing, and dysmenorrhea, moutan bark is dispensed with white peony, Chinese angelica, bupleurum, and gardenia, as in *Dan Zhi Xiao Yao Wan* (R-42) (Wang, 1994).

Dosage

In a decoction of 6 to 12 g.

Precautions

People with deficiency and diarrhea due to Cold in the stomach and spleen should avoid moutan bark.

Side Effects and Toxicity

At the suggested dose, the herb is safe. Some patients may experience nausea and dizziness at large doses. These symptoms disappear after discontinuing the herb (Wang, 1983; Zhu, 1998).

Modern Research Findings

Chemical Constituents

Moutan bark contains paeoniflorin, apiopaeonoside, paenoside, paeonol, paeonolide, oxypaeoniflorin, benzoylpaeoniflorine, and campesterol (Dong et al., 1998). Paeonol is the most important constituent of the bark (Zhu, 1998).

Pharmacological Findings

1. Moutan bark is a sedative, analgesic, hypnotic, anticonvulsive, anti-inflammatory, and antiallergic herb (Wang, 1994).
2. As an antimicrobial, moutan is inhibitory in vitro against many pathogenic bacteria, including *S. aureus, B. subtilis, S. typhi, E. coli, S. hemolyticus, Diplococcus pneumoniae,* and *Vibrio cholerae* (Wang, 1983).
3. Moutan is a cardiovascular agent and lowers blood pressure (Dong et al., 1998).
4. Hypotensive in dogs (Dong et al., 1998).
5. Lowers body temperature in mice (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

GINKGO BILOBA LEAVES

Folia Ginkgo biloba
Yin xing ye

This phytomedicine is the dried leaves and the ripe white seed of the *gong sun* tree, botanically known as *Ginkgo biloba* of the family Ginkgoaleae. It is mainly produced in the Anhui, Hebei, and Shandong provinces of China. Today, the *gong sun* tree is also grown in Southern Europe and the United States.

The leaves are collected in the summer and autumn, cleaned, and dried after removing the stem and impurities. The leaves are industrially processed for extraction of its pharmacologically active ingredients. The extract is dried and the powder is made into different pharmaceutical preparations.

The seeds of the *gong sun* tree are collected in autumn, dried after removing the skin, briefly steamed, and then crushed for use. The use of ginkgo biloba seeds medicinally in China can be traced back almost 5,000 years, to 2800 B.C. The white seeds have been used in the past for their ability to stimulate the brain, relieve the symptoms of asthma, coughs, irritability of the bladder, frequent urination, and enuresis (Dong et al., 1998).

The medicinal value of ginkgo biloba leaves is a modern discovery. It is an excellent example of an age-old natural medicine being transformed into a modern medicine. In fact, ginkgo biloba leaf extract is very popular and has become one of the most important modern pharmaceutical products in the world today for improving blood circulation, lowering blood pressure, improving memory and cognitive deficiency, and benefiting Alzheimer's disease, along with other conditions.

TCM Properties

The ginkgo biloba leaf is sweet, astringent in taste, and neutral. It acts on the lung meridian. The white seed, *bai guo,* is sweet and astringent in taste, and neutral, and acts on the lung meridian. The seed is toxic if consumed raw (Smith and Stuart, 1973; Wang, 1994).

Effects, Medicinal Uses, and Combinations

Leaf

1. Relieves angina pectoris and coronary heart ailments: ginkgo biloba leaf is combined with eucommia bark, gambir, cnidium rhizome, and carthamus in a decoction to relieve coronary cardiac ailments.
2. Reduces hyperlipemia: ginkgo biloba leaf is blended with eucommia bark, hawthorn, alisma, polygonum, and loranthus in a decoction or tea to reduce lipids in the blood.
3. Relieves cognitive deficiency: the leaf extract shows some effectiveness in reducing the conditions of dementia and Alzheimer's disease (Leung and Foster, 1996; Wang, 1994).

Seed

1. Induces astringent action in the lungs and stops asthma: it is frequently prescribed with processed rehmannia, peach kernel, Chinese yam, and schisandra fruit for coughs, dyspnea, and excess sputum in the lungs.
2. Reduces Damp Heat: ginkgo biloba seed is used with euryale seed and plantain seed for the treatment of thick, foul leukorrhagia due to Damp Heat.
3. Treats frequent urination and enuresis (Dong et al., 1998; Smith and Stuart, 1973).

Dosage

Dry leaf: 3 to 6 g in a decoction.
Seed: 4 to 9 g in a decoction.

Precautions

Raw ginkgo seed causes intoxication so it must be cooked before use. People with a history of angina should use the seed with caution.

Side Effects and Toxicity

Ginkgo leaves: At the normal suggested dosage, the herb is safe. However, there are reports of a few patients who became allergic to the herb and suffered loss of appetite, nausea, vomiting, stomach ex-

tension, constipation, dry mouth, dizziness, headache, tinnitus, and, in some cases, skin rashes, hypotension, and worsening angina during the course of treatment (Dong et al., 1998).

Ginkgo seeds: Do not eat raw gingko seeds. Reports show that children who ate the raw seeds became intoxicated. The symptoms are nausea, vomiting, abdominal pain, diarrhea, high fever, convulsions, fear, crying, and, later, coma, respiratory paralysis, and death (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

The leaf extract contains flavonoids, including luteolin and tricetin. Biflavones include amentoflavone, bilobetin, ginkgetin, isoginkgetin, sciadopitysin, and 5-methoxybilobetin. Flavonols include kaempferal, kaempferol-3-rutinoside, quercetin, and isorhamnetin. The terpenoids include monomethyl-mononorditerpenes, and ginkgolides A, B, C, D, and M (Boradle, 1988).

Other ingredients include lignin, sitosterol, and glucoside (Leung and Foster, 1996). The German Commission E Monograph lists the flavonoid glycosides as quercetin, kaempferol, and isohamnetin and calculated as acyflavonoids with the molecular weight $M_r = 756.7$ (quercetin glycoside) and $M_r = 740.7$ (kaempferol glycoside) and 2.8 to 3.4 percent ginkgolides, bilobalide, and ginkgolic acids (Schulz et al., 2001).

The seeds contain flavonoids, shikimic acid, ginkgolide-A, B, C, and M, catechin, and ginkgelin.

Pharmacological Findings

Ginkgo biloba leaves whole extract (GBE) promotes blood flow, helps fight the deterioration of mental performance, and improves mental focus. GBE has been standardized in Europe and is available as a 24 percent flavonoid concentration in tablet or capsule form, as an elixir, or as an injection. It has become available in recent years in countries around the world. Generally, a daily dose of 30 to 40 mg is taken twice a day.

The 1994 German Commission E Monograph (pharmacologic actions of EGb 761) reported the following results after studies were performed on extracts of ginkgo leaves (Schulz et al., 2001):

1. Strengthens the cardiac system, and increases blood flow and oxygen circulation throughout the body. Increases blood vessel dilation

and peripheral blood flow, and improves the rheologic properties of the blood.
2. Prevents blood clotting that can lead to blockage of arteries.
3. Improves brain function, memory, mental clarity, and learning capacity, enhances mental focus, and compensates for disturbed equilibrium, acting particularly at the level of microcirculation.
4. Neutralizes free radicals, is a powerful antioxidant, and scavenges oxygen-derived free radicals.
5. Treats male impotence.
6. Reduces retinal edema and retinal lesions.
7. Inhibits the development of posttraumatic or toxic-induced brain edema and hastens its resolution (Chatterjee, 1985). Improves short-term memory, cognitive disorders secondary to depression, and dementia (Warburton and Funfgeld, 1986).
8. Increases tolerance to hypoxia (deficiency of oxygen), especially in brain tissue.
9. Inhibits platelet-aggregating factor (PAF) and is neuroprotective (DeFeudis, 1991). PAF, an inflammatory autacoid, is involved in various inflammatory, cardiovascular, and respiratory disorders (Leung and Foster, 1996).
10. Helps maintain integrity and permeability of cell walls (Schulz et al., 2001).
11. Ginkgo leaf extract is hypoglycemic, lowers blood cholesterol, and dilates bronchi (Dong et al., 1998).

Clinical Findings

Numerous clinical studies of ginkgo leaf extract have demonstrated its effectiveness in increasing vasodilation and peripheral blood-flow rate in capillary vessels and end arteries in various circulatory disorders, such as Raynaud's disease. Other conditions, such as varicose conditions, hypercholesteremia, postthrombotic syndrome, chronic cerebral vascular insufficiency, short-term memory improvement, cognitive disorders secondary to depression, dementia, tinnitus, vertigo obliterative arterial disease of the lower limbs, and respiratory disorders, were also improved.

The effect of the ginkgo extract in comparison with the "cognitive activator," tacrine, on a computer-analyzed EEG was tested on eighteen elderly subjects. The results showed that 20 mg of ginkgo extract had typical cognitive active EEG profiles (responders) in more subjects (eight of eighteen) than 40 mg of tacrine (three of eighteen). Cognitive-enhancing effects were found in a double-blind study with thirty-one volunteers receiving gingko

biloba extract in doses of 120 to 300 mg for two days, especially in individuals aged fifty to fifty-nine years (Rigney et al., 1999).

REFERENCES

Boradle, N. (1988). In Braquet, P. (Ed.), *Gingkolides—Chemistry, Biology, and Clinical Perspectives (Volume 1)* (p. 9). Barcelona: Prous Publishers.

Chatterjee, S. S. (1985). *Effects of Ginkgo Biloba Extract on Organic Cerebral Impairment*. London: John Libbey Eurotext, Ltd.

DeFeudis, F. V. (Ed.) (1991). *Ginkgo Biloba Extract* (EGb 761). *Pharmacological Activities and Clinical Applications.* New York: Elsevier.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Rigney, U., Kimber, S., and Hindmarch, I. (1999). The effects of acute doses of standardized ginkgo biloba extract on memory and psychomotor performance in volunteers. *Phytotherapy Research* 13: 408-415.

Schulz, V., Hansel, R., and Tyler, V. (2001). *Rational Phytotherapy*. Heidelberg, Germany: Springer-Verlag.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Warburton, D. M. and Funfgeld, E. W. (Eds.) (1986). *Ginkgo Biloba—Recent Results in Pharmacology and Clinic*. Berlin: Springer-Verlag.

Chapter 8

Herbal Tranquilizers: Nourishing the Heart and Calming the Liver

The herbal tranquilizers discussed in this section relieve uneasiness, and induce sleep. Their indications are similar to those of sedatives, hypnotics, and anxiolytics in modern medicine (Zhu, 1998).

In TCM, emotions are the internal causes of diseases and are outer expressions of the inner mind, intimately connected to organ-*Qi*. Deficiency or Excess of the Heart- and Liver-*Qi* is the source of imbalance. For example, when Liver-*Qi* is deficient there is fear; when it is in Excess, there is anger. Deficient Heart-*Qi* can bring sorrow, Excess can engender joy (Milburn, 2001).

The deficiency of the Heart-*Qi,* insufficiency of Heart-Blood, or exuberant Fire resulting from hyperactivity of the heart cause disturbances of the Spirit *(Shen),* which lead to many common mental and heart problems. These include insomnia, irritability, palpitation, anxiety, dreaminess, and even some forms of insanity. Herbal tranquilizers, such as zizyphus *(Zizyphus spinosa)* and biota seed *(Platycladus orientalis),* are calming and curative through sedation and nourishment of the heart (Zhang, 1988).

In addition to the heart, Pathogenic Wind (exogenous) attacks the liver, which causes chills and fever, muscle aches, runny nose, and floating pulse (see Chapter 9). Disorders of the liver (Liver-*Qi,* liver yang) can also produce mental and emotional disturbances.

Endogenous Wind, caused by deficiency of yin in the liver and kidneys, attacks the liver and leads to many mental and neural disorders, such as a rapid pulse, flushed face, headaches, dizziness, palpitation, blurred vision, tinnitus, and in severe cases, irritability, anxiety, and muscle twitches. In severe cases, endogenous Wind can lead to liver Fire. Hyperactivity of liver yang and liver Wind are often the causes of hypertension and cerebrovascular accidents. Herbs for subduing the hyperactivity of the liver and calming endogenous liver Wind are commonly referred to as herbs that extinguish liver Wind, and are also covered in this section (Chen and Chen, 1992).

In addition to herbs, a number of minerals, powdered magnetite, oyster shell, pearl, cinnabar, amber, and dragon's bone, are often used in Chinese medicine to anchor, settle, and calm the Spirit, as well as extinguish the liver Wind. These phytomedicines in Western medicine are central nervous system (CNS) sedatives or tranquilizers. They are also used to treat infantile convulsions, epilepsy, and mania.

Prolonged mental depression and anger can damage the Liver-*Qi*. The obstructed Liver-*Qi* also affects other organs, particularly the spleen and stomach, causing indigestion and metabolic disorders (see Chapter 7 for *Qi* regulation).

Table 8.1 illustrates the ailments caused by deficiency of the Heart-*Qi* and heart-blood, and the hyperactivity of the liver, along with selected herbal remedies for nourishing the heart and calming hyperactivity of the liver.

Table 8.2 elaborates the common and individual actions of the most frequently used herbal tranquilizers and herbs to subdue the hyperactivity of the liver.

Commonly used herbal sedatives, tranquilizers, and hypnotics include zizyphus, albizzia flower, albizzia bark, biota seed, longan aril, polygala root, magnetite, oyster shell, pearl, and mother-of-pearl (Dong et al., 1998).

TABLE 8.1. Herbal Tranquilizers for Nourishing the Heart and Calming the Liver

Etiology	Symptoms	Herbal Remedies
Deficiency of the Heart-*Qi*, deficiency of blood, hyperactivity of the heart	Insomnia due to vexation, feverish sensation, irritability, night sweating, palpitations, anxiety, severe mental stress, restlessness, insanity	Herbs zizyphus, polygala root, biota seed, albizzia bark, ganoderma, acorus Patent Medicine *Bai Zi Ren Wan, Suan Zao Ren Tang, Tian Wang Bu Xin Dan, An Shen Bu Xin Wan*
Hyperactivity of liver yang, upstirring of endogenous Wind	Distending sensation in the head; headache; red, bloodshot, painful, swollen eyes; bitter taste in the mouth; flushed face; insomnia; palpitations; dizziness; blurred vision; restlessness; spasms; epilepsy; coma; convulsion	Herbs gastrodia tuber, apocynum, gambir, oyster shell, antelope's horn, tribulus, cassia seed Patent Medicines *Tian Ma Gou Teng Yin, Tian Ma Wan, Shu Gan Wan*

TABLE 8.2. The Actions of Herbal Tranquilizers

Name of Herbs	Dosage (grams)	Individual Actions	Common Actions
Polygala root *(yuan zhi)*	3-10	Induces resuscitation; relieves distress, irritability, and palpitations; removes phlegm; treats carbuncles	Tranquilizes the mind, nourishes the heart
Ganoderma *(ling zhi)*	8-10	Invigorates *Qi* and nourishes blood, relieves asthma	
Biota seed *(bai zi ren)*	10-18	Tranquilizes the mind, treats insomnia, moistens the bowels, relieves constipation, and arrests sweating	
Zizyphus *(suan zao ren)*	10-18	Benefits the heart, nourishes yin, arrests sweating, promotes body-fluid production	
Albizzia bark *(he huan pi)*	10-15	Invigorates circulation of blood, treats carbuncles	
Acorus *(shi chang pu)*	3-10	Induces resuscitation, treats loss of consciousness, regulates the functions of stomach, relieves Dampness	
Apocynum *(luo bu ma)*	3-15	Relieves cough and asthma, induces diuresis, relieves swelling	Calms the liver and checks endogenous Wind, suppresses the hyperactivity of the liver yang
Gastrodia tuber *(tian ma)*	3-10	Relieves convulsion, rheumatic arthralgia, lightheadedness, and pain	
Uncaria stem *(gou teng)*	10-30	Relieves endogeneous Wind and spasms, calms the liver, treats light-headedness	
Cassia seed *(jue ming zi)*	10-15	Eliminates Heat in liver, reduces blood cholesterol levels and blood pressure, moistens the bowels	

These herbs at the recommended dose are indicated for anxiety, nervousness, restlessness, and insomnia, and are useful for treating symptoms of neurasthenia, hyperthyroidism, hypertension, and palpitations. They are also useful for conditions such as infantile convulsions, epilepsy, and delirium (Dong et al., 1998).

Herbs that subdue hyperactivity of the TCM liver and sedate the endogenous Wind include gastrodia tuber, uncaria stem (gambir), hematite, silkworm, tribulus, haliotis, antelope's horn, oyster shell, and dragon's bone (Zhang, 1988).

Eight medicinal herbs that are used to calm the Spirit or subdue the hyperactivity of the liver and endogenous Wind are introduced and discussed in the next section.

REFERENCES

Chen, Z. L. and Chen, M. I. (1992). *A Comprehensive Guide to Chinese Herbal Medicine*. Long Beach, CA: Oriental Health Arts Institute Press.

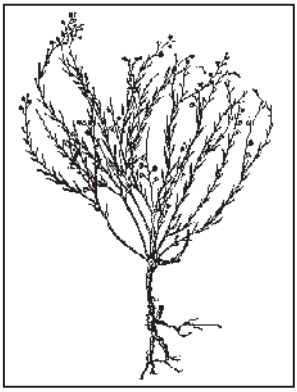
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Milburn, M. P. (2001). *The Future of Healing*. Freedom, CA: The Crossing Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

POLYGALA ROOT
Radix Polygalae
Yuan zhi



This herb is the dried roots of *Polygala tenuifolia* Willd. or *P. sibirica* L. of the family Polygalaceae. It grows mostly in the Henan, Jilin, Shaanxi, and Shanxi provinces of China, and is collected in the spring or autumn, cleaned, dried in the sun, and used unprocessed or stir baked (Jiang Su New Medical College, 1977).

Polygala was traditionally used as a sedative for treating coughs, jaundice, mammary abscess, infantile convulsion, hysteria in females, insomnia, and gonorrhea (Smith and Stuart, 1973). Today, polygala root is mostly used as an herbal sedative to calm the Spirit. It has a special effect on the will and mental powers, improves comprehension, strengthens memory, and promotes expectoration (Dong et al., 1998). Polygala root is a powerful antiaging medicinal herb.

TCM Properties

Pungent and bitter in taste, and slightly warm, it acts on the lung and heart meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves mental distress, tranquilizes the mind, and promotes intelligence: to treat neurasthenia, irritability, anxiety, palpitations, restlessness, insomnia, dreaminess, and forgetfulness, polygala root is often prescribed with ginseng, acorus rhizome *(shi chang pu),* poria (hoelen), and other ingredients, as in *Bu Wang San,* which restores memory power. Polygala root is used with American ginseng, Chinese yam, Chinese angelica, and eucommia bark, along with other herbs, as in *Jian Nao Bu Shen Wan* (R-35) (Wang, 1994), for invigorating the brain. The root alone may be given as a powder at 3 g, twice daily, or combined with schisandra in a decoction (Bone, 2001).
2. Removes phlegm to induce resuscitation and restores consciousness: to treat mental confusion, a vague mind, epilepsy induced by terror, and other similar symptoms caused by a retention of pathogenic

phlegm in the heart, polygala root is blended with acorus, alum, and curcuma root (Wang, 1994).
3. Dissolves phlegm and relieves cough: to treat a cough with profuse, thick sputum and difficult expectoration, polygala root is mixed with bitter apricot kernel, platycodon root *(jie geng),* and licorice root (Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People who suffer from a gastric ulcer or gastritis, or from yin deficiency and hyperactivity of yang, should not use this herb or use with caution (Dong et al., 1998).

Side Effects and Toxicity

An overdose may cause nausea and vomiting. The LD_{50} of the decoction of the herb in mice was 16.95 g/kg by oral administration (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Polygala root contains triterpene saponins, xanthones, oligosaccharides tenuifolin, and resin. Saponins include onjisaponins A to G, polygalitol, tenuigenia A, tenuigenin B, oncisin, tenuidine, and xanthones (Zhu, 1998).

Pharmacological Findings

1. Polygala has shown sedative, hypnotic, and anticonvulsant activity. The root is hypnotic and sedative in mice, with a synergetic action with barbiturate. It also counteracts convulsions caused by pentylenetetrazole (Dong et al., 1998; Wang, 1994).
2. Antitussive and expectorant in mice. This effect is a reflex caused by the irritation of the saponins on gastrointestinal mucous membranes (Dong et al., 1998).
3. Antidementia: experiments show that polygala, combined with *Panax ginseng,* acorus, and hoelen, reduce impairment of learning and the

learning memory process in impaired mice. A sedative effect was also exhibited (Bone, 2001).
4. In both isolated and in situ uteri of guinea pigs, rabbits, cats, and dogs, the fluid extract of the herb increased contraction and muscular tone of the uterus muscles (Wang, 1994).
5. Polygala root has been shown to be hypotensive in rabbits and bacterially static (Bone, 2001).

Clinical Findings

1. It is an expectorant.
2. Polygala has been successfully used to treat chronic bronchitis and the common cold presenting with copious sputum. A tincture of the herb at the dose of 2 to 5 ml, three times daily, is recommended (Zhu, 1998).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayurvedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

GANODERMA OR REISHI MUSHROOMS

Ganoderma Lucidum
Ling zhi

This herb is the dried mushroom *Ganoderma lucidum* Karst. or *G. japonicum* (Fr.) Llyod of the family Polyporaceae. The mushroom grows in the wild, living off different kinds of trees in humid areas within the southern provinces of Anhui, Fujian, Guangdong, Guangxi, and Jiangxi of China. In recent years, however, it is usually grown on mushroom farms (Jiang Su New Medical College, 1977).

Reishi mushroom has been used for 2,000 years. Based on the color of the plant, there are at least six varieties of *ling zhi* in China today: *Qing zhi* (green), *Chi zhi* (red), *Huang zhi* (yellow), *Hei zhi* (black), *Bai zhi* (white), and *Zi zhi* (purple). These mushrooms are all nonpoisonous and edible, and are considered to be highly beneficial to health. *Zhi* in China is defined in the classics as the plant of immortality and it is considered to be felicitous (Smith and Stuart, 1973).

Reishi mushroom is commonly used as a sedative and tranquilizer to treat insomnia and dizziness, and as a general tonic for low energy, weakness, and general debility. Reishi mushroom is a powerful antiaging medicinal herb (Dong et al., 1998).

TCM Properties

Neutral in taste and warm, it is nontoxic, it acts on the heart, spleen, lungs, liver, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Tranquilizes the mind and nourishes the heart: for dizziness and insomnia caused by neurasthenia and hypertension, reishi mushroom is used alone as a sedative in a decoction, or with logan fruit and mulberry fruit in a decoction (Dong et al., 1998).
2. Invigorates *Qi* and nourishes blood: employed as a general tonic for symptoms of weakness or debility, and for symptoms due to *Qi* deficiency and heart deficiency.
3. Arrests cough and reduces asthma; also used for chronic bronchitis.

4. Lowers blood cholesterol levels: ganoderma is consumed alone in tea or a decoction to reduce hyperlipedemia and relieve symptoms of angina pectoris (Leung and Foster, 1996).

Dosage

In a tincture or decoction of 8 to 15 g, or in powdered form, or 3 g daily.

Precautions

People without deficiency in *Qi* or blood, yin or yang, should not take this herb.

Side Effects and Toxicity

At the therapeutic dose, this herb is safe. However, overdose reports showed that a few patients experienced nausea, vomiting, stomach irritation, diarrhea, dry mouth, dizziness, insomnia, dreaminess, and a flushed face. Cases of skin urticaria have also been reported (Dong et al., 1998). Recent documented adverse side effects include a case of skin rash caused by ingestion of 200 ml of a *ling zhi* wine and a case of allergic shock caused by a *ling zhi* injection (Leung and Foster, 1996).

Modern Research Findings

Chemical Constituents

Reishi mushrooms contain ergosterol, beta-sitosterol, and other sterols; fungal lysozyme, acid protease, and other enzymes; amino acids, sugars, volatile oil, oleoresins, and alkaloids. They contain thirteen minerals and elements (Ag, Al, B, Ca, Cu, Fe, K, Na, Mg, Mn, Pb, Sn, and Zn), and vitamins B_2 and C (Jiang Su New Medical College, 1977; Leung and Foster, 1996).

Pharmacological Findings

1. Reishi mushroom is a marked sedative, analgesic, and anticonvulsive agent due to adenosine content (Leung and Foster, 1996).
2. In the respiratory system it demonstrated remarkable antitussive and antiasthmatic action in mice, and it is beneficial when used to treat chronic bronchitis (Dong et al., 1998).

3. It is a heart tonic and it increases coronary blood flow (Dong et al., 1998).
4. This herb has been shown to enhance the autoimmune response. It protects against carbontetrachloride-induced liver damage (Dong et al., 1998).
5. Reishi mushroom shows anticancer and antiradiation benefits in cancer treatments. Researchers in Japan report that *ling zhi* mushrooms of the species *Ganoderma tsugae* and *Ganoderma boninense* and their extracts, are antitumorous in rats (Lu, 1985). Chinese researchers report that an extract of *ling zhi* has produced antiradiation results in transplanted tumors in mice tests (Dong et al., 1998).
6. As an antiallergenic, it inhibits histamine release, and prevents experimental asthma and contact dermatitis (Dong et al., 1998).
7. The herb is hypoglycemic, hypotensive, diuretic, and liver protective, and aids hyperlipidemia (Dong et al., 1998).

Clinical Findings

In recent years, researchers in China have discovered that ganoderma spores are useful in cancer therapy. A particular product called ganodermatis *(Lingzhibaozifen),* or the spores of the herb ganoderma was developed and explored as complementary cancer therapy in China. This particular product was clinically tried by the Hospital of the Friendship between China and Japan in 80 patients with carcinoma in 1994. It was shown that ganodermatis inhibited cancer cell growth, increased immunity in patients with carcinoma, enhanced the levels of T-4 lymphocytes, and regulated immunity of cancer patients. The product also helped reduce the side effects of chemotherapy and radiation as well as reducing other health benefits including reducing blood sugar and lipemia levels.

The report was given by: Red Cross Society of China and Beijing Hong Kong Industry and Commerce Development General Company in August 1994.

REFERENCES

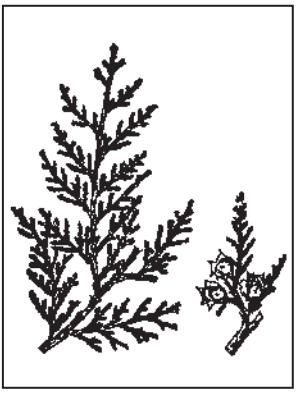
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.
Lu, W. L. (1985). *Ling Zhi,* Second Edition. Beijing: Science Publishing Co.
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

BIOTA SEED

Semen Biotae
Bai zi ren



This herb is the dried seeds of *Platycladus orientalis* (L.) Franco of the family Cupressaceae. It is grown in all parts of China. The fruit is collected in autumn, dried in the sun, and shelled to obtain the kernel. The kernel is then dried for use unprocessed (Jiang Su New Medical College, 1977).

Since ancient times, biota seeds were considered to be very nutritious and fattening. They were prescribed for respiratory ailments and for convulsive disorders in children. The seeds are also effective for eliminating profuse night perspiration, and are an active agent for treating constipation and diseases of the liver (Smith and Stuart, 1973). Today, biota seeds are prescribed to relieve mental strain, palpitations, and insomnia, and to treat constipation. Biota seeds are a good antiaging medicinal herb (Dong et al., 1998; Wang, 1994).

TCM Properties

Sweet in taste and neutral, it acts on the heart, kidney, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the heart and sedates the mind:

   - For insomnia due to vexation, palpitations induced by terror, and continuous violent palpitations as a result of deficiency of blood in the heart, biota seed is combined with prepared rehmannia, jujube, schisandra fruit, and poria, as in the decoction of *Yang Xin Tang* (Wang, 1994).
   - For overexertion, neurasthenia, and insomnia caused by deficiency of *Qi* and blood, biota seed is prescribed with lycium fruit, processed rehmannia, ophiopogon root, and acorus, as in *Bai Zi Yang Xin Wan* (R-44) (Wang, 1994).

2. Moistens the bowels and relieves constipation: for treating dryness in the intestines and constipation, biota seed is mixed with peach kernel, plum seed *(yu li ren),* and other herbs, as in *Wu Ren Wan* (Dong et al., 1998).

Dosage

In a decoction of 3 to 9 g.

Precautions

People with chronic diarrhea should use this herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Biota seed contains about 14 percent fatty oil and a small amount of essential oil, fatty acids, saponins, and benzine (Jiang Su New Medical College, 1977; Zhu, 1998).

Pharmacological Findings

1. Biota seed moistens the intestines and relieves constipation.
2. Biota seed acts as a sedative and reduces heart rate. Intraperitoneal administration of 20 g/kg of the herb was a sedative in mice and also was synergistic with amobarbital sodium in mice (Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

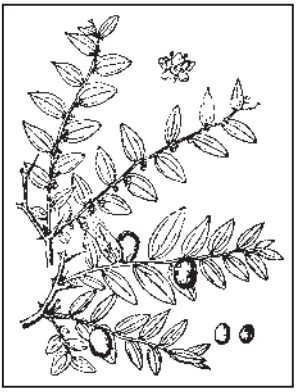
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

ZIZYPHUS

Semen Zizyphi Spinosae
Suan zao ren



This herb is the dried, ripe fruit of *Ziziphus jujuba* Mill var *spinosa* (Burge.) Hu ex H. F. Chou of the family Rhamnaceae. The plant grows mostly in the mountains in the Hebei, Henan, Shandong, Shanxi, and Shaanxi provinces of China. The fruit is collected in the autumn and the seed is dried in the sun after removing the pulp and stonelike shell. The herb is used unprocessed or stir baked and crushed (Jiang Su New Medical College, 1977). Zizyphus, also known as wild jujube seed, is traditionally used as a tranquilizer, anodyne, tonic, and sedative to treat rheumatic difficulties, sleeplessness (whether from weakness or from pain), and spontaneous night sweating (Smith and Stuart, 1973).

TCM Properties

Sweet in taste and neutral, it acts on the heart and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the heart, tranquilizes the mind, and relieves restlessness:

   - For dreaminess, palpitations induced by terror, and severe palpitations due to insufficiency of blood in the heart and liver, zizyphus is used alone in a decoction or combined with polygonum, Chinese angelica, poria, white peony root, and longan aril (Dong et al., 1998).
   - To treat insomnia accompanied by restlessness, palpitations, night sweating, dry throat and mouth, and a thready, taut pulse, due to insufficiency of the liver accompanied with Heat, it is often used with anemarrhena rhizome, cnidium, licorice root, and poria, as in *Suan Zao Ren Tang* (R-40) (Dong et al., 1998; Wang 1994).
   - To treat insomnia, palpitations, forgetfulness, dreaminess, and dryness of the mouth and throat caused by insufficiency of the heart and kidneys, as well as from the hyperactivity of yang, it is prescribed with dried rehmannia root, scrophularia root, schisandra fruit, biota seed, and other herbs, as in *Tian Wang Bu Xin Wan* (R-45) (Dong et al., 1998).

2. Zizyphus is used to treat general deficiency and excessive sweating: for spontaneous sweating and night sweating due to a general deficiency of *Qi* and Blood, it is mixed with codonopsis, schisandra fruit, and cornus fruit (Dong et al., 1998).
3. For menopausal syndrome: treatment with a zizyphus complex recipe, such as *Suan Zao Ren Tang* (R-40), along with acupuncture gives satisfactory results (Dong et al., 1998).

Dosage

In a decoction 10 to 18 g; 1.5 to 3 g if in powdered form; should be taken before sleep.

Precautions

People with diarrhea, excess Heat in the heart and spleen, a cold, or pregnant women should avoid or use this herb with caution. Zizyphus rarely causes undesirable side effects or toxicity at the therapeutic dose (Dong et al., 1998). An overdose may cause nausea, vomiting, and a burning sensation in the stomach. Some people develop urticaria and dizziness. Avoid taking other sedative or hypnotic drugs with wild jujube seed.

Modern Research Findings

Chemical Constituents

Wild jujube seed contains two saponins, jujubosides A and B, jujubogenin, betulin, betulic acid, ferulic acid, ceanothic acid, alphitolic acid, daucosterol, ebelin lacton, spauins, volatile oil, and vitamin C (Jiang Su New Medical College, 1977; Zhu, 1998).

Pharmacological Findings

1. Sedative and hypnotic:
   - Zizyphus and its jujubosides were demonstrated to be sedative and hypnotic on many animals by various tests.
   - Zizyphus is synergistic with many sedatives and hypnotics.
2. Hypotensive and anticonvulsant.
3. Antipyretic and analgesic.
4. Stimulates the uterus.

Clinical Findings

One clinical study in a double-blind trial on patients with anxiety found that it significantly improved mood, decreased sympathetic nervous symptoms, and improved performance (Bone, 2001). Another study of insomnia patients showed a significant improvement in sleep quality and well-being without side effects (Bone, 2001).

REFERENCES

Bone, K. (2001). *Clinical Applications of Ayurvedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

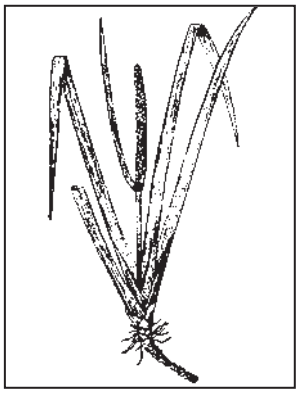
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

ACORUS

Rhizoma Acori Graminei
Shi chang pu *or* Chang pu



This herb is the dried rhizome of *Acorus tatarinowii* Schott. of the family Araceae. It is mainly grown in the Jiangsu, Sichuan, and Zhejiang provinces of China, collected in the early spring, washed after the removal of the hairy rootlets, and dried in the sun before use. If the fresh herb is required, it is harvested in late summer (Jiang Su New Medical College, 1977).

Acorus, which has a pleasant odor, is white and has a starchy internal texture. Traditionally, it was used as a stimulant, stomachic, tonic, carminative, antispasmodic, sedative, antiperiodic, and diaphoretic agent. Its powder, juice, and tincture are favored with the Chinese, who use the herb for hemoptysis, colic, menorrhagia, and other fluxes, and apply the juice or coarse powder to carbuncles, buboes, deaf ear, and sore eyes (Smith and Stuart, 1973). Today, the herb is used to treat loss of consciousness and confusion of the mind, forgetfulness, anorexia, a stuffed sensation in the epigastrium, and epilepsy (Dong et al., 1998).

TCM Properties

Pungent in taste and warm, it acts on the heart and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Tranquilizes the mind: for palpitations, insomnia, amnesia, and tinnitus due to insufficiency of the Heart-*Qi,* acorus is prescribed with polygala root *(yuan zhi),* hoelen *(fu ling),* ginseng, and dragon's tooth, as in *An Shen Ding Zhi Wan*. Acorus is combined with polygala root to help maintain mental and intellectual health of the elderly (Wang, 1994).
2. Relieves Dampness and regulates the functions of the stomach: to treat oppressive sensations in the chest, abdominal distention, anorexia, poor appetite, and chronic gastritis, it is mixed with tangerine peel, magnolia bark *(hou po),* and pinellia tuber *(ban xia)* as a stomachic and carminative agent (Dong et al., 1998).

3. Induces resuscitation: for loss of consciousness and confusion due to mental disturbance, acorus is used alone as a powder or with curcuma root *(yu jin)* and pinellia tuber *(ban xia)*. The powder of acorus can also be used for depressed psychosis and dementia (Dong et al., 1998).

Dosage

In a decoction of 3 to 10 g, or 10 to 15 g if fresh acorus is used.

Precautions

People with yin deficiency, yang excess, or excessive perspiration should avoid or use the herb with care.

Side Effects and Toxicity

The herb was recorded as nontoxic in classical Chinese materia medica. Oral administration of a 10 g daily decoction for three months to three years in sixty patients produced no side effects (Zhu, 1998). The volatile oil of the herb is toxic. An overdose causes CNS stimulation, convulsions, and death (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Acorus contains 0.11 to 0.42 percent volatile oil. The main component of the oil is beta-asarone. Other components are caryophyllene, alpha-humulene, sekishone, amino acids, organic acids, and sugars (Zhu, 1998).

Pharmacological Findings

1. As a sedative, it can increase the hypnotic effect of other sedative herbs or hypnotic drugs (Dong et al., 1998).
2. As an antipyretic, it lowers the body temperature (Dong et al., 1998).
3. Increases secretion of stomach juice (Dong et al., 1998).
4. Relieves spasms of the smooth muscles of the intestines (Dong et al., 1998).
5. It is useful as an anticonvulsant for epilepsy caused by primary or cerebral trauma (Wang, 1994).

6. As an antimicrobial, it inhibits the growth of *S. aureus*, *Streptococci,* and mycobacteria (Zhu, 1998).
7. Antiasthmatic.
8. Antihypertensive and dilates blood vessels.
9. Prevents blood-clot formation (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

APOCYNUM
Herba Apocynum Venetum
Luo bu ma

This herb is the dried leaves, aboveground parts, and root of red hogbane, *Apocynum venetum* L. of the family Apocynaceae. It is mainly grown in the Gansu, Hebei, Henan, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, and Xinjiang provinces of China, and Inner Mongolia (Jiang Su New Medical College, 1977). Apocynum was traditionally used for fevers, dropsy, malaria, and as an anthelmintic (Smith and Stuart, 1973). Today, the plant is used as a sedative to tranquilize the mind and to clear up Heat in the liver, treat hypertension, headache, and dizziness (Dong et al., 1998).

TCM Properties

Sweet and bitter in taste, and cool, it acts on the liver meridian.

Effects, Medicinal Uses, and Combinations

1. Calms the liver and tranquilizes the mind to lower high blood pressure: as a sedative and antihypertensive, apocynum is used alone in tea or as a decoction with prunella spike, wild chrysanthemum, and gambir for hypertension. This recipe also relieves headaches, dizziness, fidgetiness, insomnia, palpitations, and restlessness due to liver-yang hyperactivity (Wang, 1994).
2. Relieves coughs and reduces the severity of asthmatic attacks: for coughs, fever, and Wind-Heat-type colds, it is taken as a tea or a decoction (Wang, 1994).
3. Induces diuresis and reduces edema: apocynum is also effective as a diuretic, and is prescribed to reduce edema of a cardiac, nephrotic, or hepatic nature, and from pregnancy. For these conditions, the roots of the herb (10 to 15 g per day) are taken in a decoction, divided into two to four doses (Dong et al., 1998).
4. For relief of acute and chronic heart failure symptoms the root can be used alone in a decoction (Dong et al., 1998).

Dosage

In a decoction, or other dosage forms, 3 to 15 g. The leaves can be used for a tea.

Precautions

People with Cold in the stomach and spleen, and pregnant women should avoid this herb or take with caution. Avoid long-term use (Wang, 1994).

Side Effects and Toxicity

At the recommended dosage, the herb is safe. However, certain people may experience nausea, vomiting, diarrhea, or borborygmus at high dosages due to the herb's strong stimulation of the intestinal mucous membranes (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

Apocynum contains cymarin, strophanthidin, k-strophanthin, rutin, d-catechin, and neo-isorutin (Jiang Su New Medical College, 1977).

Pharmacological Findings

1. Antihypertensive in dogs and cats, caused directly by blood vessel dilation and the diuretic effect of the herb's decoction (Dong et al., 1998).
2. Cardiac tonic.
3. Antimicrobial.
4. Sedative and diuretic.

REFERENCES

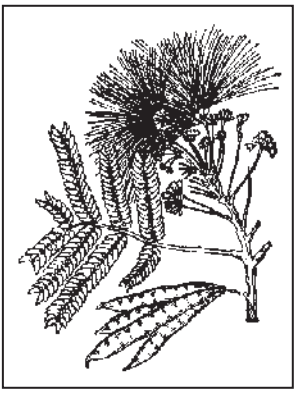
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.
Wang, J.H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

ALBIZZIA BARK

Cortex Albizzia
He huan pi



This herb is the dried bark and flowers of an auspicious tree, *Albizzia julibrissin* Durazz, or *A. kalkora* (Roxb.) Prain of the family Leguminosae. It is mainly grown in the Hebei, Henan, and Hubei provinces of China, and harvested in the spring and summer seasons. The bark is stripped from the tree, cut into sections, dried in the sun, and used unprocessed (Jiang Su New Medical College, 1977).

Albizzia bark was traditionally used as a sedative, anthelmintic, and discutient. A gummy extract is used as a plaster for carbuncles and swelling (Smith and Stuart, 1973). Today, it is used for the treatment of palpitations and insomnia due to anxiety. Albizzia flower *(he huan hua),* the dried flower heads of *A. julibrissin,* is used the same way as albizzia bark to treat restlessness, anxiety, and insomnia (Dong et al., 1998).

TCM Properties

Sweet in taste and neutral, it acts on the liver and heart meridians.

Effects, Medicinal Uses, and Combinations

1. Tranquilizes the mind and relieves anxiety: for palpitations and insomnia caused by anxiety, albizzia bark is used alone in a decoction or combined with biota, turmeric, polygala root, and polygonatum stem (Wang, 1994).
2. Invigorates blood circulation, and relieves swelling and pain: it is used to treat painful swellings caused by injuries, furuncles, or carbuncles (Wang, 1994).

Dosage

In a decoction of 10 to 15 g.

Precautions

The bark and flower are mild in action. This herb should not be used by pregnant women as a large dose may cause abortion.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Albizzia bark contains triterpene saponins and tannin. A number of lignans, together with some phenol glycosides, have also been isolated (Zhu, 1998).

Pharmacological Findings

1. Sedative, hypnotic, and antidepressant (Dong et al., 1998).
2. Analgesic, anthelmintic, and diuretic (Dong et al., 1998).
3. Induces intensive uterine contractions (Dong et al., 1998; Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

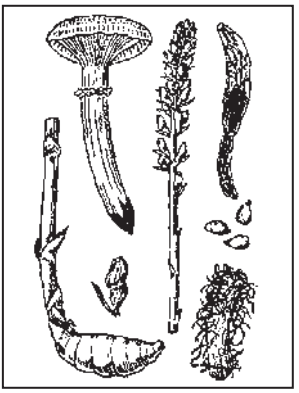
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

GASTRODIA TUBER

Rhizoma Gastrodiae
Tian ma



This herb is the stem tuber of *Gastrodia elata* Bl. of the family Orchidaceae. It is mainly grown in the Guizhou, Sichuan, and Yunnan provinces of China but the best is grown in the Shandong province. It is dug up in the winter, cleaned and skinned thoroughly, boiled or steamed, dried in the sun, and sliced (Jiang Su New Medical College, 1977).

Gastrodia tuber is considered to have beneficial properties, such as expelling all kinds of poisonous effluvia, giving strength and virility to the body, improving circulation, and strengthening the memory. Traditionally, it has been prescribed for rheumatism, neuralgia, paralysis, facial paralysis, infantile convulsion, lumbago, headaches, and other neuralgic and nervous disorders (Smith and Stuart, 1973). Gastrodia is used as an analgesic and as an antispasmodic agent to subdue the hyperactivity of the liver (Dong et al., 1998), relieve muscular spasms, tranquilize the mind, lower blood pressure, cure headaches, and treat infantile convulsion (Ling, 1995). Gastrodia tuber is also considered an antiaging medicinal herb.

TCM Properties

Sweet in taste and neutral, it acts on the liver meridian and is classified as an agent for calming the liver Wind.

Effects, Medicinal Uses, and Combinations

1. Suppresses the hyperactivity of the liver yang and relieves pain:

   - For dizziness, vertigo, light-headedness, insomnia, hypertension, and cerebrovascular accident (CVA), gastrodia tuber is prescribed with gambir stem (uncaria), scute root, eucommia bark, poria, loranthus, leonurus, and achyranthes root, as in *Tian Ma Gou Teng Yin* (R-64) (Dong et al., 1998).
   - For chronic and migraine headaches or vertigo, it is mixed with notopterygium root, pubescent angelica root, achyranthes root, Chinese angelica, eucommia bark, rehmannia, scrophularia root,

processed aconite, and tokoro, as in *Tian Ma Wan* (R-55), with good results (Wang, 1994).
- To calm the liver yang, tranquilize endogenous Wind, and for dizziness and headaches, gastrodia tuber is dispensed with pinellia tuber, white atractylodes, poria, tangerine peel, and licorice root, as in *Ban Xia Bai Zhu Tian Ma Tang* (Wang, 1994).

2. Invigorates the normal functions of meridians (channels and collaterals) and relieves rheumatic arthralgia: as an effective formula for treating rheumatic arthralgia, numbness in the limbs, and paralysis, gastrodia tuber is blended with large leaf gentian root *(qin jiu),* pubescent angelica root, achyranthes root, and loranthus (Wang, 1994).
3. Tranquilizes the liver and suppresses endogenous Wind: to treat infantile convulsion due to high fever, gastrodia tuber is combined with gambir, antelope's horn, silkworm, and scorpion, as in *Gou Teng Yin Zi* (Wang, 1994).

Dosage

In a decoction of 3 to 10 g, or 1 to 1.5 g in powdered form, to be taken orally.

Precautions

People with yin deficiency or Heat in the lungs and a cough should avoid the herb.

Side Effects and Toxicity

No side effects or toxicity have been reported in classical Chinese materia medica. Toxicological studies have shown that oral administration of 75 mg/kg of gastrodin for fourteen consecutive days to dogs or 250 mg/kg of p-hydroxybenzyl alcohol to mice for sixty days showed no influence on blood cells, liver and kidney functions, and blood lipids (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Gastrodia tuber contains phenolic compounds, phenolic glycoside, gastrodin, and gastrodioside. Others ingredients are vanillyl alcohol, p-hydroxy-

benzyl alcohol, p-hydroxybenzyl aldehyde, 3,4-dihydroxybenzyl ethyl ether, vanillin, alkaloids, and vitamin A (Song, 1995; Zhu, 1998).

Pharmacological Findings

1. Sedative, tranquilizing, and hypnotic in mice (Song, 1995).
2. Analgesic: the clinical effectiveness of the herb for migraine and headaches caused by hypertension and postconcussion syndrome have been well-recognized (Wang, 1985).
3. Anticonvulsive and antiepileptic: the decoction of the herb was shown to be very effective against experimental epilepsy in guinea pigs (Zhu, 1998). It was also effective against cardiazol-induced convulsion (Wang, 1985).
4. Lowers blood pressure.
5. Dilates blood vessels: in the cerebral and peripheral blood vessels, it increases blood flow and reduces the pressure in the brain.

Clinical Findings

In a study of thirty-nine types of pain in 1,000 patients in China, gastrodia was a broad and significant analgesic. Long-term use was not habit-forming (Dong et al., 1998). The herb used was 20 percent injection, 2 to 4 ml, one to three times a day. In treating 326 cases, the herb was effective in 92 percent of the vertiginous cases and 83 percent effective in the migraine cases (Wu, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Song, Z. Y. (1995). *Zhong Cao Yao Xien Dai Yen Jio* [Modern Studies on Chinese Herbs]. Beijing: Beijing Medical University and Union Medical University Joint Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, J. M. (1985). *Chinese Herbal Pharmacology*. Shanghai: Shanghai Science and Technology Press.
Wu, B. J. (1983). *Pharmacology of Chinese Herbal Medicines*. Beijing: People's Health Press.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

Chapter 9

Herbal Diaphoretics: Relief of Common Colds, Allergies, and Headaches

The medicinal herbs discussed in this chapter are herbal diaphoretics. Diaphoretics are herbs that increase perspiration, dissipate pathogenic toxins from the body, and relieve colds, pain, and associated respiratory ailments. In TCM, these ailments are commonly called Exterior syndromes (Dong et al., 1998). Exterior syndromes *(biao zheng)* means that only the external parts or the superficial levels of the body are affected or are being attacked by the exogenous pathogenic factors of Wind, Cold, Dampness, Dryness, Heat (Fire), or Summer Heat (the six climatic evils). Exterior syndromes may also indicate the exterior location of the disease, which means that the disease is in a superficial part of the body and also in the early stages.

Wind and Cold are the two most common pathogenic factors. The Wind evil possesses a penetrating ability, and pertains to the yang evils. The Wind is the leading evil of all diseases. The Cold is a yin evil, and tends to impair the Yang-*Qi* (Long, 1998).

Most common respiratory tract disorders, such as colds or flu, are ailments of Exterior syndromes. The symptoms include fever, chills, headache, joint and muscle pain, general aches, stiff neck, stuffy nose, sinus disorders, sore throat, and a cough accompanied by a floating pulse (Dong et al., 1998).

The Exterior syndromes are classified as Wind-Cold-type colds, which are caused by Wind and Cold pathogens, and Wind-Heat-type colds, which are caused by Wind and Heat pathogens.

Herbal diaphoretics with a pungent and slightly bitter taste, or slightly sweet taste, with either warming or cooling properties, are commonly used to relieve Exterior syndromes. Herbs such as ephedra, ginger, and cinnamon twig have warming properties, whereas herbs such as peppermint, bupleurum, and cimicifuga rhizome have cooling properties. The former

group of herbs (acrid-warming) has strong diaphoretic effects and is normally used to treat Wind-Cold-type colds, and the latter group of diaphoretics (acrid-cooling) has mild diaphoretic effect and is used for treating disorders of Wind-Heat type colds.

These two types of colds must be differentiated before choosing the correct herbal medicine. Wind-Cold-type colds are the ailments characterized by severe chills, aversion to cold, mild fever, headache, stiff neck, absence of thirst, a thin white coating on the tongue, and a floating, tense pulse. Wind-Heat-type colds are usually characterized by high fever, headache, few chills, sore throat, a thin coating on the tongue, and a floating, rapid pulse.

Some herbal diaphoretics may have additional medical benefits, in addition to relieving Exterior symptoms. For example, they may be able to prevent coughing and wheezing, relieve sinus symptoms, control pain or spasms, relieve measles and rashes, and treat asthma, chest pain, dyspnea, and arthralgia (see Chapters 10 and 11 for more information).

In addition to Exterior syndromes, there are Interior syndromes. Interior syndromes *(li-zheng)* affect the internal organs or interior of the body (Zhang, 1988). Exterior syndromes may convert to Interior syndromes if not properly corrected in time. Interior syndromes are more serious because they represent the later stages of a disease. Interior ailments include blood ailments, chronic infections, cancer, pain, and CNS disorders (Dong et al., 1998). Wind-Heat and Wind-Cold terms are not well-known to Western medicine.

Table 9.1 presents the symptoms of Wind-Heat- and Wind-Cold-type colds and the commonly used herbal remedies for treating Exterior ailments.

Table 9.2 shows the common and individual actions of the most frequently used acrid-warming diaphoretics and Table 9.3 lists the actions of acrid-cooling diaphoretic phytomedicines.

Commonly prescribed acrid-cooling diaphoretics include peppermint, morus (mulberry leaf), chrysanthemum, wild chrysanthemum, pueraria root, arctium fruit, cimicifuga rhizome, prepared soybean, and vitex fruit. Commonly prescribed acrid-warming diaphoretics include ephedra, cinnamon twig, fresh or dry ginger, siler, dahurian angelica root, schizonepeta spike, perilla leaf, asarum herb, ligusticum root, magnolia flower, xanthium fruit, centipeda, and notopterygium root.

In the following section, sixteen herbal diaphoretics are introduced and discussed.

TABLE 9.1. Herbal Diaphoretics for Relieving Colds, Allergies, and Headache

Etiology	Symptoms	Herbal Remedies
Cold of the Wind-Cold type (Exterior syndromes)	Mild fever without perspiration, severe chills with aversion to wind and cold, pantalgia, dyspnea, stiff neck, body aches, headache, absence of thirst, nasal catarrh, thin sputum, thin and white coating of the tongue, superficial tight pulse (treated with acrid-warming diaphoretics)	Herbs ephedra, asarum herb, angelica (dahurian angelica), cinnamon twig, ginger root, notopterygium root, magnolia flower, schizonepeta, siler (ledebouriella root), processed aconite Patent medicines *Guei Zhi Tang, Jing Fang Bai Du San, Jiu Wei Qiang Huo Tang, Ma Huang Tang, Tong Xuan Li Fei Wan, Xiao Qing Long Tang, Chuan Xiong Cha Tiao San, Qiang Huo Sheng Shi Tang, Zu Bi Tang*
Cold of the Wind-Heat type (Exterior syndromes)	High fever with anhidrosis, fever chills, sore throat, headache, thirst, cough with yellow sputum, sore throat, red tip of the tongue with thin yellowish-white coating, floating and rapid pulse (treated with acrid-cooling diaphoretics)	Herbs peppermint, arctium fruit, cimicifuga, bupleurum root, chrysanthemum, morus (mulberry leaf), pueraria root, soya (prepared soybean), wild chrysanthemum, arctium fruit Patent medicines *Chai Ge Jie Ji Tang, Sang Ju Yin, Yin Qiao San, Yin Qiao Jie Du Pian*

TABLE 9.2. The Actions of Acrid-Warming Diaphoretics

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Ephedra *(ma huang)*	1.5-9	Promotes Lung-*Qi,* relieves cough and asthma, induces diuresis, reduces edema	Expels Wind-Cold pathogens Diaphoretic and antipyretic effects
Cinnamon twig *(gui zhi)*	3-9	Disperses cold, relieves pain, promotes the flow of *Qi*	
Cinnamon bark *(rou gui)*	1-5	Interior warming, dispels Cold, relieves pain, invigorates kidney yang	
Siler *(fang feng)*	3-10	Removes Wind, Dampness, relieves headache and arthralgia, expels endogenous Wind and relieves spasms, helps skin disorders	
Angelica *(bai zhi)* or *(dahurian angelica root)*	3-9	Expels Wind, subdues swelling, promotes pus discharges, removes Dampness, and stops pain, headache, and leukorrhagia	
Ginger root *(sheng jiang)*	3-6	Stops vomiting, removes sputum, detoxifies Interior warming, relieves pain	
Asarum herb *(xi xin)*	1.5-3	Relieves sinus disorders, cold, and pain; warms the lungs and resolves phlegm.	
Schizonepeta *(jing jie)*	3-9	Dispels Wind, treats various suppurative infections on the skin, hemastatic, treats sinus disorders	
Magnolia flower *(xin yi)*	3-9	Treats sinus and other nasal disorders	
Processed aconite *(fu zi)*	3-15	Treats heart failure, Interior warming, treats yang-depletion syndromes and arthralgia.	
Notopterygium root *(qiang huo)*	3-9	Dispels Wind and Dampness, relieves headache and rheumatic pain	

TABLE 9.3. The Actions of Acrid-Cooling Diaphoretics

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Mentha *(bo ho)*	3-6	Improves eyesight, relieves sore throat and itching skin disorders	Expels Wind-Heat pathogens, diaphoretic and antipyretic effects
Chrysanthemum *(ju hua)*	6-15	Clears away Heat, calms the liver, improves eyesight, relieves hypertension	
Bupleurum root *(chai hu)*	3-10	Soothes the depressed Liver-*Qi,* invigorates the spleen and stomach, treats *shaoyang*-meridian disorders	
Pueraria root *(ge gen)*	6-12	Relieves Exterior syndromes, helps measles, promotes body fluid production, stops diarrhea, relieves effects caused by alchohol	
Cimicifuga rhizome *(sheng ma)*	3-6	Heat-clearing and detoxifying effects, invigorates spleen and stomach, treats headache	
Morus leaf *(sang ye)*	3-10	Relieves Heat in the liver and lungs, improves acuity of vision	

REFERENCES

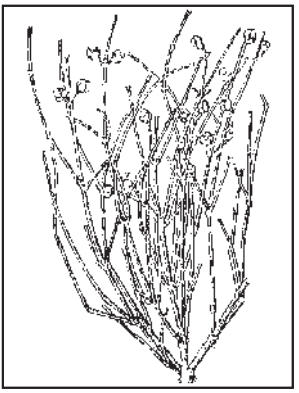
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Long, Z. X. (Ed.) (1998). *Basic Theories of Traditional Chinese Medicine*. Beijing: Academy Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

EPHEDRA

Herba Ephedrae
Ma huang



This herb is the dried herbaceous stem of *Ephedra sinica* Stapf, *E. intermedia* Schrenk et C. A. Meyer, or *E. equisetina* Bge. of the family Ephedraceae. It is mainly grown in the Hebei, Shanxi, Gansu, Liaoning, and Sichuan provinces and Inner Mongolia of China, where it is harvested in autumn, cleaned, dried, cut into segments, and used unprocessed or stir baked with honey. Processed ephedra is called *jiao ma huang* (processed *ma huang*).

Ephedra has been used for more than 2,000 years in Chinese medicine as a popular diaphoretic and antipyretic for colds and flu, fevers (particularly malarial fever), bronchial asthma, coughs, and breathing difficulties. It is also used traditionally to relieve edema.

The unprocessed *ma huang* is more effective as a diaphoretic and diuretic medicine whereas the honey-stir-baked-processed *jiao ma huang* is preferred for coughs, and to relieve asthma and dyspnea (Dong et al., 1998).

Ephedra's use as a cardiac stimulant was adopted by Western medicine after K. K. Chen's discovery in 1942 of ephedra's cardiotonic and CNS-stimulating properties, which are similar to epinephrine (Kratz et al., 1969). In Chinese medicine, ephedra has never been used as a cardiac stimulant or for weight loss, even today.

TCM Properties

Pungent and bitter in taste, and warm, it acts on the lung and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses exopathogens and induces diaphoresis:

   - For Wind-Cold-type common colds, acute bronchitis, headaches, and fever with little sweating, ephedra is used alone in a decoction or with cinnamon twig, bitter apricot kernel, and licorice root, as in *Ma Huang Tang*.

- To treat Wind-Cold-type afflictions, headaches, coughs, sore throats, and stuffy noses, ephedra is blended with platycodon, perilla leaf, bitter almond, pinellia, and poria, as in *Tong Xuan Li Fei Pian* (R-47).
- For Wind-Cold-Damp arthritis or chills without perspiration, ephedra is prescribed with white atractylodes and cinnamon twig.

2. Invigorates the Lung-*Qi* and relieves bronchial asthma. To treat a cough with dyspnea and asthma, ephedra is combined with licorice root and bitter apricot kernel in a decoction. Ephedra is also blended with asarum, dry ginger, licorice root, cinnamon twig, white peony, schisandra, and pinellia tuber, as in *Xiao Qing Long Tang* (R-63), for a cough with profuse thin sputum. This recipe is used for common colds, bronchitis, bronchial asthma, and emphysema (Wang, 1994).
3. Induces diuresis and reduces edema. To treat general nephrotic edema, ephedra is often used with licorice root and the lateral root of aconite (Wang, 1994).

Dosage

In a decoction of 5 to 10 g.

Precaution

Ephedra is a strong diaphoretic and cardiac stimulant, and must be used with caution. Do not overdose and avoid prescribing to patients who have night sweating, sweating due to yin deficiency, who are hypertensive, and have heart disorders. Its use should not be continued over a long period lest it weaken the body or become habit forming. Pregnant women should avoid the use of ephedra.

Side Effects and Toxicity

At the suggested therapeutic dose, it does not produce side effects. However, large doses or an overdose may cause insomnia, anxiety, headaches, dizziness, tinnitus, nausea, vomiting, increased blood pressure, and heart palpitations (due to its CNS-activating and symathomimetic activities [Zhu, 1998]), anorexia, and urinary difficulties.

Modern Research Findings

Chemical Constituents

The herb contains multiple (1 to 2 percent) organic alkaloids. Its most important constituents (about 40 to 90 percent) are l-ephedrine, d-pseudo-ephedrine, flavanes, and volatile oil. Other ingredients are ephedroxane, 1-N-methylephedrine, d-nor-ephedrine, l-n-mthylephedrine, d-N-pseudo-ephedrine, d-nor-pseudoephedrine, d-n-dimethylpseudo-ephedrine, beta-ephedrine, and 1-alpha-d-terpinol (Ling, 1995; Zhu, 1998).

Pharmacological Findings

1. Diaphoretic and antifebrile (Dong et al., 1998).
2. Antitussive. Coughing induced by stimulation of the tracheal or bronchial mucosa in anesthetized animals is suppressed by ephedra extract, or by ephedrine itself. Ephedrine produced stronger antitussive effects even in nonasthmatic subjects (Schulz et al., 2001).
3. Antiallergic. Ephedra water or alcohol extract inhibits the release of histamines (Dong et al., 1998).
4. Similar to epinephrine but its action is milder and longer (Dong et al., 1998).

    - Ephedra dilates bronchioles and is spasmolytic.
    - It relaxes the gastrointestinal smooth muscles and inhibits peristalsis.
    - Ephedra is tensive on the uterine muscles in animals but relaxes human uterine muscles and relieves menstrual pain.
    - Increases the tension of the sphincter vesicae (the smooth muscle that controls the orifice of the bladder) and treats enuresis in children (Leung an Foster, 1996).

5. Effects on the cardiovascular system:

    - Stimulates cardiovascular muscle, raises blood pressure, increases heartbeat, and augments arrhythmia (Dong et al., 1998).
    - Dilates cardiovascular, cerebrovascular, and muscular vascular systems, and increases blood flow (Dong et al., 1998).

6. Ephedrine and pseudoephedrine increase the tone of skeletal muscles, and are useful in treating myasthenia gravis and fatigue (Dong et al., 1998).

7. Ephedrine stimulates the respiratory, brain, and circulatory centers. Large doses cause stimulation, irritability, insomnia, and spasms. Pseudoephedrine has a strong diuretic effect. The volatile oil of ephedra is antifebrile, antiviral, and antimicrobial (Leung and Foster, 1996).

Clinical Findings

Currently, in world markets, pharmaceutical preparations containing ephedrine or the extract of the ephedra herb are shrouded in confusion. Several analytical studies have shown that wide variations often exist between labeled and actual amounts of active constituents. In ephedra preparations, total alkaloid content has varied between 0 and 150 percent of the label claim (Schulz et al., 2001).

The National Institutes of Health commissioned the RAND Corporation to conduct an exhaustive review of the scientific data on the safety of marketed ephedra products containing ephedrine or ephedra extract. In the United States, this included products under the brand names Metabolife, Xenadrine, and others. The study noted a strong link between these products and over 100 deaths, heart attacks, strokes, seizures, and serious psychiatric symptoms, as well as moderate side effects such as nausea, vomiting, jitteriness, arrhythmias, and palpitations. The investigation concluded that there was no evidence to support the manufacturers' claims that their products could enhance physical or athletic performance, long-term weight loss, or weight maintenance (Discovery Health, 2003). These ephedra products also contain stimulants, such as caffeine and amphetamines, other potent herbs with stimulating properties, vitamins, and minerals (Discovery Health, 2003).

REFERENCES

Discovery Health (2003). Weight loss herbal should be regulated. March 10, 2003. Available online <http://health.discovery.com/news/afp/20030310/herbals.html>.

Dong, K. S., Wang, X. Q., Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Kratz, J. C. and Carr, C. J. (1969). *The Pharmacologic Principles of Medica Practica.* Baltimore: The Williams and Wilkins Company.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Schulz, V., Hansel R., and Tyler, V. (2001). *Rational Phytotherapy*. Heidelberg, Germany: Springer-Verlag.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CINNAMON TWIG
Ramulus Cinnamomi Cassiae
Gui zhi

This herb is the dried tender twig of *Cinnamomum cassia* Presl. of the family Lauraceae. It is grown mainly in the Guangxi, Guangdong, and Yunnan provinces of China. The twigs are harvested in spring or summer, cleaned, dried in the sun, sliced and used unprocessed (Jiang Su New Medical College, 1977). Cinnamon twig induces diaphoresis. Traditionally, it is used to treat Wind-Cold-type colds and rheumatic disorders (Smith and Stuart, 1973). It can invigorate blood circulation for the treatment of menstrual disorders, such as irregular menstruation (Dong et al., 1998).

TCM Properties

Pungent and sweet in taste, and warm, it acts on the lung, heart, and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Dispels Wind-Cold exopathogens and induces diaphoresis: to treat colds and associated symptoms, cinnamon twig is blended with white peony root, dry ginger, Chinese date (jujube), and licorice root, as in *Gui Zhi Tang* (Wang, 1994).
2. Relieves arthralgia: for shoulder, limb, and joint pain caused by arthritis (Cold-Damp *Bi*-syndrome), cinnamon twig is used with the lateral root of aconite, as in *Gui Zhi Fu Zi Tang* (Wang, 1994).
3. Invigorates blood circulation and dissipates Cold in the blood: for irregular menstruation, amenorrhea, lower abdominal pain, and mass formation in the lower abdomen (as a result of stagnation and Cold accumulation in the blood), cinnamon twig can be prescribed with Chinese angelica, peony root *(shao yao),* cnidium (*chuan xiong* rhizome), peach kernel, and moutan bark *(dan pi),* as in *Wen Jing Tang* (Zhang, 1988).
4. Relieves stomach-abdominal spasms and pain: for abdominal pain due to Cold in the Middle-*Jiao,* cinnamon twig is used with white peony root, malt extract, fresh ginger, and astragalus root, along with other herbs, as in *Xiao Jian Zhong Tang* (R-60) (Wang, 1994).

5. Induces diuresis and relieves edema: for difficult urination, fluid retention, and edema, cinnamon twig is combined with white hoelen, polyporus *(zhu ling),* and alisma *(zhe xie),* as in *Wu Ling San* (R-68) (Wang, 1994).
6. Relieves stagnation of *Qi* in the chest and chest pain: to treat a feeling of fullness in the chest, retention of phlegm, and coughing, cinnamon twig is mixed with immature bitter orange, trichosanthes fruit, and macrostem onion. It is also used with poria, white atractylodes, and licorice root, as in *Ling Gui Zhu Gan Tang* (R-74) (Zhang, 1988).

Dosage

In a decoction of 3 to 9 g for colds or 15 to 20 g for arthralgia.

Precautions

People with febrile disease, hyperactivity of the heart, or with yin deficiency should avoid this herb. Pregnant women or women with heavy menstruation should use this herb with caution (Dong et al., 1998).

Side Effects and Toxicity

No adverse side effects or toxicity were reported at the therapeutic dose. The chemically active ingredient, cinnamaldehyde, is potent and large doses have caused spasms, motor imbalance, polypnea, and death due to paralysis (Harada et al., 1972).

Modern Research Findings

Chemical Constituents

Cinnamon twigs and leaves contain 1 to 2 percent essential oils. The chief ingredients of the oils are eugenol, cinnamic aldehyde, cinnamyl acetate, phenylpropyl acetate, eugenol acetate, and cinnamic acid (Jiang Su New Medical College, 1977; Wang, 1994).

Pharmacological Findings

Cinnamon twig showed the following pharmacological actions (Dong et al., 1998; Zhu, 1998):

1. Antipyretic, diaphoretic, and analgesic. Cinnamon twig, cinnamaldehyde, and the decoction of the herb reduced the normal body temperature of mice and artificially induced fever in rabbits.
2. Sedative, hypnotic, and anticonvulsant activity.
4. Antiallergenic and immunologic activity. The extract of the herb was inhibitory on the complementary activity in the heterophile antibody reaction. Cinnamaldehyde was shown to inhibit allergic reaction (Wang, 1994).
5. Antitussive and diuretic.
6. Invigorates uterine and coronary-blood circulation, relieves menstrual disorders, and increases coronary blood flow.
7. Stomachic.
8. Antimicrobial activity was also shown in vitro.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Harada, M. and Ozaki, Y. (1972). Pharmacological studies on Chinese cinnamon and central effect of cinnamaldehyde. *Yakugaku Zasski* 92: 135-140.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

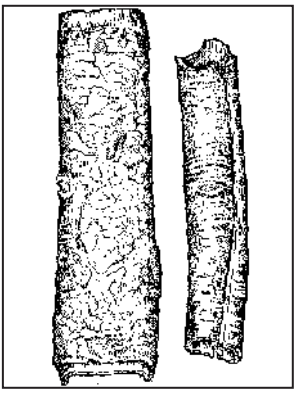
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CINNAMON BARK
Cortex Cinnamomi
Rou gui *or* Gui pi



This herb is the dried bark of the trunk of *Cinnamomum cassia* Presl. or *C. japonicum* Sieb. of the family Lauraceae. It is mainly grown in the Guangdong, Guangxi, Yunnan, and Taiwan provinces of China and other states in Southeast Asia. The bark is stripped off the tree in summer and dried after the cork is scraped. It is then sliced or ground into powder (Jiang Su New Medical College, 1977).

Cinnamon bark is a Cold-dispelling and pain-relieving agent. Traditionally, it has been used as a stomachic to invigorate the flow of *Qi* and blood, to relieve pain, and as a stimulant, carminative, astringent, sedative, and tonic (Smith and Stuart, 1973). Today, cinnamon bark is used as a stomachic and for gastrointestinal ailments. It is considered a good antiaging medicinal herb (Dong et al., 1998).

TCM Properties

Pungent and sweet in taste, and hot, it acts on the kidney, spleen, heart, and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses Wind-Cold exopathogens and induces diaphoresis: to treat colds, headaches, and associated symptoms, cinnamon bark is combined with pubescent angelica root *(du huo),* loranthus, and eucommia bark. Also, it is used with Chinese angelica root, cnidium *(chuan xiong),* carthamus, fresh ginger, and evodia to treat menstrual disorders, amenorrhea, and menorrhalgia (Wang, 1994).
2. Invigorates the kidney yang: for lumbago and chronic asthma due to kidney-yang deficiency, cinnamon bark is used with *fu zi* (processed aconite), poria, Chinese yam, alisma, and processed rehmannia, as in *Shen Qi Wan* (R- 24) (Wang, 1994).
3. Relieves aches and pains: to treat body aches and pains, lumbago due to Cold, and stagnation of *Qi* and blood, cinnamon bark is blended with pubescent angelica, loranthus, and eucommia bark (Wang, 1994).

4. Regulates gastrointestinal disorders: for indigestion, chronic gastritis, diarrhea, and cold limbs and stomach, cinnamon bark is combined with processed aconite, ginger root, poria, and aucklandia root, as in *Guei Zhi Wan* (Dong et al., 1998).

Dosage

In a decoction of 1 to 5 g, or .05 to 1 g if powdered form is used.

Precautions

The herb is hot and pungent, and may induce bleeding. People with syndromes of hyperactivity due to yin deficiency, Heat of the excess type in the Interior, or pregnant women should not use the herb or use it with caution.

Side Effects and Toxicity

No adverse side effects or toxicity were reported at the therapeutic dose. The chemically active ingredient, cinnamaldehyde, is potent and large doses have caused spasms, motor imbalance, polypnea, and death due to paralysis.

Modern Research Findings

Chemical Constituents

Cinnamon bark contains up to 1 to 2 percent volatile oil, tannins, catachins, proanthocyanidins, resins, mucilages, gum, sugar, and calcinoxide. The major ingredient in the oil is cinnamic aldehyde (cinnamaldehyde). Other constituents include cinnamyl acetate, phenylpropyl acetate, eugenol, cinnamic acid, eugenol acetate, safrol, cinnamyl alcohol, and other alcohols. Z-hypdroxycinnamaldehyde has been isolated from the bark as a natural product (Jiang Su New Medical College, 1977).

Pharmacological Findings

Cinnamon bark possesses the following pharmaceutical actions (Dong et al., 1998; Zhu, 1998):

1. Cinnamon bark is carminative and astringent. The essential oil has carminative and antiseptic properties.

2. Cinnamaldehyde, the major component of the volatile oil of the bark, is a sedative, antipyretic, and analgesic in animals. It causes dermatitis in humans.
3. Relieves bronchial asthma.
4. Cinnamon oil has been demonstrated to be antifungal, antiviral, antimicrobial, and larvicidal. It inhibits the growth of *E. coli, S. aureus,* and *Candida albicans*.
5. Stomachic. Cinnamon oil is a strong stomachic, increases the secretion of digestive juices, and relieves spasms in the digestive tract. Prevents abnormal fermentation in the intestines and prevents ulcer formation in mice.
6. Regulates blood circulation and enlarges blood vessels. The herb's decoction significantly increased coronary flow in the isolated hearts of guinea pigs.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SILER
Radix Ledebouriellae
Fang feng

This medicinal herb is the root of *Saposhnikovia divaricata* (Turez.) Schischk. of the family Umbelliferae. It is grown in the Heilongjiang, Jilin, and Liaoning provinces of China, where it is collected in spring and autumn, cleaned, sliced, dried in the sun, and used unprocessed (Jiang Su New Medical College, 1977).

Traditionally, siler was used for constipation, suppression of urine, various mental and epileptoid disorders, delirium and hallucinations, nocturnal polyuria, and typhoid fever (Smith and Stuart, 1973). Today, siler is widely used for the common cold, rheumatic arthritis, vascular headaches, migraines, gastrointestinal ailments, stiff neck, and skin disorders, such as urticaria and itching (Dong et al., 1998; Wang, 1994).

TCM Properties

Pungent and sweet in taste, and slightly warm, it acts on the urinary bladder, liver, and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses Wind exopathogens and induces sweating:
   - To treat Wind-Cold-type colds, headaches, and pain throughout the body, siler is prescribed with schizonepeta, perilla leaf, and notopterygium root, as in *Jing Fang Bai Du San* (Wang, 1994)
   - For pantalgia and Wind-Cold-Dampness Exterior symptoms, siler can be blended with notopterygium root, allium, fresh ginger, and atractylodes (Wang, 1994).
   - For Wind-Heat Exterior symptoms, siler is blended with peppermint, forsythia fruit, and arctium (Wang, 1994).
2. Relieves arthralgia due to Wind-Cold-Damp *Bi* syndrome: for joint pain, stiff neck, and spasms of muscles and tendons, siler is prescribed with notopterygium root *(qiang huo),* Chinese angelica root *(dang*

gui), and cinnamon twig, along with other herbs, as in *Juan Bi Tang*. Siler is prescribed with *Aconite carmichaeli (chuan wu), A. ausnezoffii (cao wu),* or processed *A. carmichaeli (fu zi)* for treating severe arthralgia and stiffness of limbs and fingers (Wang, 1994).

3. Relieves headaches: for migraine and frontal headaches associated with Exterior symptoms, siler is mixed with dahurian angelica root *(bai zhi)* and cnidium *(chuan xiong),* as in *Chuan Xiong Cha Tiao San* (R-49) (Wang, 1994).
4. Alleviates spasms and convulsions: for tetanus with symptoms of opisthotonos, trismus, spasms, and convulsions, siler is used with arisaema tuber, typhonium, and gastrodia tuber, as is *Yu Zhen San* (Wang, 1994).
5. Disperses pathogenic Wind and stops itching: for itchy skin, eczema, and scabies, siler is consumed with dittany bark *(bai xian pi),* tribulus *(bai ji li),* and schizonepeta in a decoction (Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with spasms caused by anemia or yin deficiency should use this herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Siler contains 0.11 percent essential oil. The main ingredients in the oil are octanol, beta-bisabplene, hexanol, cuparene, beta-eudesmol. Other ingredients include coumarin, mannitol, phenol, and sugars (Zhu, 1998).

Pharmacological Findings

1. Siler is a notable antipyretic and analgesic.
2. In laboratory tests, it inhibited the development of rheumatoid arthritis.
3. Anticonvulsive and spasmolytic.
4. Antimicrobial and antifungal in vitro.
5. Antiarthritic (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

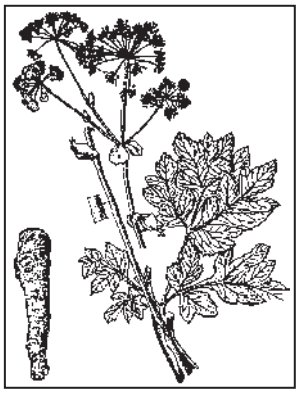
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

ANGELICA OR DAHURIAN ANGELICA ROOT

Radix Angelicae dahuricae
Bai zhi



This herb is the dried root of *Angelica dahurica* Benth et Hook, *A. dahurica* var Formosana (Boiss) Shan et Yuan, and other angelica species of the family Umbelliferae. It is mainly grown in the Hubei, Liaoning, and Zhejiang provinces of China, where it is harvested in summer and autumn. The rootlets are removed and it is cleaned, sliced, dried in the sun, and either used without further processing or it undergoes sulfur fumigation.

The hard root with a strong aroma is considered to be of the best quality. Dahurian angelica root is aromatic with a somewhat pungent and bitter taste (Jiang Su New Medical College, 1977).

This herb has long been a favorite with the Chinese. In ancient times, it was worn together with other fragrant herbs in people's girdles. It is considered to be a woman's medicine, and is therefore prescribed for a number of female afflictions, as well as being a favorite cosmetic substance. This medicinal herb was used for urinary difficulties, sinus and nasal polypus, and various skin afflictions (Smith and Stuart, 1973).

Today, dahurian angelica root is used for colds, headaches, leukorrhagia, mastitis, and stomach pain. It is also used to relieve different types of pain, such as cancer pain, along with other cancer treatment herbs (Dong et al., 1998).

TCM Properties

Pungent in taste and warm, it acts on the lung and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Expels pathogenic Wind and relieves frontal headaches, tooth pain, and sinus infections:

   - For headaches, dahurian angelica root is combined with siler, cnidium, and notopterygium root, as in *Chuan Xiong Cha Tiao San* (R-49) (Wang, 1994).

- To treat allergic sinusitis, rhinitis, stuffy nose, and sinus infection with yellow purulent nasal discharge, dahurian angelica root is used with xanthium fruit and magnolia flower, as in *Can Er Zi San*.

2. Disperses Wind-Cold exopathogens and relieves colds: for colds and associated symptoms, dahurian angelica root is commonly used with siler and notopterygium *(qiang huo)* root, as in *Jiu Wei Qiang Huo Tang* (Zhang, 1988).
3. Relieves sinus disorders: For sinusitis, rhinitis, nasosinusitis with thick nasal discharge, and frontal headaches, dahurian angelica root is combined with magnolia, xanthium fruit, and mentha in a decoction (Wang, 1994).
4. Relieves leukorrhagia due to pathogenic Dampness:

   - To treat leukorrhagia due to Cold-Dampness, dahurian angelica root is blended with white atractylodes rhizome *(bai zhu),* poria *(fu ling),* and cuttlebone (Zhang, 1988).
   - For thick yellow leukorrhea with a foul odor due to Damp-Heat, dahurian angelica root is prescribed with phellodendron bark *(huang bai)* and plantain seed *(che qian zi)* (Zhang, 1988).

5. Relieves neuralgia and other pains:

   - Dahurian angelica root is mixed with licorice root in a decoction for abdominal pain (Dong et al., 1998).
   - It is also used with dandelion, fritillaria bulb, and trichosanthes fruit for acute mastitis pain (Dong et al., 1998).
   - For gastric or menstrual pain, dahurian angelica root can be combined with corydalis tuber, aucklandia root, peony, and other herbs, as in *Yuan Hu Zhi Tong Wan* (R-56) (Dong et al., 1998).

Dosage

In a decoction of 3 to 9 g, or 30 g for abdominal pain.

Precautions

People with stagnant Heat in the Interior caused by yin deficiency should avoid dahurian angelica root or use with extra caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Dahurian angelica root *(A. dahurica)* contains numerous coumarins and furocoumarins, which are somewhat different from European angelica root *(A. archangelica).* Dahurian angelica root and rhizome contain coumarins, including scopoletin, 7-demethylsuberosin, and others. Furocoumarin constituents include psoralen, angelicin, berganten, byakangelicin, anhydrobyakangelicin, byakangelicol, neobyakangelicol, oxypeucedanin, oxypeucedarinhydrate, imperatorin, alloisoimperatorin, and phellopterin. Also present are citerols, steric acid, and 5 (2-hydroxy-3, methoxy 3-methylbutoxy) psoralen (Leung and Foster, 1996; Zhu, 1998).

Pharmacological Findings

1. Dahurian angelica root has diaphoretic and expectorant properties (Dong et al., 1998).
2. The volatile oil of the root phototoxic, and exerts antimicrobial and antifungal properties in vitro (Leung and Foster, 1996). Dahurian angelica is a strong analgesic, particularly for headaches, migraines, sinus headaches, toothache, and trigeminal neuralgia (Wang, 1994). Furocoumarins stimulate the respiratory center and blood pressure, and dilate coronary blood vessels (Dong et al., 1998).
3. Its alcohol extract was antihistaminic on an isolated guinea pig trachea (Zhu, 1998).
4. The root of dahurian angelica activates lipolytic hormones and selectively inhibits antilipolytic hormones (Kimura et al., 1982).

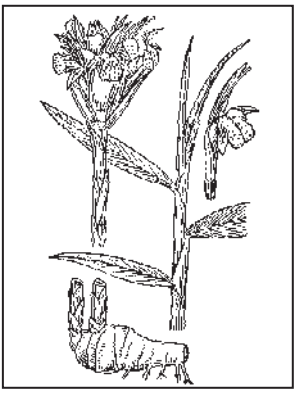
REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Kimura, Y., Ohminami, H., Arichi, H., Okuda, H., Baba, K., and Kozawa, M. (1982). Effects of various coumarins from roots of *A. dahurica* on action of adrenalin, ACTH, and insulin in fat cells. *Planta Medica* 45: 183-187.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.
Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.
Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

GINGER
Rhizoma Zingiberis
Gan jiang or Sheng jiang



This herb is the rhizome of *Zingiber officinale* (Willd.) Rosc. of the family Zingiberaceae. It is grown in the Sichuan, Guangdong, Guangxi, Hupei, and Taiwan provinces of China, where it is harvested in winter, washed, dried in the sun and sliced for use, or used fresh. Ginger is a Interior-warming and Cold-dispelling diaphoretic agent, and is effective for eliminating abdominal pain due to coldness, and treating skin disorders and rheumatism pain (Jiang Su New Medical College, 1977).

TCM Properties

Pungent in taste and hot, it acts on the stomach, heart, and lung meridians (Wang, 1994).

Effects, Medicinal Uses, and Combinations

1. Generates warmth in the Middle-*Jiao,* dispels pathogenic Cold, and treats gastroenteritis: to treat nausea, vomiting, diarrhea, and anorexia, ginger is often used with ginseng, white atractylodes rhizome, and licorice root, as in *Li Zhong Tang* (R-14) (Dong et al., 1998; Jiang Su New Medical College, 1977).
2. Alleviates coughs and resolves Cold phlegm retention in the lungs: for coughs, dyspnea, and a chilly sensation in the back, ginger root is prescribed with ephedra, asarum, and schisandra fruit, as in *Xiao Qing Long Tang* (R-63) (Wang, 1994).
3. Relieves abdominal pain and diarrhea: to treat diarrhea due to coldness in the stomach and spleen, ginger root is combined with pinellia tuber.
4. Stops vomiting: for vomiting after eating, distress in the chest, and acid regurgitation, ginger root is mixed with evodia fruit, ginseng, and jujube, as in the patented medicine *Wu Zhu Yu Tang* (R-71) (Wang, 1994).
5. Expels Exterior pathogens and relieves colds: for colds, fever, headaches, or a stuffy nose due to Wind-Cold Exterior affliction, a ginger

root (dried or fresh) tea or decoction can help. For severe cases, ginger is combined with ephedra, cinnamon twig, schizonepeta, and perilla fruit in a decoction (Wang, 1994).
6. Detoxifies: fresh ginger juice with vinegar can be used as an antidote in instances of fish or crabmeat poisoning (Wang, 1994).
7. To treat vitiligo (leukoderma) fresh ginger slices are rubbed on the affected area of the skin, four times daily for seven days (Dong et al., 1998).

Dosage

In a decoction of 3 to 6 g with dry ginger, or 10 to 15 g if fresh ginger root is used.

Precautions

People with hyperactive Fire symptoms due to yin deficiency and pregnant women should avoid ginger.

Side Effects and Toxicity

The regular therapeutic dose of ginger is safe. At large doses, it may cause mouth dryness, throat pain, and inflammation of the kidneys.

Modern Research Findings

Chemical Constituents

Ginger root contains 0.25 to 3.3 percent volatile oil, Pungent principles, and flavoring principles. Pungent principles include gingenols, zingerone, gengediols, methylgediols, and others.

The flavoring principles include alpha- and beta-pinene, cumene, camphene, mycene, limonene, cineole, beta-phellandrene, p-cymen, citral, linalool, borneol, and bornyl acetate. Ginger oil's major components are sequiterpenes, hydrocarbons, zingiberene, and bisabolene.

Other ingredients include lipids of triglycerides, phosphatiic acid, lecithins, free fatty acids, proteins, starch, vitamins A and niacin, minerals, amino acids, and resin (Zhu, 1998).

Pharmacological Findings

1. Diaphoretic. Ginger dilates blood vessel endings and increases blood circulation (Dong et al., 1998).
2. Stimulates respiratory and vasomotor centers of anesthetized cats (Leung and Foster, 1996).
3. Lowers blood serum and hepatic cholesterol levels (Zhu, 1998).
4. Effective in treating vaginal trichomoniasis in vitro (Dong et al., 1998).
5. Increases secretion of gastric juices and helps digestion (Dong et al., 1998; Zhu, 1998).
6. Increases blood pressure as it stimulates the vasomotor center (Dong et al., 1998).
7. Anti-inflammatory activities in artificially-induced arthritis in rats (Zhu, 1998).
8. Antiemetic (Zhu, 1998).

Clinical Findings

In China, fresh ginger root has been reported to be highly effective in treating rheumatism, acute bacterial dysentery, malaria, and inflammation of the testicles (Jiang Su New Medical College, 1977).

Dried ginger has been the subject of several clinical trials to assess its efficacy in motion sickness. Its antiemetic properties were effective on gastric activity rather than CNS mechanisms, which is characteristic of conventional motion sickness drugs (Leung and Foster, 1996).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica)]. Beijing: Zhong Guo Zhong Yi Yao Press.

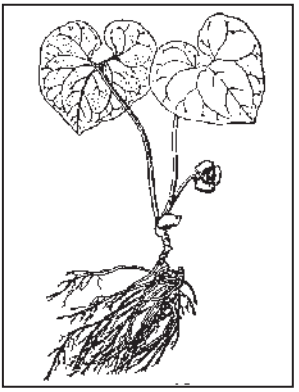
Jiang Su New Medical College (1977). *Zhong Yao Da Ce Dian* [Encyclopedia of Chinese Materia Medica]. Shanghai: Shanghai Science and Technology Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

ASARUM HERB
Herba Asari
Xi xin



This herb is the entire plant of *Asarum heterotropoides* Fr. Schmidt var *Mandshuricum* (Maxim.) Kitag. *(bei xi xin)* and *A. sieboldii* Miq. *(hua xi xin)* of the family Aristolochiaceae. It is mainly grown in the regions of northern China, and the Fujian and Zhejiang provinces of central China, where it is harvested in summer or autumn, dried in the shade, cut into segments, and used unprocessed (Jiang Su New Medical College, 1977).

Asarum has traditionally been used as an emetic, expectorant, and diuretic, and for rheumatic affections and epilepsy (Smith and Stuart, 1973). Today, it is used mainly for common colds, arthritis, chronic bronchitis, bronchial asthma, chronic rhinitis, nasosinusitis, toothache, gingivitis, neurovascular headache, and cancer pain (Wang, 1994).

TCM Properties

Pungent in taste and warm, and slightly toxic, it acts on the lung and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses Wind-Cold exopathogens and relieves colds, stuffy nose, neurovascular headache, and severe toothache. Asarum herb is prescribed with notopterygium root *(qiang huo),* atractylodes, dahurian angelica root, cnidium, dried rehmannia, scutellaria, licorice root, and siler *(fang feng),* as in *Jiu Wei Qiang Huo Tang* (Wang, 1994).
2. Relieves arthralgia (Wind-Cold-Damp *Bi*-syndrome): to treat rheumatic joint pain, asarum herb is dispensed with pubescent angelica root, siler, and large-leaf gentian root, as in *Du Huo Ji Sheng Tang* (R-58) (Wang, 1994).
3. Alleviates sinus disorders: to treat stuffy nose, rhinitis, or nasosinusitis, asarum herb is combined in a decoction with magnolia flower, xanthium fruit, and dahurian angelica root *(bai zhi)*.

Dosage

In a decoction of 1.5 to 3 g, or 0.5 to 2 g if taken orally in powdered form, or applied externally as needed for tooth pain. This herb is potent. Avoid overdose, particularly when using the powdered form.

Precautions

People with a headache due to yin deficiency, or coughs caused by Heat in the lungs should avoid this herb.

Side Effects and Toxicity

The classical Chinese materia medica describes asarum herb as "slightly toxic" (Jiang Su New Medical College, 1977; Wang, 1994). The alcohol extract showed more toxicity than the water decoction, indicating that the volatile oil of the herb is more potent and toxic. The extract acted as an anesthetic in frogs, mice, and rabbits. It showed stimulation followed by inhibition and it also blocked the sciatic nerve pain sensation in frogs. Other inhibitory effects observed were slower voluntary movement and respiration, nonexistent reflexes, followed by death due to respiratory paralysis. The LD_{50} value of the decoction of *A. sieboldii* was 12.375 g/kg (intragastric) and 0.77 g/kg (intravenous) in mice (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Asarum heterotropoides (bei xi xin) contains about 3 percent volatile oil. Its main ingredients are methyl eugenol, safrole, beta-pinene, eucarvone, sabinene, elemicin, estragole, and t-caryophyllene. *Asarum sieboldii (hua xi xin)* contains about 1.9 percent volatile oil. Its main ingredients are methyl eugenol, eucarvone, clemicin, sabiaene, alpha-hydroxy-p-cymen, asarylketone, cineol, and l-asarinin (Jiang Su New Medical College, 1977; Zhou, 1993).

Pharmacological Findings

The herb's volatile oil is antipyretic, sedative, analgesic, and antihistaminic (Wang, 1994).

1. Asarum's volatile oil produced significant CNS depression. Sleep was induced in mice five minutes after administering the medication. Oral administration of 0.5 ml/kg of the oil showed analgesic activity in rabbits against pain induced by electrical stimulation of dental nerves. Its analgesic effect was also observed in mice (Wang, 1983).
2. Antipyretic. The herb's volatile oil reduced the body temperature of healthy animals. Intragastric administration of the volatile oil reduced fever in rabbits induced by exposure to heat, typhoid vaccine, or tetrahydrogen-b-naphthylamine (Wang, 1983).
3. Cardiovascular. Asarum's volatile oil was stimulating at a low dose and inhibitory at higher doses on an isolated frog heart, stopping the heart at the diastolic phase. The alcohol extract of *liao xi xin* showed stimulation in the isolated hearts of rabbits and guinea pigs, suggesting a positive inotropic and chronotropic effect (Lui et al., 1981).
4. Antihistaminic action. Methyleugenol inhibited histamine-induced contractions in an isolated guinea pig ileum (Wang, 1983).

REFERENCES

Jiang Su New Medical College (1977). *Zhong Yao Da Ce Dian* [Encyclopedia of Chinese Materia Medica]. Shanghai: Shanghai Science and Technology Press.

Lui, L., Li, Y. E., Chen C. C., Zhou, T. C., and Wang, H. H. (1981). Comparative study of *A. heterotropoides,* higeramine and isoprenaline on the hemodynamics in anesthetized dogs. *Chinese Pharmaceutical Bulletin* 16: 50.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhou, R. H. (1993). *Resource Science of Chinese Medicinal Materials*. Beijing: China Medical and Pharmaceutical Sciences Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SCHIZONEPETA

Herba seu. Flos Schizonepetae
Jing jie or Jing jie sui

This herb is the dried, aboveground portion (spike, stem, and flowers) of *Schizonepeta tenuifolia* Briq. of the family Labiatae. It is grown mainly in the Jiangsu, Zhejiang, and Jiangxi provinces of China, where it is harvested in autumn, dried in the shade, cut into sections, and used unprocessed or stir cooked to a brown or charcoal color. The spike of the herb is called *Jing jie sui* and has a stronger therapeutic effect than the leaves and stems.

Schizonepeta was traditionally used for relieving Exterior syndromes. The carbonized schizonepeta spike is used as a hematostatic agent for arresting functional bleeding of the uterus (Jiang Su New Medical College, 1977).

TCM Properties

Pungent in taste and warm, it acts on the lung and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves pathogenic Wind and colds: schizonepeta is particularly useful for both Wind-Cold and Wind-Heat colds. For Wind-Cold colds and headaches, schizonepeta is combined with siler root, bupleurum, cnidium, platycodon, notopterygium root, and other herbs, as in *Jing Fang Bai Du San* (Dong et al., 1998; Wang, 1994). For Wind-Heat type colds, schizonepeta is used with peppermint, mulberry leaf, forsythia fruit, lonicera, and platycodon root, as in *Yin Qiao Jie Du Pian* (R-46) (Wang, 1994).
2. Treats German measles, pruritus, and measles without adequate eruption: to relieve pruritus, schizonepeta is blended with peppermint, cicada slough, tribulus, and arctium fruit. It can also be mixed with siler, lonicera, and forsythia fruit, along with other herbs, for various suppurative infections on the body's surface in their initial stages (Dong et al., 1998).
3. Induces hemostasis: for hematemesis, epistaxis, hemafecia (feces containing blood), metrorrhagia (bleeding from the uterus), persistent

functional bleeding from the uterus, and blood in the stool, the charcoal (carbonized) form of schizonepeta is more effective (Dong et al., 1998).

4. Treats allergic skin ailments such as itching, pruritus, psoriasis, neurodermatitis, and eczema. The schizonepeta-containing formula of *Jing Fang Bai Du San* offers satisfactory results (Dong et al., 1998).

Dosage

In a decoction of 3 to 9 g.

Precautions

People with spontaneous sweating, and superficial or Exterior deficiency with headache should avoid this herb.

Side Effects and Toxicity

No side effects or toxicity are recorded in classical Chinese materia medica. The LD_{50} value of the fat-soluble extract of the carbonized herb in mice was 2.652 ± 0.286 g/kg by oral administration and 1.945 ± 0.207 g/kg by intraperitoneal administration (Ding et al., 1993).

Modern Research Findings

Chemical Constituents

Schizonepeta contains about 1.8 percent essential oil. The main components in the oil are d-menthone, dl-menthone, and d-limonene (Wang, 1983). The following constituents were isolated from the spike of the herb: monoterpene compounds: schizonepetosides A, B, C, D, and E, schizonol, and schizonodiol; the flavone compounds: hesperidine, diometin, hesperetin and luteolin; and benzofurans (Yin et al., 1993).

Pharmacological Findings

1. Antipyretic and analgesic. The herb's alcohol extract and decoction was antipyretic when given orally (2 g/kg) to rabbits with fever induced by mixed typhoid vaccine (Wang, 1983).

2. Schizonepeta volatile oil also demonstrated analgesic, anti-inflammatory, mild stomachic, antispasmodic, and pathogenic Wind-repelling actions (Wang, 1983).
3. The herb's decoction is antimicrobial in vitro against *S. aureus, B. diphtheriae, B. anthracis, B. typohsus, B. dysenteriae, Pseudomonas aeruginosa,* and *Mycobactarium tuberculosis* (Yin et al., 1993).

REFERENCES

Ding, A., Kong, L., Wu, H., Wang, S., Long, Q., and Yao, Z. (1993). Research on hemostatis constituents in carbonized *S. tenuifolia* Brig. *China Journal of Chinese Materia Medica* 18: 535,573-574.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Zhong Yao Da Ce Dian* [Encyclopedia of Chinese Materia Medica]. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yin, J. and Guo, L. G. (1993). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume I).* Beijing: Academic Publisher.

MAGNOLIA FLOWER

Flos Magnoliae
Xin yi hua or Xin yi

This herb is the dried unopened flower buds of *Magnolia sprengeri* Pamp., *M. biondii* Pamp., or *M. denudata* Desr. of the family Magnoliaceae. It is mainly grown in the Anhui, Henan, Hubei, Hunan, Shaanxi, and Sichuan provinces of China, where it is harvested in the winter or early spring, dried in the sun, and used unprocessed (Dong et al., 1998).

This is one of the many herbs reputed to give lightness to the body, brightness to the eyes, and added length of life. Traditionally, it was used to disperse Wind and Cold, and clear the nasal cavity (Smith and Stuart, 1973). In modern times, it is used to treat nasal congestion, runny nose, the common cold, headaches, and is used both internally and externally. Both magnolia flower and xanthium fruit are excellent herbal remedies for nasal disorders, allergic conditions, sinusitis, and rhinitis. Usually, these two herbs are used together for a better effect (Wang, 1994).

TCM Properties

Pungent in taste and warm, it acts on the lung and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Dispels Wind-Cold exopathogens, induces diaphoresis, and relieves nasal disorders:

   - For Wind-Cold afflictions, a stuffy nose, rhinitis, nasosinusitis, and headaches, magnolia flower is often used with dahurian angelica root, asarum root, siler, and cnidium rhizome, as in *Xin Yi San* (Wang, 1994).
   - For Wind-Heat afflictions with headache, stuffy nose, and yellow nasal discharge, magnolia flower is prescribed with xanthium fruit *(cang er zi),* peppermint, dahurian angelica root, scute, and gypsum (Wang, 1994).

2. Relieves severe chronic sinus infections with thick purulent nasal discharges: for this affliction, magnolia flower is combined with xan-

thium fruit, patrinia herb *(bai jiang cao),* dahurian angelica root, isatis root, red peony, cnidium, dandelion, wild chrysanthemum, scute root, houttuynia, and licorice root in a decoction (Dong et al., 1998).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with hyperactive Fire symptoms due to yin deficiency should avoid this herb or use with caution.

Side Effects and Toxicity

No side effects or toxicity were recorded in classical Chinese materia medica at the suggested therapeutic dose. However, an overdose causes dizziness and red eyes.

Modern Research Findings

Chemical Constituents

Magnolia flower contains about 0.4 to 3.2 percent volatile oil and more than 70 components of the volatile oil have been identified (Leung and Foster, 1996). The main components are alpha-pinene, beta-pinene, chavicol, methylether, cineol, camphene, limonene, terpinene-4-ol, and citrol (Leung and Foster, 1996; Zhu, 1998). Other important ingredients of the flower are neolignane, lignans, alkaloids, salicifoline, magnosprengerine, flavonoids, and tannins (Zhu, 1998).

Pharmacological Findings

1. The essential oil is analgesic and sedative. It contracts the blood vessels of the nasal mucosa and acts as a decongestant for stuffy nose (Dong et al., 1998).
2. Antiallergic action. The volatile oil, and alcohol or water extract were shown to be antihistaminic in a guinea pig trachea. It also protected against allergic asthma (Yin, 1995).
3. Hypotensive in several species of animals (Dong et al., 1998).
4. Stimulates the uterus (Dong et al., 1998).
5. Antimicrobial, antifungal, and antiviral (Dong et al., 1998).

Clinical Findings

Magnolia flower in various forms (decoction, alcohol extract, volatile oil, and so on) and its combination with other similar herbal medicines is reported to be highly effective both locally and internally for treating allergic rhinitis (hay fever), chronic rhinitis, and paranasal sinusitis (Leung and Foster, 1996). It can be used to replace ephedrine as a nasal decongestant for sinusitis and rhinitis (Dong et al., 1998).

The essential oil of the herb has been used in more than 200 cases of rhinitis and paranasal sinusitis. It had a significant beneficial effect in hypertrophic rhinitis and acute rhinitis. The emulsion preparation was most effective. Nasal congestion was improved after four to five applications. The results of a two-year observation period showed that forty-four cases were cured (Wang, 1983).

REFERENCE

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

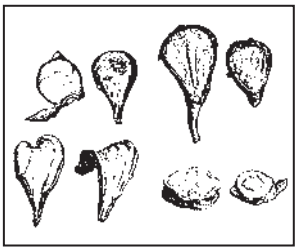
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yin, J. (1995). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 2).* Beijing: Chinese Medical Classics Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PROCESSED ACONITE

Radix Aconiti Praeparata
Fu zi



This herb is the lateral roots of *Aconitum carmichaeli* Debx. of the family Ranunculaceae. It is mainly grown in the provinces of Hunan, Hupei, and Sichuan of China. It is dug up in summer and processed with salt or brown sugar, and dried, or the aconite root is smoked with sulfur and dried for use (Dong et al., 1998). The herb has to be processed in various ways so as to diminish its poisonous properties before it is used as medicine.

Traditionally, aconite was considered to be a stimulant, diaphoretic, diuretic, sedative, alterative, and aperient. It was used for fevers, ague, rheumatism, nervous disorders, neuralgia, and all sorts of painful conditions, dropsy, and dysentery (Smith and Stuart, 1973). Today, processed aconite is used for Interior Warming, dispelling Cold, relieving pain, arthralgia, and as a cardiotonic agent (Zhang, 1988).

TCM Properties

Pungent in taste and hot, and toxic if used unprocessed, it acts on the heart, kidney, and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Dispels Cold from the body and alleviates pain: for joint pain, pain all over the body, and arthralgia caused by Cold-Damp pathogens, processed aconite is used with cinnamon twig, white atractylodes rhizome, and licorice, as in *Gan Cao Fu Zi Tang* (Zhang, 1988).
2. Strengthens kidney yang:

   - To treat spontaneous cold sweating, cold limbs, impotence, and frequent urination, processed aconite is often used with cinnamon bark, processed rehmannia root, and cornus, as in *Shen Qi Wan* (R-24). It is also combined with ginseng, white atractylodes, and dried ginger, as in *Fu Zi Li Zhong Tang* (R-54), for treating spleen-yang deficiency syndrome marked by gastric and abdominal cold and pain, poor appetite, and loose stools (Wang, 1994).
   - To treat edema, processed aconite is prescribed with white atractylodes rhizomes, poria, and ginger in a decoction, as in *Zhen Wu Tang* (R-75) (Wang, 1994).

- For collapse and shock, or yang depletion syndrome characterized by symptoms of cold limbs, profuse cold sweating, mental fatigue, sleepiness, and a pale complexion, processed aconite is prescribed with dried ginger and processed licorice root, as in *Si Ni San* (R-61) (Dong et al., 1998; Wang, 1994).

Dosage

In a decoction of 3 to 15 g. For safety, aconite must be cooked more than sixty minutes before other herbs are added to the decoction.

Precautions

Since fresh aconite may cause a toxic reaction, it must be used very cautiously and cooked for sixty minutes to destroy its toxicity before use (Wang, 1994). It should not be prescribed to pregnant women, those with excessive yang, or to those who have liver damage. Aconite is incompatible with blatilla *(bai ji),* ampelopis *(bai lian),* pinellia *(ban xia),* fritillaria *(bei mu),* and trichosanthes fruit *(gua wei)* (Dong et al., 1998).

Side Effects and Toxicity

Aconite herb is toxic, and has been so recorded in classical Chinese materia medica. The fresh or unprocessed aconite is toxic for internal use but used for external application (Wang, 1994). After extensive cooking (more than sixty minutes), the toxic chemical constituents of the herb, aconitine and its related alkaloids, are destroyed. After their evaporation, the decoction is less or nontoxic (Wang, 1994).

The alkaloid aconitine is extremely toxic and as little as 2 mg has caused death from paralysis of the respiratory center (Leung and Foster, 1996).

Unprocessed aconite causes toxic reactions to the CNS and circulatory system. The symptoms start with numbness of the lips, tongue, and arms, nausea, vomiting, and anxiety, followed by coma, neck muscle cramps, convulsion, respiratory difficulties, cold arms, arrythmia, cardiac arrest, and sudden death (Dong et al., 1998).

Reportedly, an oral dose of aconite may be closely associated with allergic reactions or wrong combinations of herbs in a recipe. Also, alcohol can greatly increase the toxicity of aconite (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

Aconite contains total titerpene alkaloids 0.2 ± 2.0 percent consisting mainly of hypaconitine, mesaconitine, aconitine, picraconitine, aconine, talatisamine, and nepelline. Its active principle ingredients are the alkaloids, which include 12-epidehydronapelline and 12-epiacetyldehydronapelline. Other ingredients include aconitic acid, itaconic acid, succinic acid, malonic acid, itaconic acid, maltore, fructore, melibiose, mannitol, starch, fat, and resin (Leung and Foster, 1996; Ling, 1995; Zhu, 1998). Furthermore, 14-acetyltalatisamine, senbustines A, B, and chrysanthemum were also isolated from the root (Zhu, 1998).

Pharmacological Findings

1. Cardiotonic. Aconite stimulates the CNS, increases heart rhythm and the contraction of the heart muscle, lowers blood pressure, and increases coronary blood circulation and oxygen consumption in the heart (Wang, 1994).
2. The aconite alkaloid is analgesic and anesthetic.
3. The aconitine alkaloid hs been anti-inflammatory and analgesic in animals (Dong et al., 1998).
4. Excitation of the pituitary-adrenocortical system. The action is similar to the adrenocortical hormone in patients with adrenocortical insufficiency (Dong et al., 1998).
5. Gonadotrophic (Dong et al., 1998).
6. Aconite extract demonstrated cold-temperature resistance in laboratory animals (Dong et al., 1998).
7. Antimicrobial, antitumor, and hyperlipidemia properties were also reported (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.
Zhang, E. (Ed.) (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

MENTHA OR PEPPERMINT

Herba Menthae
Bo he

This herb is the aboveground portion of *Mentha haplocalyx* Briq. or *M.* × *piperita* of European origin and other species of the family Labiatae or Lamiaceae. It is grown mainly in the Jiangsu, Jiangxi, and Zhejiang provinces of China, and other parts of the world (Jiang Su New Medical College, 1977). Idaho, Wisconsin, and Oregon are the major producers of peppermint and spearmint, and their essential oils (Leung and Foster, 1996). The plant is collected in summer, dried, and cut into pieces for use unprocessed.

Peppermint is cultivated in home gardens and cooked with other vegetables to add flavor. Carminative, antispasmodic, astringent, and sudorific are qualities ascribed to the plant. Traditionally, peppermint was used for fevers, colds, nervous disorders of children, nosebleeds, fluxes, insect bites, and diseases of the nose, teeth, and throat (Smith and Stuart, 1973).

Peppermint is one of the most commonly used herbs for treating Wind-Heat-type colds and influenza at an early stage (Wang, 1994).

TCM Properties

Pungent in taste and cool, it acts on the lung and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses Wind-Heat exopathogens:

   - For symptoms of fever, headaches, a slight aversion to cold with a little sweating, conjunctival congestion, sore throat, and red eyes due to Wind-Heat colds, peppermint is commonly used with schizonepeta, forsythia fruit, and lonicera, as in *Yin Qiao San* or *Yin Qiao Jie Du Pian* (R-46) (Wang, 1994).
   - For the common cold with a swollen and sore throat, peppermint is combined with chrysanthemum, arctium fruit, platycodon root, and schizonepeta (Wang, 1994).

2. Relieves measles: for treating measles, German measles in the early stages, and pruritus, mentha is blended with forsythia fruit, cicada slough *(chan yi),* and arctium fruit (Wang, 1994).
3. Invigorates stagnant Liver-*Qi* marked by chest pain and distending costal pain. Peppermint can also be used with white peony root, bupleurum root, and other herbs, as in *Xiao Yao Wan* (R-41) (Wang, 1994).

Dosage

In a decoction of 3 to 6 g. When making a decoction, avoid boiling the herb too long.

Precautions

Peppermint should not be used by those who have an Exterior deficiency with excessive or spontaneous sweating.

Side Effects and Toxicity

Peppermint tea does not have any side effects even when consumed for a long period (Schulz et al., 2001). Peppermint oil should not be applied to the noses of children as it may provoke glottic spasms and respiratory arrest. The ingestion of excessive peppermint oil has been associated with interstitial nephritis and acute renal failure. The estimated lethal dose of menthol for humans is about 2 to 9 g. No mutagenic or carcinogenic effects of peppermint oil have been reported (Schulz et al., 2001).

Modern Research Findings

Chemical Constituents

The leaves and stems of the peppermint plant contain about 0.1 to 1.0 percent of volatile oil that is composed mainly of menthol (29 to 48 percent), methone (20 to 30 percent), and methyl acetate (3 to 10 percent), with smaller amounts of menthofuran and limonene (Dong et al., 1998; Leung and Foster, 1996; Schulz et al., 2001). To date, eighty-five chemicals have been isolated from peppermint oil. Peppermint oil is a colorless to pale green liquid with a pungent odor and burning taste, and cool aftertaste. Menthol can be crystallized at low temperatures (Schulz et al., 2001). Other ingredients present in peppermint oil include viridiflorol, pulegone, 1,8-

cineole, and pipperitone (Leung and Foster, 1996). Other constituents include flavonoids, phytol, tocopherols, carotenoids, betaine, choline, azulenes, rosmarinic acid, and tannin (Zhu, 1998).

Pharmacological Findings

1. Peppermint is a CNS stimulant when taken orally in a small dose, and induces skin blood vessel dilation and sweating. It has sweating and antipyretic properties (Wang, 1994).
2. Peppermint extracts have antiviral action against Newcastle disease, herpes simplex, vaccinia, Semliki Forest, and West Nile virus in egg and cell cultures (Dong et al., 1998).
3. Peppermint oil has an antispasmodic action on the isolated segments of ileum of rabbits and cats (Dong et al., 1998).
4. Menthol has analgesic, anti-iflammatory, antiallergenic, and expectorant properties (Dong et al., 1998).
5. Menthol and/or menthone compounds act on the nerve endings of the sensory nerves, treat numbness, and relieve pain and itching (Dong et al., 1998).

REFERENCES

Dong, K. S, Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Zhong Yao Da Ce Dian* [Encyclopedia of Chinese Materia Medica]. Shanghai: Shanghai Science and Technology Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Schulz V., Hansel, R., and Tyler, V. (2001). *Rational Phytotherapy*. Heidelberg, Germany: Springer-Verlag.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

MORUS OR *MULBERRY LEAF*

Folium Mori
Sang ye

This herb is the dried leaves of the mulberry tree, botanically known as *Morus alba* L. of the family Moraceae. It is grown throughout China but mostly in the Jiangsu and Zhejiang provinces in southeastern China. It is collected during the frost season, dried, and used unprocessed.

According to ancient tradition, *Si-ling,* the empress of Huang-ti (the Yellow Emperor from 2697 B.C.), taught her people how to rear silkworms using mulberry leaves (Smith and Stuart, 1973). Mulberry leaf is an antifebrile, and antiphlogistic agent. It is commonly used as a diaphoretic in Cold and Exterior afflictions due to Wind and Heat exopathogens (Dong et al., 1998).

TCM Properties

Sweet and bitter taste, and cold, it acts on the lung and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses Wind-Heat exopathogens and induces diaphoresis: mulberry leaf is used with chrysanthemum, peppermint, forsythia fruit, and platycodon root, as in *Sang Ju Yin,* to treat the early stages of influenza, epidemic febrile disease, bronchitis, headaches, dizziness, coughs, and a swollen and sore throat (Dong et al., 1998; Wang, 1994).
2. Expels pathogenic Heat and relieves coughs: for lung impairment with signs of thick sputum, dryness in the throat and nose, and a dry cough, morus is prescribed with bitter apricot kernel, fritillaria, and ophiopogon root, as in *Sang Xing Tang* (Wang, 1994).
3. Relieves Heat in the liver: for conjunctival congestion with dryness, aches and pain, and excessive tears, morus is blended with chrysanthemum and cassia seed (Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with Cold symptoms or Lung-*Qi* deficiency should avoid this herb or use with caution.

Side Effects and Toxicity

The suggested therapeutic dose does not cause side effects. Some patients may develop chills, fever, and dizziness at a large dose. Intraperitoneal administration of the 10 percent injection solution to mice, at a dose sixty times that of the human dose for twenty-one days did not cause damage to the liver, kidneys, and lungs. A higher dose caused degeneration and hemorrhaging in these organs (Wang, 1983; Zhu, 1998).

Modern Research Findings

Chemical Constituents

The leaf yields adenine, choline, folic acid, and inokosterone (Ling, 1995), and the steroids ecdysterone, inokosterone, lupeol, beta-sitosterol, campesterol, and beta-sitosterolglycoside. The flavon derivatives include rutin, moracetin, quercetin, isoquercitin, scopoletin, and scopolin (Ling, 1995; Tang and Eisenbrand, 1992; Zhu, 1998).

The volatile oil contains isobutanol, isoamyl alcohol, isoamy acetate, and acetophenone, along with acetic acid, propionic acid, butyric acid, phenols, and phenylacetaldehyde (Tang and Eisenbrand, 1992).

Other ingredients include vitamins B_1, B_2, sugars, tannins, protein, and amino acids (Dong et al., 1998; Jiang Su New Medical College, 1977).

Pharmacological Findings

1. Hypoglycemic. The mulberry leaf and ecdysterone showed hypoglycemic activity in rats with alloxan-induced diabetes and in mice with hyperglycemia elicited by epinephrine, glucagon, or insulin antiserum. Ecdysterone promoted glycogenesis from glucose without altering the blood glucose levels in normal animals (Wang, 1983; Zhu, 1998).
2. Hypotensive and diuretic. Morus leaf extract injected into anesthetized dogs demonstrated hypotensive and diuretic actions (Dong et al., 1998).

3. Antimicrobial. The decoction of the morus leaf has been shown to be inhibitory against *S. aureus, beta-Streptococcus hemolyticus, Corynebacterium diphtheriae,* and *B. anthracis* (Dong et al., 1998; Zhu, 1998).
4. The morus leaf decoction inhibited rodent intestinal muscles and stimulated the uterus (Dong et al., 1998).
5. Prevents hyperlipidemia and lowers blood cholesterol levels (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica)]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Tang, W. and Eisenbrand, G. (1992). *Chinese Drugs of Plant Origin: Chemistry, Pharmacology and Use in Chinese Traditional and Modern Medicine*. Berlin/Heidelberg: Springer-Verlag.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CHRYSANTHEMUM

Flos Chrysanthemi
Ju hua

This herb is the dried flower head of *Chrysanthemum morifolium* Ramat. of the family Compositae. It is grown chiefly in the provinces of Anhui, Henan, Sichunan, and Zhejiang of China, where it is collected when the flower is in full bloom and then dried. Chrysanthemum is generally divided into two types (white and yellow) but there is a third variety—the wild chrysanthemum (see Chapter 14) (Jiang Su New Medical College, 1977).

Traditionally, the flowers were prescribed for colds, headaches, and inflamed eyes. The white variety is considered to be especially useful for preventing hair loss and greying. The white flowers are soaked in wine, producing a "chrysanthemum wine," which is good for nervous conditions (Smith and Stuart, 1973).

The yellow chrysanthemum is usually used for expelling pathogenic Wind-Heat. The white species is prescribed for calming the liver (sedation) and improving eyesight, and the wild chrysanthemum is mostly dispensed to treat febrile diseases (Dong et al., 1998; Wang, 1994).

TCM Properties

Sweet and bitter taste, and cool, it acts on the lung and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses Wind-Heat exopathogens and induces sweating: for treating Wind-Heat and epidemic febrile disease at its early stages, chrysanthemum is blended with mulberry leaf, peppermint, and forsythia fruit *(lian qiao),* as in *Sang Ju Yin* (Dong et al., 1998).
2. Reduces hyperactivity of liver yang: for headache, hypertension, dizziness, and a feeling of fullness in the heart due to hyperactivity of the liver yang, it is prescribed with antelope's horn, gambir stem *(gou teng),* and dried rehmannia root, as in *Ling Jiao Gou Teng Tang;* or it is combined with prepared rehmannia, lycium fruit, schisandra fruit, and other herbs, as in *Qi Ju Di Huang Wan* (R-25), to treat blurred vision caused by kidney yin or liver yin deficiency (Wang, 1994).

3. Extinguishes Liver-Fire: chrysanthemum flower is mixed with mulberry leaf, cicada slough *(chan yi),* and prunella spike *(xia ku cao)* for conjunctival congestion accompanied by swelling (Wang, 1994).
4. Relieves coronary heart disease and angina. The aqueous decoction or concentrated extract of chrysanthemum relieved symptoms related to coronary heart disease, dizziness, shortness of breath, chest pain, and angina. It is also hypotensive in hypertensive patients (Dong et al., 1998).

Dosage

In a decoction or pills of 6 to 15 g, or as needed for external use.

Precautions

People with diarrhea, gastrointestinal problems or *Qi* deficiency should avoid chrysanthemum. Long-term use or a high dosage may lead to digestive system disorders (Wang, 1994).

Side Effects and Toxicity

The flower has a very low toxicity at the suggested therapeutic dose. With a large dose, patients complained of epigastralgia or diarrhea. In an acute toxicity test, most animals survived after an oral dose of 100 g/kg of the decoction and no mice died at the same dosage of the fluid extract (Wang, 1983).

Modern Research Findings

Chemical Constituents

The flower contains about 0.13 percent of essential oil. The oil's main ingredients are borneol, camphor, and chrysanthenone, (Ozawa et al., 1971; Zhu, 1998). Chrysantamins A and B, chlorochrymorin, chrysandiol (Arisawa et al., 1969; Ozawa et al., 1971; Ozawa, Suzuki, and Tamura, 1974; Ozawa et al., 1973, 1974), flavonglycosides acacii, uteolin 7-0-beta-d-glucopyranoside, and the alkaloid stachydrine were also identified (Zhu, 1998).

Pharmacological Findings

1. Antipyretic. The aqueous decoction injected into the stomach of a rabbit with artificially induced fever was antipyretic and inhibited the CNS (Dong et al., 1998; Zhu, 1998).
2. Antimicrobial. The aqueous extract or decoction of the flower inhibited *S. aureus,* beta-hemolytic streptococcus, *S. bacillus, B. proteus, B. typhosus, B. paratyphosus, P. aeruginosa,* and *V. comma,* and several dermatophytes in vitro (Zhu, 1998).
3. Cardiovascular. An alcoholic extract was shown to dilate markedly the coronary vessels and increase the blood flow in isolated rabbits (Dong et al., 1998; Zhu, 1998).
4. Hypotensive. The flower's extract and glycoside showed blood vessel dilation followed by lower blood pressure (Dong et al., 1998).

REFERENCES

Arisawa, M, Ishiwari, Y., Kakaoki, T., Sekino, S., and Takakuwa, T. (1969). Utilized resources III. Components of *Juncus* genus plants, the leaves of *Aesculus turbinata* and the petals of *Chrysanthemum morifolium. Shoyakugaku Zashi* 23: 49-52.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ozawa, T., Suzuki A., and Tamura, S. (1971). Isolation of chrysartemins A and B as rooting cofactor in *Chrysanthemum morifolium*. *Agricultural and Biological Chemistry* 35: 1966-1972.

Ozawa, T., Suzuki A., and Tamura, S. (1974). Structure of Chrysandiol, a Novel Sesquiterpene diol from *Chrysanthemum morifolium*. *Agricultural and Biological Chemistry*, 38: 685-686

Ozawa, T., Suzuki, A., Tamura, S., Ohashi, Y., and Sasada, Y. (1973). Structure of chlorochrymorin, a novel sesquiterpene lactone from *Chrysanthemum morifolium*. *Tetrahedron Letters:* 5135-5138.

Ozawa, T., Suzuki, A., Tamura, S., Ohashi, Y., and Sasada, Y. (1974). Molecular structure and stereochemistry of chysandiol. Novel sesquiterpene diol from *Chrysanthemum morifolium*. *Tetrahedron Letters:* 1569-1572.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

BUPLEURUM ROOT

Radix Bupleuri
Chai hu

This herb is the dried root of *Bupleurum chinense* DC. or *B. scorzonerifolium* Willd. of the family Umbelliferae. The former is grown in the Gansu, Hebei, and Liaoning provinces; the latter is grown in the provinces of Hubei, Jiangsu, and Sichuan of China. The root is dug up in the spring or autumn, dried, sliced, and used unprocessed, or stir baked with vinegar or wine (Jiang Su New Medical College, 1977).

As a medicine, it is considered to be febrifuge, aperient, a mild laxative, and carminative, and has been used for the treatment of flatulence, indigestion, colds and coughs, muscular pain and cramps, and acute diarrhea (Smith and Stuart, 1973). Today it is used to relieve stagnancy in the liver and is a mediating herb that particularly benefits infectious febrile diseases of the *Shao-yang* meridian (Dong et al., 1998; Wang, 1994).

TCM Properties

Bitter and pungent taste, and slightly cold, it acts on the liver and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Expels Exterior pathogens and reduces Heat: for a feeling of fullness and discomfort in the chest, a bitter taste in the mouth, and dryness in the throat, bupleurum is combined with scute, pinellia, and codonopsis root, as in *Xiao Chai Hu Tang* (R-53) (Wang, 1994).
2. Invigorates Liver-*Qi:* for fullness and oppression in the chest and diaphragm region, with distending pain in the breasts and in the costal regions, caused by stagnation of the Liver-*Qi,* bupleurum root is dispensed with cyperus tubers *(xiang fu),* cnidium rhizome, tangerine peel, bitter orange, Chinese angelica, atractylodes, and white peony, as in *Chai Hu Shu Gan San* (R-50) (Wang, 1994).
3. This herb is blended with Chinese angelica and white peony root, as in *Xiao Yao Wan* (R-41), for irregular menstruation caused by stagnation of the Liver-*Qi*. It relieves prolapse of the anus and rectum, and replenishes *Qi*. To treat proctoptosis, hysteroptosis, gastroptosis, short-

ness of breath, fatigue, and lassitude due to a deficiency and Sinking of *Qi,* bupleurum is blended with ginseng, astragalus root, and cimicifuga, as in *Bu Zhong Yi Qi Tang* (R-9), to reinforce the Middle-*Jiao*. To relieve pain in the costal region, bupleurum is mixed with 9 g each of aurantium fruit, and white peony, and 6 g of licorice root in a decoction (Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with excessive Fire of the liver or deficiency of yin should avoid this herb.

Side Effects and Toxicity

The therapeutic dose generates few side effects. With a large dose, patients have developed mild lassitude, poor appetite, drowsiness, and sedation after taking the granulated form of the herb (Dong et al., 1998). Toxicological studies show that the oral LD_{50} of the powdered herb in mice was 3 g/kg. The LD_{50} values of the saponin fraction of the herb were 4.7 g/kg by oral administration, 1.9 g/kg by subcutaneous administration, and 70 mg/kg by intravenous administration. Another species, *B. longiradiatum,* is highly toxic (about six times more) and should not be used as a substitute for *B. chinense (chai hu)* (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The roots and fruits contain saikosaponins as the main components. Other components include shaikosides, essential oil (bupleurmol, alpha-spinasterol, and stigmasterol), pertoselic acid, petroseloidic acid, linolic acid, angelicin, and kaempferitrin (Ling, 1995; Zhu, 1998).

The root of *B. chinense* D.C. *(bei che hu)* contains the volatile oil bupleurumol, oleic acid, linolenic acid, palmitic acid, stearic acid, lignoceric acid, saponins, and glucose (Jiang Su New Medical College, 1977).

The root of *B. scorzoneraefolium* contains volatile oil, fat, alkaloids, and bupleurumol.

Bupleurumol, an essential oil, is the major active component of the herb. Also, alpha-spinasterol, stigmasterol, 4^{22}-stigmasterol, and adonitol have been

isolated. The aboveground part of the herb yields flavones and saikosaponins (Ling, 1995; Zhu, 1998).

In addition to those previously mentioned, several other bupleurum plants produced in north China and northeast China. One particular variety, called *B. longiradiatum* Turez. is highly toxic and should not be used for medicinal purposes (Zhu, 1998).

Pharmacological Findings

1. Antipyretic. The decoction or the alcoholic extract of the herb was shown to reduce fever in rabbits induced by triple vaccine, yeast, or colibacillis.
2. Analgesic, sedative, antitussive, and anti-inflammatory.
3. Hepatoprotective. The decoction of the herb significantly alleviated liver injury, degeneration, and cirrhosis caused by carbon tetrachloride (CCl_4), and decreased serum glutamic-pyruvic transaminase levels (Shimaoka et al., 1974).
4. Gastrointestinal. The sarkosaponin of the herb showed effectiveness in preventing rat gastric and duodenal ulcer induced by acetic acid, histamine, or by pylorus ligation (Wang, Y. S., 1983).
5. Antimicrobial. The herb's decoction showed effectiveness in inhibiting the growth of *S. hemolyticus, Mycobacterium tuberculosis,* and *Leptospira* (Wang, J. M., 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973), *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, J. M. (1983). *Chinese Herbal Phamacology*. Shanghai: Shanghai Science and Technology Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PUERARIA ROOT
Radix Puerariae
Ge gen

This medicinal herb is the dried root of *Pueraria lobata* (Willd.) Ohwi or *P. thomsonii* Benth of the family Leguminosae. It is a fast-growing, high-climbing and twining, hairy perennial vine, found mostly in the Henan, Hubei, Zhejiang, Xizang, and Qinghai provinces of China. Collected in the spring and autumn, it is sliced, dried, and used unprepared (Dong et al., 1998).

Traditionally, it was used for colds, fevers, influenza, dysentery, insect and serpent bites, and to counteract the effects of croton oil and other poisonous drugs (Smith and Stuart, 1973). Pueraria root, leaves, and flowers are used as antifebrile agents, alcohol- and drug-detoxifying phytomedicines, and for hypertensive headaches, and coronary heart diseases (Wang, 1994).

TCM Properties

Sweet and pungent to taste, and cool, it acts on the spleen and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves fever and induces sweating: to treat headaches, fever, anhidrosis, muscle stiffness, cramps, and excessive pain in the neck and upper back, pueraria root is combined with ephedra, cinnamon twig, and white peony, as in *Ge Gen Tang,* for Wind-Cold-type colds. It is blended with scute, talc, and bupleurum root, as in *Ge Gen Jie Ji Tang* (Wang, 1994).
2. Alleviates excessive thirst and symptoms of diabetes: pueraria root is commonly used alone in a decoction to treat severe thirst in febrile disease or excessive thirst in diabetes. It is also dispensed with ophiopogon root, trichosanthes root, and rehmannia root, as in the antidiabetic recipe, *Yu Quan Wan* (R-12) (Wang, 1994).
3. Dispels pathogenic Damp-Heat: for dysentery, it is often mixed with coptis root and scutellaria root, as in *Ge Gen Qin Lian Tang*.

4. This root has been used to treat migraines, hypertension, coronary heart disease, sudden deafness, shingles, and intestinal dysentery (Dong et al., 1998).

Dosage

In a decoction of 6 to 12 g.

Precautions

People with a Cold sensation in the stomach and who sweat excessively should avoid this herb.

Side Effects and Toxicity

The therapeutic dose produces few side effects. With a large dose, some patients may develop a feeling of stuffiness in the head and stomach. A very low daily oral dose of 50 to 100 g in humans has not produced any adverse effects (Zhu, 1998). The LD_{50} in mice is 1.6 to 2.1 g/kg (IV) for total kudzu flavonoids and 1 g/kg (IV) for puerarin; daidzein 0.8 g/kg (IP) administered to mice produced no toxic symptoms (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The root contains isoflavones daidzein, and 4,7-diglucoside, isoflavon-glycosides, daidzin, puerarin, puerarin-7-xyloside, pueraric glycosides (PG-1 to PG-6), flavonoids, coumarins, allantoin, sterols, 5-methyldantoin, lupenone, arachic acid, and a large amount of starch (Chen and Zhang, 1985; Leung and Foster, 1996; Ling, 1995). Puerarin is the plant's major active component.

Pharmacological Findings

1. The cardiovascular properties of pueraria root extract have been well documented in laboratory animals; the isoflavonoids are the active principles. Effects include:

    - Dilation of coronary and cerebral vessels; increased cerebral blood flow; decreased vascular resistance; decreased oxygen consump-

tion of the myocardium; increased blood oxygen supply; and depressed production of lactic acid (Dong et al., 1998).
- Hypotensiveness and decreased heart rate, which may be due to its adrenergic-receptor blocking action (Dong et al., 1998).
- Inhibition of ADP-induced platelet aggregation and release of 5-hydroxytryptamine (seratonin) from blood platelets induced by thrombin (Dong et al., 1998).

2. Anti-inflammatory and analgesic. The starch content of pueraria root is an irritant. Internally, it relieves intestinal inflammation (Dong et al., 1998).
3. Mildly hypoglycemic in rabbits.
4. Relaxes smooth muscles.
5. Antipyretic against artificially induced fever in rabbits.

Clinical Findings

In a clinical investigation in the United States, both the fresh root and daidzen in doses of 150 mg/kg per day suppressed the free choice of ethanol in Syrian hamsters. Daidzen and daizein may offer therapeutic uses in the prevention and treatment of alcohol abuse (Leung and Foster, 1996). The root, as well as the flower, have been used in China for alcohol detoxification as recorded in *Qian Jin Fang* by Sun Jimiao about 2,000 years ago (Jiang Su New Medical College, 1977).

REFERENCES

Chen, M. H. and Zhang, Y. Z. (1985). Studies on the chemical constituents of *Pueraria lobota. Zhong Yao Tonghao* [Chinese Pharm. Bulletin] 10: 274-276.

Dong, K. S., Wang, X, Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica,* Shanghai: Shanghai Science and Technology Press.

Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

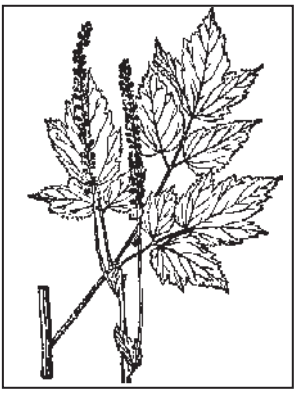
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (2001). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CIMICIFUGA RHIZOME

Rhizoma Cimicifugae
Sheng ma



This herb is the dried rhizome of the large tri-leaf *Cimicifuga heracleifolia* Kom., *C. dahurica* (Turez.) Maxim., or *C. foetida* L. of the family Ranunculaceae. It is mainly grown in the Heilongjiang, Hebei, Shaanxi, Sichuan, Qinghai, Yunnan, and other northern provinces in China. It is collected in autumn, dried in the sun, and used unprocessed (Dong et al., 1998). Traditionally, it was used for miasmatic and infectious disorders, nervous crying of children, skin diseases, and malignant tumors (Smith and Stuart, 1973). Cimicifuga rhizome is an antipyretic agent commonly used to treat fever, sore throat, stomatitis, and measles.

TCM Properties

Slightly sweet and pungent taste, and slightly cool, it acts on the lung, spleen, stomach, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves fever and detoxifies: for sore throats, painful gums and teeth, and stomatitis, cimicifuga is often used in combination with coptis root, scute root, and isatis root, as in *Pu Ji Xiao Du Yin* (Dong et al., 1998).
2. Promotes eruption in the treatment of measles: for the relief of Exterior syndrome and the symptoms of the early stages of measles, this herb is often prescribed with licorice root, pueraria root, and white peony root (Dong et al., 1998).

Dosage

In a decoction of 3 to 6 g.

Precautions

People with hyperactive symptoms, asthenia, or yin deficiency should avoid this herb.

Side Effects and Toxicity

The rhizome often causes vomiting due to gastric irritation. An overdose may cause acratia, vertigo, tremor, headaches, slow pulse, and collapse. A toxic dose results in heart inhibition, hypotension, or death from respiratory paralysis (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The rhizome yields mainly triterpens and triterpene glycosides. Cimigenol, cimigenol 3-0-beta-d-oxytopyranoside, and dahurinol were isolated from *C. dahurica* (Kimura et al., 1983; Ling, 1995; Zhu, 1998). Some phenolic carboxylic acid, including caffeic acid, ferulic acid, and isoferulic acid, other components of visamminol, visnagin, norvisnagin, and yellow pigments were also isolated. The alkaloid cimicfugin was identified in the rhizome *C. fostida*. More recently, cyclolanostanol xylosides, cimicifugosides H-1, H-2, and H-5 were isolated (Kaeda et al., 1995).

Pharmacological Findings

1. Antipyretic: the decoction of the herb is antipyretic. Cimicifugoside is also antipyretic (Wang, 1994).
2. Inhibits cardiovascular system, sedative, and hypotensive. Oral administration of the decoction inhibits the heart by decreasing heart rate and blood pressure (Wang, 1994).
3. Hepatoprotective: the methanol extract of the rhizome and cimigenol 3-beta-d-xylopyranoside was effective in preventing carbon tetrachloride-induced liver disorders in mice (Yamahara et al., 1985).
4. Antimicrobial. The extract of the rhizome inhibited bacteria *M. tuberculosis, S. aureus, S. albus, P. aeruginosa,* and fungi *Achorion schoenleini, Microsporum audouinii,* and *Epidermophyton rubrum* (Zhu, 1998).
5. Analgesic and sedative. The extract of the herb and visamminol showed analgesic activity in mice (Zhu, 1998).
6. Antispasmodic. Inhibitory action was produced by visamminol against intestinal smooth muscle spasms caused by acetycholine chloride, histamine hydrochloride or barium chloride. The spasmolytic activity of visamminol and visnagin in isolated guinea pig jejunum was 30 percent and 10 percent that of papaverine, respectively (Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Kaeda, M., Aoki, Y., Sakurai, N., and Nagai, M. (1995). Studies on the Chinese crude drug shoma IX, three novel cyclolanostanol xyloxides, cimicifugosides H-1, H-2 and H-5, from cimicifuga rhizome. *Pharmaceutical Bulletin* 43: 721-726.

Kimura, O., Sakurai, N., and Inoue, T. (1983). Studies on the Chinese crude drug shoma VII. Isolation and determination of genuine natural products, acetylchengmanol xyloxide 24-O-acetylhydroshengmanol xyloxide and shengmanol xyloxide in *Cimicifuga dahurica* and other cimicifuga plants. *Yakugaku Zasshi* 103: 293-299.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publishers.

Yamahara, J., Kobayashi, M., Kimura, H., Miki, K., Kozuka, M., Sawada, K., et al. (1985). Biologically active principles of crude drugs. The effect of cimicifuga rhizome and its constituents in preventive action of the carbon tetrachloride-induced disorder in mice. *Shoyakugaku Zasshi* 39: 80-84.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

Chapter 10

Herbal Expectorants, Antitussives, and Antiasthmatics: Resolution of Respiratory System Ailments

The most common respiratory system ailments are coughs, colds, and dyspnea and these often occur at the same time and are interrelated. The medicinal herbs discussed in this chapter are used to alleviate coughs, wheezing, dyspnea, bronchial asthma, and other related respiratory disorders (Dong et al., 1998).

Herbs that suppress coughing and wheezing are called antitussives, those that discharge phlegm are called expectorants, and those that relieve asthma are called antiasthmatics. In TCM, these herbs are generally grouped together and are known collectively as herbs that alleviate phlegm, coughs, and asthma (Zhang, 1988).

Phlegm refers to the pathological accumulation of thick fluid in the respiratory and digestive tracts, as well as in muscles and other body tissues. Phlegm in TCM is the substance expectorated from the lungs and this expectoration is a physiological reflex action. Phlegm in the lungs produces a cough and abundant expectorations. TCM also recognizes phlegm in other parts of the body. For example, in the heart it causes unconsciousness and a manic or depressive psychosis. In the stomach it causes nausea, vomiting, and poor digestion. In the upper body, it causes dizziness and nausea. In the meridians, it causes scrofula, goiter, and subcutaneous nodules (Chen and Chen, 1992).

There are two kinds of phlegm: Cold and Heat. Cold phlegm is marked by the expectoration of watery and thin phlegm, profuse phlegm from the lungs, or a cough accompanied with nausea and vomiting when an excessive amount of phlegm accumulates in the stomach. Heat phlegm is marked by the expectoration of yellow, thick phlegm, with or without the symptoms of fever, and a yellow, coated tongue (Dong et al., 1998).

Coughing can be caused by an attack of external (Wind-Cold) pathogens on the lungs or it can be the result of a functional imbalance of the internal organs.

Commonly used antitussive herbs that suppress coughing and wheezing, and lessen excessive phlegm include pinella, fritillaria bulb, loquat leaf, stemona root, rhododendron, brassica, and lily bulb.

Specific expectorants or herbs are used for resolving either Cold phlegm or Heat phlegm.

1. Herbs that are acrid with warming properties relieve Cold phlegm. This group of expectorants includes pinella tuber, arisaema, brassica (white mustard seed), typhonium, inula flower, and polygala root.
2. Herbs that are acrid with cooling properties are commonly used to relieve Heat phlegm. This group of expectorants includes platycodon root, trichosanthes fruit, fritillaria bulb, loquat leaf, laminaria, polygala root, sargassum, peucedanum, and aristolochia.

Table 10.1 lists the symptoms of respiratory system ailments and commonly used herbal expectorants, antitussives, and antiasthmatics. Table 10.2 lists the common and individual actions of the most frequently used herbal expectorants, antitussives, and antiasthmatics.

Herbs that control or relieve asthma (antiasthmatics) include ginkgo biloba seed, perilla leaf, ephedra, bitter apricot kernel, lepidium seed, lemon grass *(Herba cymbopogon distans),* and datura flower *(flos daturae yangjinhua).*

Nine antitussive, expectorant, and antiasthmatic herbs are introduced and further discussed in the following section.

REFERENCES

Chen, Z. L. and Chen, M. I. (1992). *A Comprehensive Guide to Chinese Herbal Medicine*. Long Beach, California: Oriental Health Arts Institute Press.

Dong, K. S., Wang, X. Q. and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

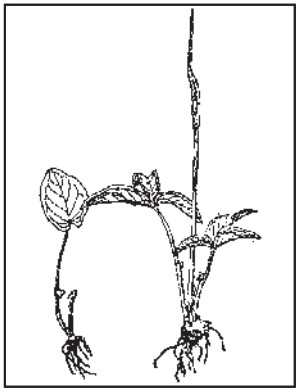
TABLE 10.1. Herbal Expectorants, Antitussives, and Antiasthmatics for Respiratory System Ailments

Etiology	Symptoms	Herbal Remedies
Pathogenic exterior Wind-Cold invasion, phlegm and fluid retention	Cough with abundant watery, thin sputum; adverse upward flow of Lung-*Qi;* profuse phlegm in the respiratory tract; cough accompanied by nausea and vomiting.	Herbs pinella tuber, white mustard seed, inula flower, arisaema, siler, schizonepeta Patent Medicines *Er Chen Tang,* *Qing Qi Hua Tan Wan,* *Mai Men Dong Tang,* *Xiao Qing Long Tang*
Pathogenic exterior Wind-Heat invasion	Cough with thick or yellow phlegm, pathogenic Heat in the lungs, hoarseness, phlegm difficult to expectorate, thirst, sore throat, yellow nasal discharge	Herbs platycodon root, trichosanthes fruit, fritillary bulb, loquat leaf, polygala root, prunella spike, morus, chrysanthemum Patent Medicine *Sang Ju Yin,* *Ji Geng Tang,* *Qing Qi Hua Tan Wan*
Pathogenic profuse phlegm	Cough with white phlegm, a feeling of oppression in the chest	Herbs perilla, pinellia, fritillary bulb, rhododendron, loquat leaf, stemona root, brassica, lily bulb Patent Medicines *Su Zi Jiang Qi Tang,* *Er Chen Tang* *Ban Xia Hou Bo Tang*
Asthma, bronchial asthma, asthmatic bronchitis	Asthmatic dyspnea, shortness of breath, bronchial wheezing, difficulty in lying down	Herbs perilla leaf, perilla seeds, ephedra, bitter apricot kernel, lepidium seed, sargassum, ginkgo biloba seed, lemon grass, datura flower Patent Medicines *Xiao Qing Long Tang,* *Ding Chuan Tang,* *Xiao Ke Chuan,* *Ma Xing Shi Gan Tang*

TABLE 10.2. The Actions of Herbal Expectorants, Antitussives, and Antiasthmatics

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Stemona root *(bai bu)*	3-15	Moistens the lungs, stops cough, treats skin diseases	Antitussive and antiasthmatic effects
Bitter apricot kernel *(ku xing ren)*	3-10	Moistens the intestines, relieves constipation	
Lepidium seed *(ting li zi)*	3-10	Relieves cough and asthma, removes Heat from the lungs, diuretic, relieves fluid retention	
Ginkgo biloba seed *(bai guo)*	3-10	Relieves cough and asthma, resolves Hot phlegm, helps spermatorrhea and leukorrhagia	Antiasthmatic
Rhododendron *(man shan hong)*	3-10 (15-30 fresh herb)	Relieves cough and helps resolve phelgm, bronchitis, and bronchial asthma	
Ephedra *(ma huang)*	1.5-10	Diaphoretic, allays asthma, promotes the flow of Lung-*Qi*	
Pinellia tuber *(ban xia)*	3-9	Eliminates Dampness, resolves lumps and masses, stops nausea and vomiting	Resolves white, thin, Cold phlegm
Arisaema *(tian nan xing)*	5-9	Eliminates Dampness, resolves phlegm, dispels Wind, relieves convulsions	
Sargassum *(hai zao)*	9-15	Relieves scrofula, edema, metastatic abscesses, and testical disorders	Resolves yellow, thick, Heat phlegm
Platycodon root *(jie geng)*	3-10	Ventilates the lungs, promotes pus discharge, subdues carbuncles, antitussive, relieves asthma	
Fritillary bulb *(bei mu)*	3-15	Moistens the lungs, relieves cough and bronchitis	
Trichosanthes fruit *(gua lou)*	10-20	Resolves Hot sputum, promotes the flow of Lung-*Qi,* moistens the bowels	

PINELLIA TUBER
Rhizoma Pinelliae
Ban xia



This herb is the dried stem tuber of *Pinellia ternata (Thunb.)* of the family Araceae. It is grown in most parts of China. The tuber is harvested in summer and autumn, washed clean, and dried in the sun. In common practice, pinellia tuber is pharmaceutically processed with fresh ginger juice and alum. The processed herb is called *Zhi ban xia* (Dong et al., 1998). The processed herb is antifebrile, antitussive, a antiemetic, ecbolic, antimalarial, astringent, and a mild laxative (Smith and Stuart, 1973).

Pinellia tuber is warm and is used to resolve Cold phlegm and it helps expectorate thin phlegm.

TCM Properties

Pungent in taste and warm, and slightly toxic (the fresh herb), it acts on the spleen, stomach, and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Eliminates Dampness and resolves Cold phlegm:
   - For treating profuse phlegm accumulation, coughs, and the adverse upward flow of *Qi* and vertigo due to malfunction of the spleen and Dampness, pinellia tuber is commonly prescribed with tangerine peel and poria, as in *Er Chen Tang* (Wang, 1994).
   - For resolving Cold phlegm, it is customarily used with dry ginger and asarum herb *(xi xin)* (Wang, 1994).
   - For resolving yellow phlegm of Heat nature, fever, and infections of the lungs, scute root and trichosanthes are used (Wang, 1994).
2. Relieves stuffiness and distension in the chest, and resolves masses: for treating globus hystericus, manifested clinically as a feeling of a foreign body remaining in the throat that seems neither able to be swallowed nor spat out, pinellia tuber is used with magnolia bark, poria, ginger, and perilla leaf, as in *Ban Xia Hou Po Tang* (R-37) (Wang, 1994).

3. Eliminates nausea and vomiting during pregnancy: pinellia tuber normalizes the adverse upward movement of Stomach-*Qi*. It is used with amomum fruit and perilla stem to reduce nausea and vomiting during pregnancy (Wang, 1994).

Dosage

In a decoction of 3 to 9 g.

Precautions

People who are yin deficient or with any kind of blood disorder or dry cough should avoid this herb. Long-term use of this herb is not recommended. Do not take the fresh herb. It must be properly processed according to TCM methods.

Side Effects and Toxicity

The crude herb causes severe irritation of the mucous membranes in the mouth, pharynx, and digestive tract, which causes aphasia, salivation, spasms, dyspnea, asphyxia and, with an overdose, even death (Dong et al., 1998; Zhu, 1998).

Modern Research Findings

Chemical Constituents

The tuber contains irritable substances including beta-sitosterol-d-glucoside, 3,4-dihydroxybenzaldehyde, cholin, and homogentisic acid. Other ingredients include glutamic acid, arginines, aspartic acid and alkaloids, essential oil, beta-ephedrine, arginine, and beta-aminobutyric acid (Ling, 1995; Zhu, 1998).

Pharmacological Findings

1. Antitussive. The processed tuber demonstrated a significant antitussive effect against coughs induced by intrapleural injection of iodine or by electrostimulation of the sperior laryngeal nerve (Wang, 1994).

2. Antiemetic effect. The processed pinellia tuber showed antiemetic action against vomiting induced by apomorphine digitalis or copper sulfate. The mechanism may be due to CNS sedation (Maki et al., 1987).
3. Detoxification. The extract of processed pinellia tuber neutralized the toxicity caused by strychnine or acetylcholine (Dong et al., 1998).
4. Analgesic. Increases the pain threshold. It is good for toothaches (Zhu, 1998).
5. Lowers intraocular pressure. The pinellia tuber decoction decreases ocular pressure. It may be helpful in treating glaucoma (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Ling Y. (1995). *A New Compendium of Materia Medica*. Beijing: Science Press.

Maki, T., Takashi, K., and Shibata, S. (1987). An anitemetic principle of *Pinellia ternata. Planta Medica* 53: 410-414.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PLATYCODON ROOT

Radix Platycodi
Jie geng

This herb is the dried root of *Platycodon grandiflorum* (Jacq.) A. DC. of the family Campanulaceae. It is mainly grown in the Anhui, Jiangsu, and Shendong provinces of China, where it is collected in spring and autumn, dried, sliced, and used unprocessed. Platycodon root is an excellent expectorant and antitussive agent (Dong et al., 1998). The root traditionally was used as a tonic, astringent, sedative, stomachic, and anthelmintic medicine. It is also valuable for blood fluxes from the bowels (Smith and Stuart, 1973). Today, it is commonly used for coughs with thick and yellow phlegm, difficulty in expectoration, infection in the respiratory tract, pulmonary abscesses, and inflammation of the throat (Dong et al., 1998).

TCM Properties

Bitter and pungent in taste, and cold or neutral, it acts on the lung meridian.

Effects, Medicinal Uses, and Combinations

1. Promotes the lungs for better ventilation and dispels phlegm:
   - For coughs, pulmonary infection, respiratory tract inflammation, sore throat, bronchial hoarseness, and difficulty in expectoration of sputum, platycodon root is commonly used with mulberry leaves and chrysanthemum flower, as in *Sang Ju Yin*.
   - For the treatment of affliction by Wind-Cold exopathogens marked by thin phlegm, a cough, stuffy nose, and headache, it is used with ephedra, perilla leaf, bitter almond, pinellia rhizome, and poria, as in *Tong Xuan Li Fei Pian* (R-47) (Dong et al., 1998; Wang, 1994).
2. Promotes pus discharge and heals carbuncles: for the treatment of pulmonary abscesses with chest pain, accompanied by purulent expectoration of yellowish, filthy sputum, platycodon root is commonly used with licorice root, fritillary, houttuynia, morus bark, and coix, as in *Jie Geng Tang* (Dong et al., 1998; Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People who are yin deficient, have a long-term cough, or are vomiting blood (hematemesis) with stomach ulcer should avoid platycodon or use with care (Wang, 1994).

Side Effects and Toxicity

The saponine of the root has a hemolytic effect.

Modern Research Findings

Chemical Constituents

The root of platycodon contains a large amount of triterpene saponins including platycodins A, C, D_1, D_2, and D_3 (Zhu, 1998), polygolacic acid, platycogenic acid A, B, and C, platycodonin, betulin, and alpha-spinasterol glucoside (Ling, 1995).

Pharmacological Findings

1. Expectorant and antitussive. Oral administration of 19 kg of a decoction of the root in anesthetized dogs increased respiratory mucosal secretion threefold (Zhu, 1998).
2. Hypoglycemic. Oral administration of 200mg/kg of the acqueous or alcoholic extract of the root to rabbits decreased blood glucose levels. The hypoglycemic effect was similar to that of an oral dose of 25-50 mg/kg of tolbutamide (Wang, 1983).
3. Analgesic, sedative and antipyretic (Wang, 1994).
4. Gastric, antisecretory, and antiulcerative. The saponin of the root inhibited gastric secretion and prevented ulcers in rats (Zhu, 1998).
5. Anti-inflammatory. The saponin fraction of the root inhibited paw edema in rats induced by carrageenin or acetic acid (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publishers.

Zhu, Y. (2001). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

FRITILLARY BULB

Bulbus Fritillariae
Bei mu *or* Chuan bei mu *and* Zhe bei mu

This herb is the dried bulb of *Fritillaria cirrhosa* D. Don, *F. unibracteata* Hsiao et K.C., *F. przewalskii* Maxim., or *F. delavayi* Franch. of the family Liliaceae. It is grown mainly in the provinces of Gansu, Sichuan, Tibet, and Yunnan of China and is usually referred to as *chuan bei mu* (Dong et al., 1998).

Another similar fritillary bulb, *F. thunbergii* of the family Liliaceae, is mainly grown in the Zhejiang province of China and is commonly called *zhe bei mu* (Dong et al., 1998).

Both species are harvested in summer, washed, and dried in the sun. Traditionally, these plants were used for fevers, coughs, dysuria, hemorrhages, deficiency of milk in nursing mothers, threatened mammary abscess, lingering labor, rheumatism, and diseases of the eye. They were regarded as having an especially favorable action on the viscera and the bone marrow (Smith and Stuart, 1973).

Today, *chuan bei mu* is used for long-term coughs and chronic bronchitis, while *zhe bei mu* is mostly used for acute bronchitis and a cough with thick phlegm (Dong et al., 1998).

TCM Properties

Bitter and sweet in taste, and cool, it acts on the lung and heart meridians.

Effects, Medicinal Uses, and Combinations

1. Helps to reduce phlegm and relieves coughs: Sichuan fritillary bulb *(chuan bei mu)* is sweet and cool, and resolves phlegm and moistens the lungs. This facilitates expectoration of sputum and relieves chronic cough with scanty sputum and a dry throat. It is commonly prescribed with ophiopogon root and glehnia in a decoction (Wang, 1994).

   To relieve the symptoms of depression or depressed Liver-*Qi* and abdominal distension, *chuan bei mu* is used alone or with magnolia bark in a decoction. It is also used in a combination with curcuma root, Chinese angelica, and biota seed in a decoction to soothe the liver (Wang, 1994).

Zhejiang fritillary bulb *(zhe bei mu)* is bitter and cold, has much stronger therapeutic properties to relieve Heat from the lungs, and is effective as an expectorant for coughs and colds caused by Wind-Heat exopathogens. *Zhe bei mu* is commonly combined with mulberry leaves and arctium fruit in a decoction (Wang, 1994).

2. Helps in treating scrofula, sores, and abscesses: for these conditions and detoxification, Zhejiang fritillary bulb *(zhe bei mu)* is preferred, combined with scrophularia root, prunella spike, sorgassum, and oyster shell, as in *Xiao Luo Wan* (Wang, 1994).
3. Treats breast carbuncles, acute mastitis, or abscesses of the breast: Zhejiang fritillary bulb is used with dandelion, trichosanthes root, red peony, and forsythia fruit with good results (Wang, 1994).
4. For treating lung abscesses: Zhejiang fritillary bulb is mixed with houttuynia and coix seed in a decoction (Dong et al., 1998).
5. For treating prostate gland enlargement, *chuan bei mu* is dispensed with 25 g each of sophora root *(Sophora flavescens),* and codonopsis in a decoction (Dong et al., 1998).

Dosage

In a decoction of 3 to 10 g.

Precautions

People who are lung-yin deficient should avoid this herb. Do not mix with aconite root.

Side Effects and Toxicity

Both plants are rather safe at recommended doses. The alkaloidal ingredients are potent. The MLD value of fritimine by IV administration was 40 mg/kg in mice and 12 to 15 mg/kg in rats for *chuan bei mu;* MLD was 10 to 12 mg/kg in rabbits and 8 to 10 mg/kg in cats for *zhe bei mu* (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The bulb of the fritillary species contains steroidal alkaloids as active constituents. *Chuan bei mu* contains eight steroidal alkaloids: songbeinone, songbeinine, delavine, delavinone, harepeimine, chuanbeinone, isoverticin,

and imperialine were isolated (Zhou, 1993). *Zhe bei mu* bulb contains steroidal alkaloids with a cevane skeleton, mainly peimine, peiminine, peimidine, peimiphine, peimisine, peimitidine, peiminoside, and propeimin (Ling, 1995).

Pharmacological Findings

Chuan Bei Mu

1. Antitussive and expectorant.
2. The alkaloids lowered blood pressure at higher doses (Zhu, 1998).
3. Antispasmodic for intestinal smooth muscles (Wang, 1994).
4. Antimicrobial (Wang, 1994).

Zhe Bei Mu

1. Antitussive and sedative.
2. This herb is a bronchodilator and inhibits mucosal and salivary secretion (Zhu, 1998).
3. Lowers blood pressure (Wang, 1994).
4. Hyperglycemic (Wang, 1994).
5. Promotes uterine contraction in rabbits. The uterine contraction effect of 0.5 mg of peimine was comparable to one unit of pituitrin or 0.04 mg of ergostetrine.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publishers.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica.* Beijing: China Medical and Pharmaceutical Science Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

BITTER APRICOT KERNEL

Semen Armeniacae amarum
Ku xing ren

This herb is the dried kernel of *Prunus armeniaca* L., *P. sibirica* L., or *P. mandshurica* (Maxim.) Koehne of the family Rosaceae. The plant is cultivated mainly in the Hebei, Shaanxi, Shandong, and Shanxi provinces of China, as well as Inner Mongolia, where it is collected in summer, dried, and used unprocessed. Bitter apricot kernel relieves coughs and asthma, treats acute or chronic bronchitis, and relieves constipation (Dong et al., 1998).

TCM Properties

Bitter in taste and slightly warm, and slightly toxic, it acts on the lung and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves coughs and asthma: for coughs without sputum or coughs with thin phlegm, and dyspnea, bitter apricot kernel is prescribed with mulberry leaf and chrysanthemum, as in *Sang Ju Yin,* or it is combined with licorice root and ephedra (Wang, 1994).
2. Helps to moisten the intestines and relieves constipation: for dryness of the intestines with constipation and for better bowel movements, this herb is used with hemp seed and peach kernel, as in *Run Chang Wan* (Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with yin deficiency, long-term coughing, or diarrhea should avoid this herb or use with caution. The very small amount of hydrocyanic acid and aldehyde after hydrolysis of the seed is toxic to the respiratory system.

Side Effects and Toxicity

An oral overdose can cause intoxication, especially in children. Toxicity symptoms usually appear between 0.5 and five hours after ingestion. These include dizziness, nausea, and vomiting. Amygdalin has a very low toxicity when administered orally. The LD_{50} values were 25 g/kg in mice and rats (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Bitter apricot kernel contains amygdalin, emulsin, and several enzymes including amygdalase, prunase, alpha-L-fucosidase, and amadase. It also contains apricot oils, cholesterol, protein, and amino acids (Zhu, 1998).

Pharmacological Findings

1. Antitussive and antiasthmatic. The antitussive effect of amygdalin was observed in animals (Dong et al., 1998; Wang, 1994).
2. Laxative. The fat of the seed can lubricate and produce a laxative effect (Wang, 1994).
3. Analgesic. Subcutaneous administration of amygdalin produced an analgesic effect in mice (Zhu, 1998).

Clinical Findings

1. Intravenous administration of amygdalin acted as a pain reliever in patients with advanced liver cancer (Xue, 1984).
2. The addition of an oral dose of the seed in the treatment regimen of two cases of cloramphenicol-induced aplastic anemia markedly increased the therapeutic effect. It is assumed that the hydrocyanic acid content contributes to tissue anoxia, thereby stimulating the kidneys, and promotes hematopoiesis (Zhu, 1998).
3. The aqueous decoction of bitter apricot kernel has an antitumor effect and the oil of bitter apricot kernel is anthelmintic and antimicrobial.
4. Bitter apricot seed oil has been demonstrated to be anthelmintic toward ascariasis, enterobiasis, and ancylostomiasis (Wang, 1994).

The very small amount of hydracyanic acid and aldehyde remaining after hydrolysis of the apricot kernel is toxic to the respiratory system, particularly for children.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* (*Contemporary Clinical Chinese Materia Medica)*. Beijing: Zhong Guo Zhong Yi Yao Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Xue, W. C. (1984). Pain relieving effect of amygdalin in advanced cancer patient. *Tumor (Shanghai)* 4: 273-274.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

TRICHOSANTHES FRUIT

Fructus Trichosanthis
Gua lou shi

This herb is the dried ripe fruit of Mongolian snake gourd, *Trichosanthes kirilowii* Maxim., *T. japonica* Regel (Japanese snake gourd), or *T. rosthornii* Harms of the family Cucurbitaceae. It grows throughout China, mostly in the provinces of Hebei, Shaanxi, Shandong, and Shanxi, where it is harvested in autumn and the whole fruit is dried in the shade. The dried fruit *(gua lou shi or gua wei),* peel *(gua lou pi),* and seed *(gua lou ren)* have similar uses. The dried root *(gua lou gen),* also known as *tian hua fen,* has additional medicinal uses (Jiang Su New Medical College, 1977).

Traditionally, both the fruit and seeds are regarded as nutritious, antitussive, thirst relieving, tonic, and astringent in fluxes. They are also administered for jaundice, suppression of urine, relaxation of the mucous membranes, retained placenta, agalactia, and syphilitic ulcers (Smith and Stuart, 1973). The root is cooling and is recommended for polyurea, diabetes, and abscesses (Smith and Stuart, 1973).

Today, trichosanthes fruit and root are prescribed to resolve sputum, relieve thirst, clear away Heat, moisten the lungs, relieve constipation, and lower blood lipid levels.

TCM Properties

Bitter and slightly sweet in taste, and cold, it acts on the lung and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Helps moisten the lungs, dispel phlegm, and relieve coughs: for a cough with thick sputum caused by pathogenic Heat in the Lungs, trichosanthes fruit is often used in combination with fritillary, ophiopogon, and morus bark. Trichosanthes fruit is used with scute root, poria, bitter apricot kernel, tangerine peel, pinellia tuber, and arisaema *(tian nan xing),* as in *Qing Qi Hua Tan Wan,* for coughs with yellow, thick phlegm and fullness in the chest (Dong et al., 1998; Wang, 1994).

2. Helps diabetes and promotes production of body fluids: for the treatment of *Qi* and yin deficiency, thirst and symptoms of diabetes, trichosanthes fruit is used along with astragalus, pueraria, schisandra fruit, and anemarrhena in a decoction, as in *Yu Ye Tang* (Zhang, 1988).
3. Treats carbuncles of the breast: for burning pain due to an abscess of the breast or acute mastitis, the herb is blended with dandelion, lonicera flower, myrrh, and mastic in a decoction (Wang, 1994).
4. Relieves chest pain and coronary heart conditions: for chest pain and angina pectoris due to obstruction of Lung-*Qi,* trichosanthes fruit is prescribed with macrostem onion, pinellia tuber, and white wine, as in *Gua Lou Xie Bai Ban Xia Tang* (Wang, 1994).

Dosage

In a decoction of 10 to 20 g of the fruit or 6 to 15 g of the root.

Precautions

People with spleen deficiency, cough with Cold phlegm, with no symptoms of Heat, or with diarrhea should use this herb with caution. Trichosanthes root should not be used with aconite or prepared aconite.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica. An overdose of the seeds may cause gastric discomfort, nausea, vomiting, abdominal pain, and diarrhea. The LD_{50} values of the injection solution of the peel were 363 ± 33 g/kg by intraperitoneal administration and 306 ± 22 g/kg by intravenous administration in mice (Ling, 1995; Wang, 1983).

Modern Research Findings

Chemical Constituents

Trichosanthes fruit contains triterpenes, organic acids, resins, saccharides, pigments, and saponins (Wang, 1983). The root contains gamma-aminobutyric acid, cistrulline, arginine, glutamic acid, aspartic acid, serine, glycine, threonine, and alanine. The seed contains fatty oil and sterols (Ling, 1995).

Pharmacological Findings

The aqueous extract of trichosanthes fruit is an antitussive, expectorant, and laxative, and lowers blood sugar and blood lipids. An aqueous extract of trichosanthes root raised the serum glucose level in rabbits while the alcoholic extractions did not have any effect on serum glucose levels. The protein content of trichosanthes root induces abortion and is used in incomplete abortions. The decoction of the herb is antimicrobial (Dong et al., 1998). The decoction of the fruit peel produced an optimal expectorant effect in animals (Zhu, 1998). The complex formula of the trichosanthes fruit, *Yu Ye Tang,* lowered blood sugar levels in mice (Bai and Xiao, 1994).

REFERENCES

Bai, G. and Xiao, H. B. (Eds.) (1994). *Zhong Yao Fang Ji Yan Jiu Yu Yingyung Da Quan* [Encyclopedia of Chinese Medicine Formulas, Studies and Applications]. Beijing: China Science and Technology Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publishers.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

STEMONA ROOT

Radix Stemonae
Bai bu

This herb is the dried root of *Stemona sessilifolia* (Miq.), *S. japonica* Miq., or S. *tuberosa* Lour. of the family Stemonaceae. It is mainly grown in the Anhui, Hubei, Jiangsu, Shandong, and Zheziang provinces of China, where it is collected in the autumn. The rootlets are removed, sliced, and dried, and the result is known as dried stemona root. If the root is briefly steamed, dried, and sliced, it is called processed stemona root (Jiang Su New Medical College, 1977). The plant is related to *A. lucidus* and is sometimes called wild asparagus.

Traditionally, stemona root was used as a carminative, anthelmintic, and as an insecticide (Smith and Stuart, 1973). Today, stemona root is used to relieve coughs due to acute or chronic bronchitis, bronchial asthma, and used externally as an anthelmintic and as an insecticide for enterobiasis and lice (Dong et al., 1998).

For external application, the decoction is used as an enema or applied on the affected area of the skin in a paste form with wine (Wang, 1994).

TCM Properties

Bitter in taste, slightly warm, and slightly toxic, it acts on the lung meridian.

Effects, Medicinal Uses, and Combinations

1. Helps relieve coughs from acute or chronic bronchitis with dyspnea: stemona root is combined with platycodon, schizonepeta, and tangerine peel, or with ephedra and apricot kernel, as in *Bai Bu Wan* (Wang, 1994).
2. Relieves chronic cough, whooping cough, tuberculosis, dry cough: stemona root is used with ophiopogon, fritillary bulb *(chuan bei mu),* dried rehmannia, and notoginseng (Wang, 1994).
3. Used or applied externally as an anthelmintic agent for dermatological problems: for the skin diseases of neurodermatitis, chronic eczema, and psoriasis, the aqueous or alcoholic extract of stemona root can be an effective anthelmintic for commonly encountered skin diseases. Ointment herbal recipes, such as *Bai Bu Gao,* can also be used (Wang, 1994).

Dosage

In a decoction of 3 to 15 g.

Precautions

People with asthenia, and those with deficiency of the spleen and stomach with diarrhea should avoid this herb or use with caution.

Side Effects and Toxicity

Avoid an overdose because of the slightly toxic effect of the herb. Oral administration of this herbal decoction in large amounts or an overdose causes heartburn, dryness of the mouth, nose, and pharynx, dizziness, chest discomfort, shortness of breath, anorexia (Wang, 1983), and paralysis of the respiratory center (Wang, 1994).

Modern Research Findings

Chemical Constituents

The root of the herb contains biologically active alkaloids. The root of *S. sessilifolia* contains tuberostemonine and oxotuberostemonine (Edwards and Feniak, 1962; Edwards et al., 1962). From the root of *S. japonica,* protostemonine, stemonamine, and isostemonamine were isolated (Irie et al., 1973). Also, tuberostemonine, stenine, oxotuberostemonine, stemonine, stemotinine, and isostemotinine were isolated from *S. tuberosa* (Uyco et al., 1967; Xu et al., 1982).

Pharmacological Findings

1. Antitussive and expectorative. The stemona extract or alkaloid can reduce the excitation action on the respiratory center of an animal and inhibit the cough reflex. It can relax the trachea spasms caused by histamin (Dong et al., 1998).
2. Insecticide. The aqueous and the 70 percent alcoholic extract of the herb were lethal to *Pediculus capitis* and *P. vestimenti*. It was also able to kill lice ova. The alcoholic extract killed *Pediculus pubis* in a few minutes after contact (Dong et al., 1998; Wang, 1983).

3. Antimicrobial, antiviral, and antifungal. The herb's decoction was inhibitory against multiple species of bacteria and fungi, and effective in mice infected with the influenza virus (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Edwards, O. E. and Feniak, G. (1962). The structure of tuberostemonine. *Canadian Journal of Chemistry* 40: 2416-2418.

Edwards, O. E., Feniak, G., and Hanka, K. L. (1962). The alkaloids of *Stemona sessifolia*. *Canadian Journal of Chemistry* 40: 455-462.

Irie, H., Ohno, K., Osaki, K., Taga, T., and Uyco, S. (1973). X-ray crystallographic determination of the structure of the alkaloid prostostemonine. *Chemical and Pharmaceutical Bulletin* 21: 451-452.

Jiang Su New Medical College (1977), *Encyclopedia of Chinese Materia Medica* Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Uyco, S., Irie, H., and Harada, H. (1967). The structure of stenine, a new alkaloid occurring in *Stemona tuberosa*. *Chemical and Pharmaceutical Journal* 15: 768-770.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Xu, R. S., Lu, Y. J., Chu, J. H., Iwashita, T., Naoki, H., Naya, Y., et al. (1982). Studies on some new *Stemona* alkaloids. *Tertrahedron* 38: 2667-2670.

SARGASSUM OR SEAWEED

Herba Sargassum
Hai zao

This herb is the dried seaweed of *Sargassum pallidum* (Turn.) C. Ag., or *S. fusiforme* (Harv.) Setch. of the family Sargassaceae. It is harvested along the coast of the Zheziang, Fujian, Shandong, and Liaoning provinces of China, where it is gathered in summer, washed clean, cut into sections, and dried in the sun (Jiang Su New Medical College, 1977).

Seaweed was used to treat goiters, dropsies of all kinds, menstrual disorders, and difficult labors (Smith and Stuart, 1973).

This herb is used as an expectorant for chronic bronchitis, hypertension, and, more frequently, for edema, goiter, and tuberculosis of lymph nodes (Wang, 1994).

TCM Properties

Bitter and salty in taste, and cool, it acts on the liver, stomach, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Resolves phlegm: sargassum is used as an expectorant for chronic bronchitis but is used more frequently for goiter, tuberculosis of the lymph nodes, hyperlipidemia, and hypertension (Dong et al., 1998; Wang, 1994).
2. To relieve testicle swelling and pain: sargassum is blended with citrus seeds, peach kernel, and melia, as in *Ju He Wan* (Wang, 1994).
3. Diuresis: for dysuria, edema, and swollen feet, sargassum is combined with poria, alisma, and polyporus in a decoction (Wang, 1994).

Dosage

In a decoction of 9 to 15 g.

Precautions

People with symptoms of Cold and Dampness caused by spleen and stomach asthenia should not use this herb. Do not combine with licorice root (Wang, 1994).

Side Effects and Toxicity

No side effects or toxicity were noted by the in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Sargassum contains alginic acid, mannitol, sargassan, leminine, mucilages, glucose, protein, potassium, and iodine (Jiang Su New Medical College, 1977; Ling, 1995).

Pharmacological Findings

1. Antigoiter. The iodine content of sargassum can treat hypothyroidism caused by iodine deficiency and goiter (Jiang Su New Medical College, 1977).
2. Its hemostatic and anticoagulant effects are similar to hirudin and heparin (Wang, 1994).
3. Lowers blood cholesterol. Studies of the herb showed a decrease in lipemia and atherosclerosis (Wang, 1994).
4. Antispastic. Inhibits the growth of the larvae and adult form of schistosoma. Has a therapeutic effect on the pathological changes of the liver tissues damaged by schistosomiasis (Dong et al., 1998).
5. Antihypertensive (Dong et al., 1998).
6. Commercially prepared products containing seaweed are useful for weight control (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.
Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

LEPIDIUM SEED

Semen Lepidii seu Descurainiae
Ting li zi

This herb is the dried ripe seed of *Lepidium apetalum* Willd., or *Descurainia sophia* (L.) of the family Cruciferae. The former is called northern lepidium seed and is mostly produced in the Hebei and Liaoning provinces of China. The latter, called southern lepidium seed, is produced mainly in the Jiangsu and Shandong provinces. A third variety, *Lepidium virginicum* is found in North America. The dried seeds can be used without further processing or slightly stir baked before use (Jiang Su New Medical College, 1977). Traditionally, the seeds were used as a demulcent, laxative, and aperient drug (Smith and Stuart, 1973). In modern times, the seeds are used for coughs, asthma with excessive phlegm, as a diuretic for chest and abdominal fluid accumulation, and as a cardiotonic (Wang, 1994).

TCM Properties

Pungent and bitter in taste, and very cold, it acts on the lungs and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves asthma and eliminates sputum: for fullness in the lungs, chest discomfort, cough with dyspnea and profuse sputum, asthma, the inability to lie flat, and generalized edema, lepidium seed is either prescribed with Chinese dates or with perilla seed, pinellia, cynanchum, and apricot kernel (Wang, 1994).
2. Promotes diuresis and reduces edema. This herb is usually used with stephania root and rhubarb rhizome for treating the disorders of pleural effusion, ascites, edema, scanty urination, water retention in the abdomen, fullness in the abdomen, and dry mouth and tongue. It is also blended with bitter apricot kernel, mirabilite, and rhubarb rhizome for pleural effusion and oliguria (Wang, 1994).
3. Treats pulmonary heart disease, cardiac failure, edema, and dyspnea. Lepidium seed is combined with ginseng, ephedra, bitter apricot, mulberry bark, and other herbs in a decoction, or 30 to 50 g lepidium

seed, 10 to 15 g salvia, and 10 to 15 g immature orange in a decoction for good results (Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with cough and asthma due to asthenia of the lung or abdominal fullness caused by asthenia of the spleen should avoid this herb. Do not take this herb for a long period (Wang, 1994).

Side Effects and Toxicity

The therapeutic dose is safe. Side effects or toxicity were not noted in classical Chinese materia medica. Reports show that some patients have experienced an allergic shock reaction after oral administration of this herb (Wang, 1994).

Modern Research Findings

Chemical Constituents

Lepidium seed contains volatile oils (benzyl isothiocyanate, allyl isothiocyanate, and allyl disulfide), glucosides, linolic acid, linoleic acid, stearic acid, oleic acid, erucic acid, palmitic acid, sugars, protein substances, and helveticoside (Jiang Su New Medical College, 1977).

Pharmacological Findings

A small dose of lepidium seed has been demonstrated to be cardiotonic, contract heart muscles, and reduce the heart rate in various animals (Wang, 1994). A large dose causes tachycardia and ventricular vibration (Wang, 1994). It is a positive cardiotonic glycoside effect that increases cardiac output and reduces venous pressure in subjects with weak hearts (Dong et al., 1998). This herb has also been shown to be diuretic and antiasthmatic (Dong et al., 1998).

REFERENCE

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

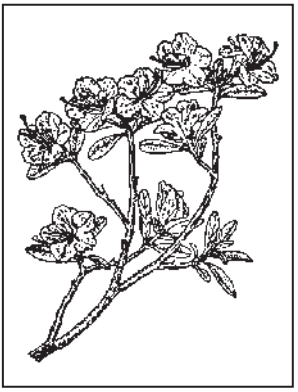
Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica.* Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

RHODODENDRON

Folium Rhododendri daurici
Man shan hong



This herb is the dried leaves and flowers of *Rhododendron dauricum* L. of the family Ericaceae. It is widely grown in the Jilin and Heilongjiang provinces, and Inner Mongolia of China, where it is harvested in summer and dried in the sun (Dong et al., 1998).

There are many rhododendrons found in China. The flowers were used as a sedative, for rheumatism, neuralgias, contractions, and bronchitis. (Smith and Stuart, 1973). The herb is used as an antitussive and expectorant for chronic bronchitis and relieves asthma (Jiang Su New Medical College, 1977).

TCM Properties

Acrid, bitter in taste, and slightly cold, it acts on the lung and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Helps to relieve coughs and bronchitis: the herb is used as an effective antitussive and as an expectorant for chronic bronchitis (Dong et al., 1998).
2. Relieves asthma and is also useful for treating acute and chronic bronchial asthma in a decoction (Dong et al., 1998).

Dosage

In a decoction of 3 to 10 g, or 15 to 30 g if fresh rhododendron is used.

Precautions

People with a history of liver and heart ailments should not use this herb or use with caution, and avoid long-term use.

Side Effects and Toxicity

The Chinese materia medica reports that this plant is slightly toxic and it may cause symptoms of nausea, vomiting, dizziness, angina, sweating, and asthenia. After removing the volatile oil constituent, the plant does not cause these side effects. Long-term use or an overdose may cause liver damage (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

The leaves of the plant *R. dauricum* contain 0.3 to 0.5 percent of volatile oil. The chief ingredients responsible for antitussive and expectorant actions are hyperoside and isobyperin. From the leaf, active ingredients of hyperin, avicularin, azaleatin, and poriol have been identified. Seven other flavone compounds (kaempferol, quercetin, myricetin, ferrerol, periol, hyperoside, and isohyperoside) were isolated. Germaerone, juniper camphor, menthol, alpha-eudesmol, beta-eudesmol, and gamma-eudesmol have been isolated from the oil portion (Song et al., 1995).

Pharmacological Findings

1. A rhododendron decoction demonstrated noticeable antitussive action. The chief ingredient for the action is the flavone compound ferrerol. The antitussive properties of 160 mg of ferrerol were equivalent to 60 mg codeine in animal tests (Dong et al., 1998).
2. Expectorant action: the 1:1 rhododendron aqueous extract was given to rabbits and was a noticeable expectorant (Dong et al., 1998).
3. Other effects: rhododendron is also antiasthmatic, cardiotonic, hypotensive, and antimicrobial.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Song, Z. (1995). *Zhong Cao Yao Xian Dai Yan Jio* [Modern Studies on Chinese Medicinal Herbs]. Beijing: Beijing Medical University and Union Medical University Joint Publication Press.

Chapter 11

Herbal Pain Killers: Relief of Lingering Arthritic Pain and Rheumatism

The medicinal herbs covered in this chapter are used to dispel Wind, Cold, and Damp pathogens from the body, invigorate the circulation of *Qi* and blood, and relieve inflammation and pain. In TCM, these herbs are commonly referred to as antirheumatics. Antirheumatic herbs possess noticeable and effective antirheumatic, anti-inflammatory, blood-activating, and analgesic actions (Dong et al., 1998).

Rheumatism is a general term for acute and chronic conditions characterized by inflammation, soreness, stiffness of muscles, and pain in joints, tendons, bones, fibrous tissues, and associated structures.

In Western medicine, rheumatism includes arthritis, rheumatoid arthritis, osteoarthritis, gout, myositis, fibrositis, fibromyositis, rheumatic sciatica, and many other painful, inflammatory conditions of the joints and muscles. Rheumatism is a complicated, rather difficult, and debilitating chronic ailment. Conventional medicine uses steroid and nonsteroid anti-inflammatory medicines and pain killers to treat joint inflammation and pain but the outcome is often not satisfactory (Berkow, 1997).

In TCM, rheumatism is called *Bi* syndrome. *Bi* means blockages or obstructions of the circulation of *Qi* and blood, caused by the invasion of the meridians (channels and collaterals) and the body with pathogenic Wind, Cold, or Dampness, or a combination of these pathogenic factors.

There are four types of *Bi* syndromes, namely Wandering-*Bi,* Painful-*Bi,* Fixed-*Bi,* and Febrile-*Bi.* The *Bi* syndromes induced by different pathogenic factors lead to different clinical symptoms. For example, Wandering-*Bi,* in which pathogenic Wind predominates, presents as stiffness and widespread pain, with the pain moving from one part of the body to another. Painful-*Bi,* in which pathogenic Cold predominates, presents as severe pain and cold limbs, with worse pain when the patient is in cold weather, and di-

minished pain when the patient is warm. Fixed-*Bi,* in which pathogenic Damp predominates, is characterized by fixed and localized pain, numbness of limbs, and swollen joints. Febrile-*Bi,* in which pathogenic Wind-Cold-Damp may all be involved, presents with symptoms of redness, tenderness, swelling, a feeling of heat or burning, and severe pain in the joints. Western medicine calls this condition rheumatic fever (Dong et al., 1998). This condition, if not entirely controlled, may affect the heart and the brain.

Effective management of *Bi* syndromes in TCM aims to dispel Wind, remove Dampness, warm the meridians, strengthen the kidney and liver, and invigorate the circulation of *Qi* and blood. This is accomplished by proper initial diagnosis and differentiation of the *Bi* symptoms, and choosing proper herbs to correct the problems.

Antirheumatic herbs have distinct characteristics. For example, some antirheumatic herbs are more effective in relieving pain, while others are more effective for spasms, numbness, and hypoesthesia, or more effective in reducing swelling (Dong et al., 1998; Zhang, 1988). For example, when treating Wandering-*Bi* syndrome, cynanchum root and climatis root are effective. For Painful-*Bi,* notopterygium root and loranthuis are effective. For Fixed-*Bi,* stephania, chaenomeles, siegesbechia, lycopodium, notopterygium, and Chinese star jasmine are preferred. For Febrile-*Bi,* stephania, notopterygium, and Chinese star jasmine are effective (Dong et al., 1998).

In terms of modern medicine, these antirheumatic herbs have anti-inflammatory, analgesic, antipyretic, diuretic, and detoxification actions. Complementary therapies for treating rheumatic fever, rheumatoid arthritis, and osteoarthritis are acupuncture, acupressure manipulation, moxibustion therapy, appropriate diet, and proper exercise. This comprehensive arthritis management is usually more effective than only phytomedicinal therapy (Chen and Li, 1993).

Table 11.1 lists the *Bi* syndromes and the commonly prescribed herbal antirheumatic phytomedicines. Table 11.2 shows the common and individual characteristic actions of the most frequently used herbal antirheumatics.

Herbal antirheumatics include pubescent angelica root, notopterygium root, clematis root, stephania, large-leaf gentian root, cynanchum root, Chinese star jasmine, chaenomeles, lycopodium (buck grass), siegesbeckia, acanthopanax bark, loranthus, and atractylodes.

In the following section, twelve antirheumatic herbs are introduced and further discussed.

TABLE 11.1. The *Bi* Syndromes and Herbal Antirheumatics

Etiology	Symptoms	Herbal Remedies
I. Wandering-*Bi* (migratory arthralgia)	Migratory pain of joints and extremities, stiffness with chills and fever, thin- and sticky-coated tongue, superficial and rapid pulse	Herbs clematis root, notopterygium root, cynanchium root, gastrodia, siler, asarum, prepared aconite, coix, loranthus, pubescent angelica root, lycopodium, acanthopanax bark, atractylodes, stephania, Chinese star jasmine, large-leaf gentian root, lycopodium, ephedra, hoelen, atractylodes
II. Painful-*Bi* (aching arthralgia)	Arthralgia with severe pain without local inflammation aggravated by coldness and relieved by warmth; thin, white, coated tongue; deep wiry pulse	
III. Fixed-*Bi* (fixed and swelling arthralgia)	Numbness and fixed pain of muscles and joints; swelling of extremities; arthralgia with fixed and localized pain aggravated by coldness and dampness; white, sticky tongue; deep slow pulse	Patent Medicines *Du Huo Ji Sheng Tang, Xiao Huo Luo Dan, Tian Ma Wan, Qiang Huo Sheng Shi Tang, Huo Xue Shu Jin Pian, Wu Jia Pi Jiu, Juan Bi Tang, San Miao San, Jiao Wei Qiang Huo Tang*
IV. Febrile-*Bi* (heat and swelling arthralgia)	Arthralgia, severe pain with local redness, tenderness and swollen joints with fever or inflammation, thirst, tongue with yellow coating, rapid pulse	

REFERENCES

Berkow, R. (Ed.) (1997). *Merck Manual of Medical Information.* West Point, PA: Merck and Co.

Chen, S. Y. and Li, F. (1993). *A Clinical Chinese Herbs and Formulae.* Edenburgh: Churchill Livingston Press.

Dong, K. S., Wang, X.Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

TABLE 11.2. The Actions of Herbal Antirheumatics

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Pubescent angelica root *(du huo)*	3-10	Relieves arthralgia of lower limbs, lower back, and feet, relieves aching joints, and headache	Eliminates pathogenic Wind-Cold and Dampness with remarkable ability to relieve arthralgia
Notopterygium root *(qiang huo)*	3-10	Disperses Cold as a diaphoretic, expels Wind and Dampness, relieves pain in upper part of the body	
Clematis root *(wei ling xian)*	5-10	Invigorates meridians, relieves menstrual disorders and paralysis	
Stephania *(han fang ji)*	5-10	Induces diuresis, relieves dampness of Lower-*Jiao*	
Large-leaf gentian root *(qin jiao)*	3-9	Treats rheumatic conditions, relieves Heat in the blood and jaundice and hepatitis, treats paralysis after stroke	
Cynanchum root *(xui chang qing)*	3-10	Invigorates circulation of *Qi,* relieves pain, detoxifies, treats skin ailments	Invigorates *Qi* and blood circulation, relieves arthralgia, relaxes muscles and tendons.
Chinese star jasmine *(luo shi teng)*	6-15	Invigorates the meridians, removes Heat from the blood, relieves inflammation	
Chaenomeles *(mu gua)*	5-10	Relieves Wind-Damp *Bi* arthralgia, invigorates the meridians, and stomach	
Lycopodium *(shen jin cao)*	9-15	Expels Wind-Damp arthralgia, treats rheumatism, and shingles pain	
Siegesbeckia *(xi xian cao)*	6-12	Expels Wind-Damp arthralgia, invigorates meridians, calms the liver yang	
Loranthus *(sang ji sheng)*	10-20	Dispels Wind-Damp arthralgia; nourishes blood, kidneys, and liver yin; prevents headache and miscarriage	Nourishes the liver and kidneys, relieves arthralgia, strengthens muscles and bones
Acanthopanax bark *(wu jia pi)*	9-15	Strengthens the muscles and bones, induces diuresis	

PUBESCENT ANGELICA ROOT

Radix Angelicae pubescens
Du huo

This herb is the dry root of *Angelica pubescens* Maxim. of the family Umbelliferae. It is mainly grown in the Hubei and Sichuan provinces of China, where the root is harvested in spring or autumn, dried in the sun, and sliced (Jiang Su New Medical College, 1977).

Traditionally, this herb was prescribed as a stimulant, arthritic, antispasmodic, and derivative remedy for colds, rheumatism, apoplexy, leprosy, postpartum difficulties, dropsy of pregnancy, and headaches (Smith and Stuart, 1973). Today, pubescent angelica is commonly dispensed as an antirheumatic and analgesic remedy for eliminating Wind and Dampness, and relieving pain, especially in the lower parts of the body. Pubescent angelica is also used for relieving cancer pain, along with other cancer treatment herbs (Dong et al., 1998).

TCM Properties

Pungent and bitter taste, and slightly warm, it acts on the kidney and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Dispels pathogenic Wind-Dampness factors and relieves pain: this herb is the first choice for those who are unable to walk due to lower back pain, sciatica, pain in the lower limbs, and arthralgia of the feet. Pubescent angelica is combined with loranthus, Chinese angelica, cnidium, siler, cinnamon bark, dry rehmannia, and achyranthes root, as in *Du Huo Ji Sheng Tang* (R-58) (Dong et al., 1998).
2. Expels exogenous Wind-Cold pathogens and endogenous Dampness from the body:

    - Pubescent angelica is mixed with notopterygium root, ligustrum fruit, siler root, and cnidium, as in *Qiang Huo Sheng Shi Tang* (R-57), to relieve aching joints, pain in the whole body, and headaches (Wang, 1994).

- Pubescent angelica is blended with stephania, cyathula root, and chaenomeles (9 g each), and 15 g coix seed in a decoction to treat arthralgia of febrositis in the lower limbs (Dong et al., 1998).

3. Treats migraines. Pubescent angelica combined with asarum in a decoction showed good results against migraines (Dong et al., 1998).

Dosage

In a decoction of 3 to 10 g. Avoid overdose.

Precautions

People with yin deficiency and excessive Heat or Fire symptoms should avoid this herb.

Side Effects and Toxicity

No undersirable effects or toxicity at the suggested therapeutic dose has ever been recorded in classical Chinese materia medica. A large dose of the herb may cause nausea, vomiting, and stomach discomfort in some cases. The active principle of the herb, xanthotoxin, at large doses of 200 to 300 mg/kg caused swelling, fatty degeneration, acute hemorrhagic necrosis of the liver, severe venal congestion, and hematuria in guinea pigs. The dose of 400 mg/kg of xanthotoxin resulted in the death of the animals (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Pubescent angelica root contains flavonoids, angelols A-H, angelicone, bergapten, umbelliferone, scopoletin, angelic acid, tiglic acid, and melmitic acid. In addition, psoralen, xanthotoxin, isopimpinellin, sterols, sugars, and essential oils have been isolated (Baba et al., 1982; Kozawa et al., 1980; Su and Oiao, 1989a,b).

Pharmacological Findings

1. Anti-inflammatory, analgesic, sedative, and hypnotic. An intrapertoneal administration of 2 g/kg of a decoction was analgesic in mice, as tested by the hot plate method (Wang, 1983). The ethanolic and

ethyl acetate extracts of the root were anti-inflammatory on rat hind paw edema induced by carrageenin. Oral and intrapertoneal administration of the liquid extract, or decocted administration sedated mice or rats (Wang, 1983).

2. Antispasmodic. The chemical components of the root (bergapten, xanthotoxin, and isopimpinellin) showed significant antispasmodic activity on rabbit ileum. Isopimpinellin and pimpinellin significantly antagonized the spasm of a rat's duodenal segment caused by barium chloride. Scopoletin inhibited uterine spasm induced by estrin or barium chloride, either isolated or in situ. The ED_{50} value was 0.09 mg/kg (Wang, 1983).
3. The decoction and alcoholic extract of the root is hypotensive, stimulates respiration, protects stomach ulcer, and is an antihistamine (Dong et al., 1998).

REFERENCES

Baba, K., Matsuyama, Y., and Kozawa, M. (1982). Studies on coumarins from the root of *Angelica pubescens* Maxim. IV. Stuctures of angelol-type prenylcoumarins. *Chemical Pharmaceutical Bulletin* 30: 2025-2035.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Kozawa, M., Baba, K., Matsuyama, Y., and Hata, K. (1980). Studies on coumarins from the root of *Angelica pubescens* Maxim. III. Structures of various coumarins including angelin, a new prenylcoumarin. *Chemical Pharmaceutical Bulletin* 28: 1782-1787.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Su, Z. W. and Oiao, C. Z. (1989a). *Pharmacognosy.* Shanghai: Shanghai Medical University Press.

Su, Z. W. and Oiao, C. Z. (1989b). *Pharmacology and Applications of Chinese Materia Medica.* Beijing: People's Health Publisher.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

NOTOPTERYGIUM

Rhizoma seu Radix Notopterygii
Qiang huo

This herb is the dry rhizome and root of *Notopterygium incisum* Ting ex H. T. Chang or *N. forbesii* Boiss. of the Umbelliferae family. It is grown mainly in the Gansu, Sichuan, and Yunnan provinces of China, harvested in autumn, cleaned, dried in the sun, and sliced (Dong et al., 1998). Notopterygium root is similar to pubescent angelica root in action and applications (Smith and Stuart, 1973). Notopterygium root is commonly used as an antirheumatic, analgesic, and antipyretic agent for the treatment of rheumatism pains, especially those of the upper parts of the body. As a diaphoretic, notopterygium root is used for Wind-Cold colds. It is also used to relieve cancer pain, along with other cancer treatment herbs (Dong et al., 1998).

TCM Properties

Pungent and bitter in taste, and warm, it acts on the urinary bladder and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses Wind-Cold-Dampness pathogens from the body, induces sweating, and relieves pain: notopterygium root is blended with pubescent angelica root *(du huo),* cnidium, ledebouriella root, large-leaf gentian root, licorice root, and vitex fruit, as in *Qiang Huo Sheng Shi Tang* (R-57), which is an effective recipe for the treatment of arthralgia and joint pain in the upper limbs of the body (Zhu, 1998).
2. Induces diaphoresis and relieves pain: to treat influenza, common colds, stuffy nose, weakness, high fever, headache, and general aches and pains, this herb is combined with siler, cnidium, atractylodes, dried rehmannia, scute root, angelica root, and asarum, as in *Jiu Wei Qiang Huo Tang* (Dong et al., 1998; Smith and Stuart, 1973; Zhu, 1998).
3. To treat a chronic and intractable headache caused by Wind-Cold, notopterygium root is prescribed with cnidium, asarum, schizone-

peta, siler, dahurian angelica root, mentha, and green tea in a decoction (Dong et al., 1998).
4. Treats facial paralysis. Notopterygium decoction or extract with wine provides relief when applied on the affected area of the face (Dong et al., 1998).

Dosage

In a decoction of 3 to 10 g. Avoid an overdose.

Precautions

People with arthralgia caused by blood deficiency or headache caused by yin deficiency should use this herb with caution.

Side Effects and Toxicity

No adverse effects or toxicity at the suggested dose were reported in classical Chinese materia medica. Oral administration of 7.5 g/kg of the essential oil produced no toxic reaction in rats (Okuyama et al., 1993). An oral overdose causes nausea (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The rhizome and the root of *N. incisum* contains 1 to 6.8 percent of essential oil. The main ingredients of the oil are limonene, terpineol 1-4, bornylacetate, alpha-terpinolene, alpha-copene, and alpha-terpinen.

The main components of the essential oil of the root *N. forbesii* are alpha- and beta-pinene, limonene, and sabinene (Hu et al., 1989). Its other components are organic acids and alkaloids (Dong et al., 1998).

Pharmacological Findings

1. Antipyretic and analgesic. The root and its volatile oil were shown to be analgesic, antipyretic, and anti-inflammatory (Hu et al., 1989; Okuyama et al., 1993).
2. Notopterygium root has been shown to be antifungal and antimicrobial (Dong et al., 1998).
3. Antispasmodic (Dong et al., 1998).

4. Oral administration of the methanolic extract of the root appreciably suppressed the formation of CCl_4-induced lipid peroxidation in the liver (Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Hu, S. L., Chi, O., and Zhang, Z. Z. (1989). *The Indigenous and Superior Chinese Herbal Drugs*. Harbin: Heilongjing Science and Technology Press.

Okuyama, E., Nishimura, S., Ohmori, S., Ozaka, Y., Satake, M., and Yamazuki, M. (1993). Analgesic component of *Notopterygium incisum* Ting. *Chemical Pharmaceutical Bulletin* 41: 926-929.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

LORANTHUS
Ramulus Loranthis
Sang ji sheng

This herb is the dried foliaceous stem and branches of the *Taxillus chinensis* (DC) Danser [*Loranthus parasiticus* (L.) Merr.] of the family Loranthaceae. It is grown mainly in the Hebei, Henan, Shandong, Guangxi, and Guangdong provinces of China, where it is collected in the early spring, cut into pieces, dried, and used unprocessed or stir baked with wine (Jiang Su New Medical College, 1977).

In earlier times, loranthus was regarded as an anodyne and the herb was used to calm the uterus of a pregnant woman (to prevent miscarriage) (Smith and Stuart, 1973). Today, it is employed for menorrhagia, insufficient secretion of milk after giving birth, stiffness of muscles and bones, and aches and pains of the joints (Dong et al., 1998). Loranthus is also used to relieve cancer pain, along with other cancer treatment herbs (Wang, 1994).

TCM Properties

Bitter and sweet taste, and neutral, it acts on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Disperses Wind-Cold-Dampness exopathogens, invigorates the kidneys and liver, and strengthens the muscles and bones: for treating arthralgia, rheumatic sciatica, and aches and pain in the loins and legs, loranthus is often combined with pubescent angelica *(du huo),* achyranthes root *(huai niu xi),* and other herbs as in *Du Huo Ji Sheng Tang* (R-58) (Dong et al., 1998). It is also combined with Chinese angelica, pubescent angelica root, and large-leaf gentian root (9 g each) in a decoction (Dong et al., 1998).
2. Nourishes the blood and invigorates the *Chong-Ren* meridian: loranthus is prescribed with Chinese angelica *(dang gui),* donkey-hide gelatin, and dipsacus root *(xu duan),* as in *Sang Ji Sheng San,* for the prevention and treatment of threatened abortion, miscarriage, and vaginal bleeding during pregnancy (Dong et al., 1998; Wang, 1994).
3. Invigorates the liver yin, kidney yin, and nourishes the blood: to treat hypertension-induced headaches, dizziness, and ringing in the ears,

loranthus is often used with polygonum, dried rehmannia, chrysanthemum, tribulas, and siegesbeckia in a decoction (Wang, 1994).

Precautions

People with a history of heart ailments should use this herb with caution.

Side Effects and Toxicity

At the suggested therapeutic dose, this herb is safe. However, reports indicate that a few patients have developed dizziness, vertigo, poor appetite, liver-function disorders, abdominal distension, slight diarrhea, and dry mouth. The intraperitoneal LD_{50} of avicularin was 1.17 g/kg in mice. Death was caused by paroxysmal convulsion followed by respiratory inhibition (Dong et al., 1998; Wang, 1983).

Dosage

In a decoction of 10 to 20 g. For severe conditions, up to 60 g may be used.

Modern Research Findings

Chemical Constituents

Loranthus contains flavonon compounds, avicularin, quercetin, quercetrin, hyperin, oleanolic acid, beta-amyrin, mesoinositol, lupeol, myristic acid, flavonas, d-catechol, and arobinose (Yin, 1995).

Pharmacological Findings

1. Antihypertensive. The root decoction inhibits the excitatory activities of the sympathetic nervous system, dilates coronary blood vessels, lowers blood pressure, and reduces myocardial ischemic symptoms (Zhu, 1998).
2. Sedative and tranquilizing.
3. Diuretic in rats and dogs (Wang, 1983).
4. Antimicrobial and antiviral.

Clinical Findings

Used in fifty-four cases of angina pectoris for four weeks to five months. A decoction (300 g per day) prepared from the herb twice daily was effective in subjective improvement of ECG in 44 percent of the cases. The anti-angina result usually appeared after two weeks of medication (Dong et al., 1998).

An injection from the herb used in patients with arrhythmia showed effectiveness against ventricular premature beats, paroxysmal fibrillation, and atrial premature beat but had no effect in chronic atrial fibrillation (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yin, J. (1995). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 2)*. Beijing: Chinese Medical Classics Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CLEMATIS ROOT

Radix Clematidis
Wei ling xian

This herb is the dried root and rhizome of *Clematis chinensis* Osbeck, *C. hexapetala* Pall., or *C. mandshurica* Rupr. of the family Ranunculaceae. It is mainly grown in the Anhui, Guizhou, Henan, Shaanxi, Sichuan, Yunnan, and Zhejiang provinces of China, collected in autumn or early winter, cleaned, dried, and sliced or stir baked with wine (Jiang Su New Medical College, 1977).

Traditionally, clematis root was used as an antimalarial, diuretic, and antirheumatic herb, and was prescribed for all sorts of muscular rheumatism, constipation, and colds (Smith and Stuart, 1973). Today, the root is used as an antirheumatic and analgesic agent for treating arthralgia, and pain in the limbs and the whole body (Dong et al., 1998). Clematis root also relieves cancer pain along with other cancer treatment herbs (Dong et al., 1998).

TCM Properties

Pungent and salty taste, and warm, it acts on the urinary bladder meridian.

Effects, Medicinal Uses, and Combinations

1. Expels Wind-Dampness exopathogens and relieves rheumatic pain: for Wandering-*Bi* syndrome caused by Wind, clematis is particularly effective. Clematis root is soaked in wine alone or combined with siler for an oral decoction. Also, the root is combined with atractylodes for Fixed-*Bi* syndrome or with cinnamon twig for Painful-*Bi* syndrome. It is used with notopterygium *(qiang huo)* for arthralgia located in the upper part of the body, with pubescent angelica root *(du huo)* for aches and pains in the lower limbs, or with astragalus root and chaenomeles for chronic, lingering arthritis pain (Wang, 1994).
2. Invigorates stagnant meridians and relieves muscular pain: for external application, powdered clematis root is mixed with vinegar to make a paste. It is applied and bandaged in place to relieve heel pain. The heel is kept warm during treatment. If the affected heel is soaked in hot water for ten to fifteen minutes before the clematis paste is ap-

plied, the results are better. Several treatments are necessary (Wang, 1994).
3. Invigorates *Chong* and *Ren* meridians, and relieves menstrual pain: clematis root is used with cnidium, Chinese angelica, and cinnamon bark for irregular menstruation, menstrual pain, dysmenorrhea, and amenorrhea (Wang, 1994).

Dosage

In a decoction of 5 to 10 g per day.

Precautions

People with blood or *Qi* deficiency, weakness, and spasms should take this herb with caution. Do not take tea with the herb. People with arthralgia caused by blood deficiency should avoid this herb.

Side Effects and Toxicity

The suggested therapeutic dose does not produce side effects or toxicity.

Modern Research Findings

Chemical Constituents

The root contains saponins. The crude saponins obtained from a methanol extract are prosapogenins CP-0 to CP-10. Other ingredients isolated from the root are anemonin, anemonol, inositol, phenols, amino acids, and protoanemonin (Ling, 1995; Wang, 1983).

Pharmacological Findings

1. Clematis root has been shown to be analgesic and antipyretic in animal studies (Dong et al., 1998).
2. Oral administration of the decoction to anesthetized dogs intensified esophageal peristalsis, and increased frequency and amplitude. The herb relaxed pharyngeal spasms or upper esophageal spasms caused by a fish bone lodged in the dogs' throats. On the isolated smooth muscle of rabbit intestines, the herb was antihistaminic (Wang, 1983).
3. Hypotensive in dogs (Dong et al., 1998).
4. Diuretic action was shown in mice and rats.
5. Antimicrobial against *S. aureus* and *Shigella shigae*.

Clinical Findings

1. Injection of 1 ml of the steam distillate preparation of the herb into each of the two to four acupoints close to the hypertrophic paravertebral area daily, or on alternative days, was effective in 83 to 93 percent of 100 cases. In thirty-two cases of lumbar muscular strain, this treatment produced prompt effects in fourteen cases and moderate effects in eighteen others (Zhu, 1998).
2. Clematis root (90 g in a 1,000 ml decoction) was used to treat patients with psoriasis. Twice a day, 50 ml of the decoction was taken for ten days. The treatment showed satisfactory results (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

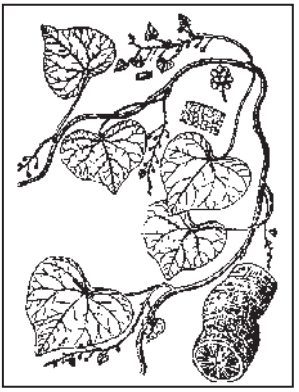
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

STEPHANIA
Radix Stephaniae tetrandrae
Han fang ji



This herb is the dried root of *Stephania tetrandra* S. Moore or *Cocculus trilobus* (Thunb) of the family Menispermaceae. A third variety is *Aristolochia fangchi* of the family Aristolochiaceae. The first two herbs are mainly produced in the Anhui, Hunan, Hubei, and Zhejiang provinces of China, and the third is mainly produced in the Guangdong and Guangxi provinces. These plants are harvested in autumn, sliced, and dried for use unprocessed (Jiang Su New Medical College, 1977).

These medicinal plants are used as antirheumatics, analgesics, and diuretics. Particularly, both *S. tetrandra* and *C. trilobus,* commonly known as *han (fen) fang ji,* are good for edema, neurosis, trigeminal neuralgia, and limb numbness. *Aristolochia fangchi,* also known as *mu* (*guang) fang ji,* is preferred in treating a *Bi*-syndromes and alleviating rheumatic joint pain, and can be a substitute for stephania. Today, these herbs are also used as complementary agents in treating cancer-related pain, along with other cancer-pain treatment herbs (Dong et al., 1998).

TCM Properties

Bitter and pungent in taste, and cold, they act on the urinary bladder, kidney, and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves rheumatic pain: for treating pain in the joints, myocarditis, and arthralgia caused by Wind-Cold, stephania is used with white atractylodes rhizome, prepared aconite, and cinnamon bark. Stephania is also blended with achyranthes and phellodendron bark, or with forsythia fruit and gardenia to treat swelling and joint pain of the lower limbs due to Damp-Heat (Wang, 1994).
2. Induces diuresis and alleviates edema. To treat swelling and the accumulation of fluid in the peritoneal cavity, difficult urination, generalized edema, renal edema, ascites due to cirrhosis, and a heavy sensation in the body, stephania is combined with astragalus root, white

atractylodes, licorice root, and ginger, as in *Fang Ji Huang Qi Tang* (R-66) (Dong et al., 1998). For severe chronic edema, particularly edema in the limbs caused by hypofunction of the spleen, and difficult urination, stephania is blended with poria, cinnamon twig, and astragalus root, as in *Fang Ji Fu Ling Tang* (Wang, 1994; Zhang, 1988).

Dosage

In a decoction of 5 to 10 g.

Precautions

People with yin deficiency, weakness, pain not due to Cold-Damp-Heat, and poor appetite should take this herb with caution.

Side Effects and Toxicity

Stephania is extremely Cold and bitter, and slightly toxic (Jiang Su New Medical College, 1977). The alkaloid is more toxic. An intravenous injection of 300 mg of tetrandrine to rats caused local pain and phlebitis. A treatment dose of 240 to 300 mg was dispensed and no toxic effect on the hemogram, routine uronoscopy, the liver and kidney functions, and ECG were observed. The LD_{50} values of total alkaloids of the root *S. tetrandra* and tetrandrine were 3,700 mg/kg and 2,230 mg/kg, respectively, with oral administration in rats (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Stephania tetrandra (han fang ji) contains alkaloids, d-tetrandrine, fangehinoline, menisine, hanfangechins A and C, menisidine, cyclanoline, fanchinin, and berbamine, oxyfangchirine, stephananthrine, 1,3,4-tridehydro-fanchinolum hydroxide, fengangjines A,B, C, and D, and demethyltetrandrine (Zhu, 1998).

Aristolochia fangchi (mu fang ji) contains trilobine, isotrilobine, homotrilobine, magnoflorine, trilobamine, coelobine, menisarine, normenisarine, and other alkaloids (Jiang Su New Medical College, 1977).

Pharmacological Findings

Stephania root is antipyretic, analgesic, antiallergenic, and antiarrhythmic; it inhibits cardiac infarction, inhibits CNS activity, regulates the small intestine, and is antimicrobial and anticarcinogenic (Dong et al., 1998).

Clinical Findings

An aggregate effective rate of 84.1 percent has been reported in 270 cases of hypertensive patients treated with alkaloid tetrandrine. An oral dose of 100 mg, twice daily, decreased blood pressure within one week and, after three weeks, blood pressure was stabilized at lower levels. It was effective in all stages of hypertension regardless of the length of history. Intravenous doses of 120 to 150 mg, twice daily for two weeks, were also hypotensive (Zhu, 1998).

Research shows that tetrandrine is effective in treating neuralgia, such as acute and subacute lumbosacral radiculitis and prosopalgia, in a dosage of 400 mg three times a day, or an intramuscular administration of 2 ml of the 1.5 percent tetrandrine solution for 20 days (Zhu, 1998).

Stephania combined with astragalus, white atractylodes, licorice root, ginger, and jujube causes weight loss and increases fat metabolism (Zhang, 1988).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1997). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CHINESE STAR JASMINE

Caulis Trachelospermi
Luo shi teng

This herb is the dried foliaceous stem and leaves of *Trachelospermum jasminoides* (Lindl.) Lem. of the family Apocynaceae. It is grown in all parts of China, collected in the late autumn, cleaned, dried in the sun, and cut into small sections (Jiang Su New Medical College, 1977). This is an evergreen, tropical, apocynaceous, climbing plant.

The herb was traditionally used as a restorative, tonic, and as a medicine especially appropriate for the elderly (Smith and Stuart, 1973). Chinese star jasmine is now used as an antirheumatic and antiarthritic agent to treat rheumatalgia in joints and muscles, and difficulty with bending or stretching of limbs. This herb is also used to dissipate pathogenic Heat in blood and to relieve swelling (Wang, 1994).

TCM Properties

Bitter in taste, and slightly cold, it acts on the heart, kidney, and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Dispels pathogenic Wind and invigorates the meridians: for the treatment of arthralgia, Chinese star jasmine is used with mulberry twig, siler, red peony, gentiana root, large-leaf gentian root, lonicera stem, and earthworms. It is combined with chaenomeles *(mu gua),* atractylodes, pubescent angelica root, and cooked coix seed for arthralgia of muscles, tendons, and bones, and difficulty stretching the arms and legs (Wang, 1994).
2. Removes pathogenic Heat from the blood and relieves inflammation:
   - For the treatment of fever, a swollen and sore throat, and hoarseness, Chinese star jasmine is combined with platycodon root, belamcanda *(she gan),* licorice root, and gardenia.
   - To treat sores, carbuncles, furuncles, swelling, and general infections, it is used with lonicera flower, dandelion, and wild chrysanthemum (Wang, 1994).
3. Treats acute laryngitis. A decoction is used for gargling and oral administration (Dong et al., 1998).

Dosage

In a decoction of 6 to 15 g, or 30 g if the fresh herb is used.

Precautions

People with diarrhea should not use this herb.

Side Effects and Toxicity

No undesirable effects or toxicity at the suggested therapeutic dose were reported in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Chinese star jasmine contains aretiin, tracheloside, matairesinoside, nortracheloside, dambonilol, beta-sitosteryl glucoside, and cymarose (Jiang Su New Medical College, 1977).

Pharmacological Findings

Chinese star jasmine is anti-inflammatory, antiallergenic, antimicrobial, cardiotonic, and hypotenisive (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

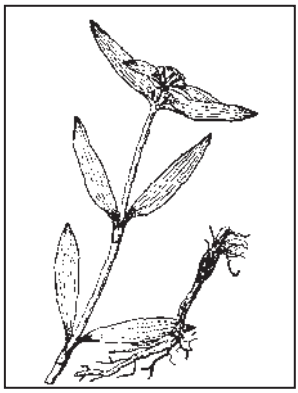
Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]). Beijing: Jin Dun Press.

LARGE-LEAF GENTIAN ROOT

Radix Gentiana Macrophyllae
Qin jiao



This herb is the dried root of *Gentiana macrophylla* Pall., *G. dahurica* Fisch., or *G. straminea* Maxim. of the family Gentian*aceae.* It is mainly grown in the provinces of Heilongjiang, Liaoning, and Hebei, and in Inner Mongolia of China, where it is collected in the late autumn, the side roots are removed, and it is cleaned, sliced, and dried (Jiang Su New Medical College, 1977).

Traditionally, this herb was used for rheumatism, dysuria, fever, carbuncles, jaundice, and diarrhea (Smith and Stuart, 1973). Today, large-leaf gentian root is used to treat rheumatic and rheumatoid arthritis, fever, and pain in the entire body (Wang, 1994).

TCM Properties

Bitter and acrid taste, and neutral, it acts on the stomach, liver, and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves rheumatism:

   - To relieve rheumatic and rheumatoid arthritis, rheumatic sciatica, inflammation and swollen joints throughout the body, large-leaf gentian root is used alone as a decoction or prescribed with stephania, lonicera stem, and phellodendron bark, a formula particularly effective for Febrile-*Bi* syndromes.
   - For treating Painful-*Bi* syndromes, large-leaf gentian root is mixed with prepared aconite, pubescent angelica, cinnamon twig, and notopterygium root.
   - For arthralgia in the lower limbs, large-leaf gentian root is combined with pubescent angelica, loranthus, ginseng, achyranthes, poria, Chinese angelica, cnidium rhizome, siler, and eucommia bark, as in *Du Huo Ji Sheng Tang* (R-58) (Dong et al, 1998).
   - To treat chronic rheumatic arthritis (Fixed-*Bi*), large-leaf gentian root is blended with chaenomeles and stephania in a decoction.

2. Eliminates Dampness and Heat, and treats jaundice: large-leaf gentian root is prescribed with scute root, capillaris, and poria, as in *Qin Jiao San,* to treat jaundice or hepatitis caused by Damp-Heat pathogens (Wang, 1994).
3. Relieves paralysis and the symptoms caused by stroke: to treat facial palsy, paralysis, and hemiplegia after a stroke, large-leaf gentian root is combined with astragalus root, licorice root, Chinese angelica, processed rehmannia, notopterygium root, pubescent angelica, siler, asarum, white atractylodes, poria, dry rehmannia, cnidium, angelica root, and white peony root, as in *Da Qin Jiou Tang* (Dong et al., 1998).

Dosage

In a decoction of 3 to 9 g.

Precautions

People with polyurea, diarrhea, and those with weak constitutions should avoid this herb or use with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity at the recommended dose were reported in classical Chinese materia medica. The content of the root, 100 mg of gentianine, orally administered three times daily for four to thirteen days resulted in severe nausea and vomiting. The LD_{50} values of gentianine in mice by intraperitoneal administration was 400 mg/kg (Natarajan et al., 1974).

Modern Research Findings

Chemical Constituents

Large-leaf gentian root contains glycosides, gentiopicroside, sugars, volatile oil, and swertiamarin. The alkaloids are gentianine, gentianidine, alkaloids, and gentiopicroside (Zhou, 1993).

Pharmacological Findings

Large-leaf gentian root is a sedative, antihistamine, and analgesic, and is antimicrobial, antipyretic, anti-inflammatory, and antihypertensive (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Natarajan, P. N., Wan, A. S. C., and Zaman, Y. (1974). Antimalarial, antiamebic and toxicity tests on gentianine. *Planta Medica,* 25: 258-260.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica*. Beijing: China Medical and Pharmaceutical Science Press.

CYNANCHUM ROOT
Radix Cynanchi paniculati
Xu chang qing *or* Liao diao zhu

This herb is the dried root and rhizome of *Cynanchum paniculatum* (Bge.) Kitag. of the family Asclepiadaceae. Cynanchum is also known as swallowwort root. It is grown in the Anhui, Guangxi, Guizhou, Hebei, Hunan, Jiangsu, Shandong, Sichuan, and Zhejiang provinces of China, harvested in summer, cleaned, and dried in the sun (Jiang Su New Medical College, 1977).

Traditionally, cynanchum root was used as an anodyne, sedative, antitussive, and diuretic medicine, and commonly used alone or in combination with other antirheumatic herbs for treating arthralgia (Jiang Su New Medical College, 1977). Today, cynanchum root is used for treating pain after surgery, nerve pain, abdominal pain, tooth pain, and various types of cancer pain, along with other cancer-treatment herbs (Dong et al., 1998; Wang, 1994).

TCM Properties

Pungent taste, and warm, it acts on the liver, spleen, and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Expels pathogenic Wind, promotes the flow of *Qi,* and relieves pain:

   - To treat arthralgia, sore and painful muscles, and painful joints, cynanchum root can be used alone or with pubescent angelica root *(du huo)* or stephania root *(fang ji)* (Dong et al., 1998).
   - For treating lower abdominal pain it is used with aucklandia root, corydalis tuber *(yan hu suo),* and cyperus tuber (*xiang fu);* or it is used with Chinese angelica root, cnidium *(chuan xiong),* and mastic *(ru xiang)* for the treatment of difficult and painful menstruation (Dong et al., 1998).
   - To treat menstrual pain this herb is combined with cnidium, Chinese angelica, myrrh, and others in a decoction (Wang, 1994).

- For tooth pain the herb is dispensed in a decoction for gargling and oral administration (Dong et al., 1998).

2. Detoxifies and relieves skin disorders: Cynanchum can also be taken for detoxification, to invigorate blood circulation, and for treating inflammation caused by insect and snake bites. For skin disorders, it effectively relieves itching from various causes, including allergic dermatitis and psoriasis (Dong et al., 1998).

Dosage

In a decoction of 3 to 10 g, or 1.5 to 3 g in powdered form to be taken orally or applied externally.

Precautions

People with weak constitutions should use this herb with caution. Do not overcook this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity at the suggested dose were reported in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Cynanchum contains sugar, amino acids, glycosides, paeonol, sarcostin, deacylcynanchogenin, tumentogenin, and deacylnetaplexigenin (Jiang Su New Medical College, 1977).

Pharmacological Findings

Cynanchum root is a sedative and hypnotic. It is an anticonvulsive agent, analgesic, antipyretic, antihypertensive, and antimicrobial against *S. aureus* and several types of bacillary bacteria (Wang, 1994). The herb is noticeably analgesic in mice. The herb decoction also showed corticotropic hormone-like anti-inflammatory action against rheumatic inflammation (Dong et al., 1998).

Clinical Findings

Cynanchum decoction and injections were used to treat chronic bronchitis, mastitis, menstrual pain, abdominal pain, toothache, colitis, cystitis, pain after surgery, and skin ailments of urticaria, psoriasis, neurodermatitis, and shingles. All were effective (Dong et al., 1998).

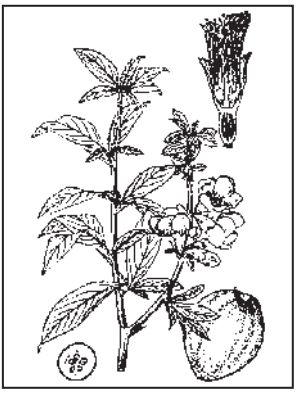
REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F . (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

CHAENOMELES
Fructus Chaenomeles
Mu gua



This herb is the dried ripe fruit of *Chaenomeles speciosa* (Sweet) Nakai of the family Rosaceae. The tree, which is native to Central America, has been introduced and cultured in South China. It is grown in the Anhui, Hainan, Hupei, Shandong, Sichuan, and Taiwan provinces of China, where the fruit is harvested in August, cleaned, sliced, dried in the sun, and used without further processing (Jiang Su New Medical College, 1977). Chaenomeles is an antirheumatic herb that effectively relieves numbness and pain in muscles and joints (Jiang Su New Medical College, 1977; Smith and Stuart, 1973). Also used to relieve cancer pain, along with other cancer-treatment herbs (Dong et al., 1998).

TCM Properties

Pungent in taste, and warm, it acts on the liver, spleen, and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Expels Dampness from the body, invigorates the circulation of meridians, soothes the muscles and tendons, and relieves rheumatic pain and muscle spasm: chaenomeles is commonly used with acanthopanax, clematis root, and achyranthes for the treatment of rheumatic pain, spasms in the calf muscles, soreness and pain in the limbs, numbness, and heaviness or swelling of the lower extremities. It is combined with atractylodes and white atractylodes for arthralgia caused by Wind-Dampness (Dong et al., 1998) or with notopterygium, pubescent angelica, and siler for arthralgia caused by pathogenic Wind (Wandering-*Bi*) (Wang, 1994).
2. Relieves stomach cramps and diarrhea: to treat vomiting and diarrhea caused by Cold-Dampness of the gastrointestinal tract, chaenomeles is mixed with fresh ginger, evodia, and perilla leaf in a decoction (Wang, 1994).
3. Indigestion: chaenomeles is a good medicine for bloating and indigestion (Dong et al., 1998).

Dosage

In a decoction of 5 to 10 g.

Precautions

People with pain due to yin deficiency should use this herb with caution.

Side Effects and Toxicity

No undersirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Chaenomeles has saponins, flavonoids, enzymes (peroxidase, phenol oxidase, oxidase), and fructose, flavone, malic acid, tartaric acid, citric acid, fumaric acid, oleanolic acid, vitamin C, and tannin (Ling, 1995; Zhu, 1998).

Pharmacological Findings

1. Chaenomeles is anti-inflammatory, antirheumatic, antispasmodic, and antiemetic, and is a stomachic (Dong et al., 1998).
2. Immunologic: oral administration of 25 g/kg of the decoction of the herb for eight days significantly inhibited spleen index in mice. At intraperitoneal dose of 85 mg/kg, an extract of chaenomeles markedly decreased the phagocytosis of peritoneal macrophages of mice (Zhu, 1998).
3. Antitumor. The 25 percent aqueous extract of the herb given intraperitoneally at 0.5 ml per mouse produced marked inhibition on the growth of Ehrlich ascites carcinoma, lymphosarcoma, and sarcoma 180 in mice (Yin, 1995).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

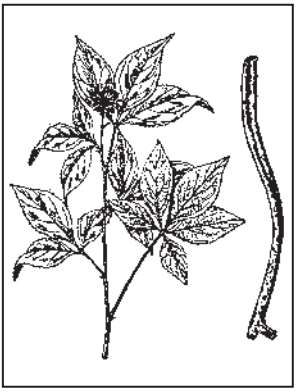
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Yin, J. (1995). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 2)*. Beijing: Chinese Medical Classics Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

ACANTHOPANAX BARK

Cortex Acanthopanacis
Wu jia pi



This herb is the dried cortex of the root of *Acanthopanax gracilistylus* W. W. Smith of the family Araliaceae. It is mainly grown in the Henan, Hebei, Guangdong, and Sichuan provinces of China, where the root is harvested in winter and cleaned. The bark is stripped and dried in the sun (Jiang Su New Medical College, 1977). Traditionally, the bark was used for rheumatism, general debility, and for the cure of tertiary syphilitic manifestations. It is commonly used as a tincture or wine (Smith and Stuart, 1973).

Acanthopanax bark resembles that of loranthus and is an anodyne for arthralgia, but is more effective for treating pain in muscles and joints.

TCM Properties

Pungent and bitter taste, and warm, it acts on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Eliminates arthralgia from the body and strengthens the tendons and bones: for treating Wind-Cold-Damp *Bi* syndromes, arthritis, soreness and pain in the loins and feet, and swelling and pain in the joints, acanthopanax bark is often prepared as a medicated wine. The most common patent medicine of acanthopanax bark wine is *Wu Jia Pi Jiu* (Wang, 1994).
2. Relieves rheumatism: for pain in muscles, joints, and fibrocitis, acanthopanax bark can be combined with pubescent angelica, clematis root, achyranthes, and atractylodes in a decoction (Wang, 1994). Acanthopanax bark is also mixed with carthamus, processed cyperus tuber, loranthus, and lycopodium for the treatment of arthralgia, and soreness in bones and muscles.
3. Induces diuresis and relieves edema. Acanthopanax can be combined with poria, orange peel, ginger peel, and areca husk, as in *Wu Jia Pi Yin,* for treating edema, edema of limbs, and oliguria (Wang, 1994).

Dosage

In a decoction of 6 to 12 g.

Precautions

People with yin deficiency should take the herb with caution.

Side Effects and Toxicity

No adverse effects or toxicity at the suggested dose of the herb were recorded in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

The root bark contains sesamin, isofraxidin, beta-sitosterol, syringin, beta-sitosterolglucoside, eleutheroside B_1, kaurenoic acid, 16-alpha-hydroxy-kauran-18-oic acid, and stearic acid (Song et al., 1983; Xiang and Xu, 1983). Other constituents are tannin, palmitic acid, linoleic acid, and vitamins A and B (Ling, 1995).

Pharmacological Findings

Acanthopanax bark is analgesic, anti-inflammatory, antifatigue, and antimicrobial (Su and Qiao, 1989). It also increases the immunological functions, and increases and regulates endocrine secretion, particularly in the thyroid glands and gonads (Wang, 1994). The root bark also protects the liver and increases the activity of bone marrow in the production of blood cells (Wang, 1994).

REFERENCES

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Song, X. H., Xu, G. J., Jin, R. L., and Xu, L. S. (1983). Studies on the identification of Chinese wu jia pi. *Journal of Nanjing College of Pharmacy* 16: 15-24.

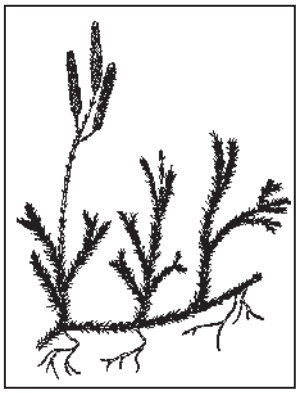
Su, Z. W. and Qiao, C. Z. (1989). *Pharmacognosy.* Shanghai: Shanghai Medical University Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Xiang, R. D. and Xu, R. S. (1983). Studies on chemical constituents of the root bark of *Acanthopanax gracilistylus* W.W. Smith. *Acta Botanica Sinica,* 25: 356-362.

LYCOPODIUM

Herba Lycopodii
Shen jin cao



This herb is the entire plant of *Lycopodium clavatum* L. of the family Lycopodiaceae. It is grown in the provinces of northern, central, and southwestern China, and Inner Mongolia. It is harvested in the summer, cleaned, dried, cut into sections, and either used without further processing or slightly stir baked (Jiang Su New Medical College, 1977).

Lycopodium is a popular herb for arthralgia in the muscles, tendons, and joints, and is used to relieve cancer pain, along with other cancer-treatment herbs (Wang, 1994).

TCM Properties

Bitter in taste, and warm, it acts on the liver, spleen, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Expels Wind-Cold exopathogens and relieves rheumatism:

   - For treating rheumatism, muscle and tendon pain, muscle numbness, leg stiffness, and difficulty in flexion and extension of limbs or hemiplegia, lycopodium is used with pubescent angelica, chaenomeles, white peony root, carthamus, clematis root, and cinnamon twig (Wang, 1994).
   - It is blended with chaenomeles and alangium *(ba jiao feng)* for treating leg muscle cramps (charley horse) (Wang, 1994).
   - For treating chronic rheumatic disorders, painful joints, or muscular numbness, lycopodium can be combined with prepared rehmannia root, dipsacus, loranthus, Chinese angelica, acanthopanax, millettia, and homalomena rhizome *(qian nian jian)* in a decoction for effective pain relief (Wang, 1994).

2. Relieves the severe pain of shingles (herpes zoster): The powdered form of stir-baked lycopodium can be mixed into a paste with sesame oil or another suitable oil that can be applied externally to treat shingles (Dong et al., 1998; Wang, 1994).

Dosage

In a decoction of 9 to 15 g, or 30 g for severe symptoms.

Precautions

People with anemia, excessive bleeding, and pregnant women should use this herb with caution.

Side Effects and Toxicity

No adverse side effects or toxicity have been observed.

Modern Research Findings

Chemical Constituents

Lycopodium contains lycopodine, clavatine, beta-sitosterol, clavolonine, fewettine, clavoloxin, lycoclavanine, dehydrolycopodine, lycodoline, vanillic acid, ferulic acid, alpha-onocerin, azelaicacid, clavatol, nicotine, and lycoclavanol (Jiang Su New Medical College, 1977; Ling, 1995).

Pharmacological Findings

Lycopodium is antipyretic, antimicrobial, anti-inflammatory, and diuretic. It has been shown to increase the contraction of the uterus and small intestine in lab animals (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica)]. Beijing: Zhong Guo Zhong Yi Yao Press.

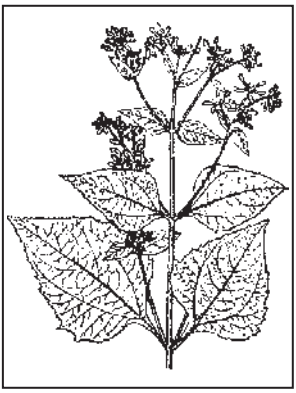
Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

SIEGESBECKIA

Herba Siegesbeckiae
Xi xian cao or Xi xian



This medicinal herb is the dried aerial (aboveground) parts of *Siegesbeckia orientalis* L., *S. pubescens* Makino, or *S. glabrescens* Makino of the family Compositae. It is mainly grown in the Jiangsu, Sichuan, and Zhejiang provinces of China where it is harvested in the summer, cleaned, dried, and used unprocessed or stir baked with wine (Jiang Su New Medical College, 1977). Traditionally, the herb was used to improve appetite, in wounds to relieve pain, for insect bites, and for numbness in the extremities (Smith and Stuart, 1973). The root and fruit of siegesbeckia are also used for similar purposes. Siegesbeckia is good for treating symptoms of arthralgia (Wind-Cold-Damp) *Bi* syndromes, and chronic back pain (Dong et al., 1998; Wang, 1994).

TCM Properties

Bitter in taste, and cold, it acts on the liver, spleen, and kidney meridians. It is also slightly toxic.

Effects, Medicinal Uses, and Combinations

1. Relieves symptoms of rheumatism, particularly Febrile-*Bi* syndrome: for arthritis, lassitude, numbness in limbs, pain in the legs and waist, or flaccidity, siegesbeckia is used alone in a decoction or combined with achyranthes, pubescent angelica root, loranthus, and acanthopanax (Wang, 1994).
2. Treats hypertension: this herb can also be prescribed (as a daily tea of 15 g) (Dong et al., 1998) alone or with chrysanthemum, prunella, and clerodendron trichotomi *(chou wu tong)* to relieve dizziness and hypertension due to hyperactivity of the liver yang (Wang, 1994).
3. Detoxification: to counteract pyretic toxicity, urticaria, eczema, suppurative infections in the body, and swelling, it is combined with wild chrysanthemum, dandelion, viola, and mastic in a decoction (Dong et al., 1998).
4. Treats neurasthenia and insomnia. It can be used alone in tea or with other sedative herbs in a decoction (Dong et al., 1998).

5. Treats cerebral apoplexy and cerebral vascular disease: siegesbeckia herb is combined with carthamus (3 g), acanthopanax and siler (9 g each) in a decoction to treat hemiplegia and after-stroke syndrome (Dong et al., 1998). It can also be combined with pubescent angelica, loranthus, acanthopanax, and achyranthes in a decoction (Wang, 1994).

Dosage

In a decoction of 6 to 12 g or its juice can be used to relieve skin infections, carbuncles, abscesses, and inflammation.

Precautions

People with yin and blood deficiency and anemia should use this herb with caution.

Side Effects and Toxicity

This herb is slightly toxic as recorded in classical Chinese materia medica (Jiang Su New Medical College, 1977). No adverse effects were reported after prolonged oral administration at the suggested dose (Wang, 1983; Zhu, 1998). The LD_{50} of injection solution of the herb in mice was 45.54 ± 1.44 g/kg by intravenous administration (Yin and Gao, 1993).

Modern Research Findings

Chemical Constituents

Siegesbeckia contains alkaloids, darutosids, darutogenol, isodarutogenols B and C, orientin, orientalide, stigmasterol, phenol, amino acids, organic acids, sugars, and darutin-bitter (Ling, 1995; Yin and Gao, 1993).

Pharmacological Findings

Siegesbeckia is anti-inflammatory, antihypertensive, antipruritic, antirheumatic, and detoxifying (Dong et al., 1998).

Clinical Findings

In sixty-seven cases of hypertension, a daily dose of the decoction of 30 g and 10 g of *di gu pi (Cortex lycii)* decreased diastolic pressure by more than 20 mmHg in thirty-five cases and by more than 10 mmHg in another twenty-two cases. The neurotic symptoms were also improved (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica)]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yin, J. and Gao, L. G. (1993). *Modern Research and Clinical Applications of Chinese Materia Medica*. Beijing: Academic Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

Chapter 12

Herbs That Regulate Digestion and Elimination: Relief of Common Gastrointestinal Ailments

The medicinal herbs discussed in this chapter aid appetite, food digestion, the normal functions of the stomach and spleen, and relieve common gastrointestinal tract disorders. The gastrointestinal tract has been marvelously designed with glands and organs that secrete specialized fluids and enzymes, and perform intricate digestive actions that transform food into desired nutrients. It is also one of the most abused systems, resulting in common digestive disorders such as indigestion, abdominal gas, heartburn, burping, bloating, abdominal cramps, constipation, diarrhea, belching, acid regurgitation, stomach pain, nausea, vomiting, an accumulation of toxins, along with fluid retention, and weight gain or obesity (Dong et al., 1998).

Poor digestion, metabolism, and absorption also cause fatigue, hypoglycemia, anemia, arteirosclerosis, even hypertension and a state of lowered immune function of the body (Dong et al., 1998).

TCM believes that these medical disorders may come from dysfunction of the stomach and spleen, emotional imbalance, consumption of unhealthy foods or drinks, ingestion of spoiled food or food contaminated by microorganisms, overeating, or an unhealthy lifestyle. Dysfunction of the stomach and spleen can be caused by the invasion of External pathogenic Cold-Heat-Damp factors, internal Dampness accumulation, or excessive internal Cold that can lead to deficiency of *Qi* and yang, resulting in dysfunction of the spleen and stomach (Dong et al., 1998).

Food digestion is the process by which food is broken down mechanically and chemically in the digestive tract, and converted into absorbable forms of nutrients (Golan, 1995).

The food we eat contains many simple organic and inorganic substances such as glucose, water, or sodium chloride, which do not need digestion. Carbohydrates, proteins, and fats must be properly digested by mechanical and chemical processes. Digestion and absorption requires proper functioning of the stomach and small intestines. Chemical digestion involves hydro-

lysis of food, caused by a variety of digestive juices, enzymes, and certain vitamins and minerals (Golan, 1995).

The digestive organs include teeth, tongue, esophagus, stomach, small intestines, large intestines, liver, gallbladder, pancreas, and spleen.

In Western medicine, the spleen is not considered a part of the digestive system; its functions are making and metabolizing blood cells, fighting infections, and as an important organ of the immune system (Golan, 1995).

In TCM, the spleen plays an important part in digestion and metabolism. In addition to the immune function of the Spleen, Chinese medicine recognizes that its main physiological function is to dominate transformation and transportation of nutrients together with the stomach and small intestines. The joint effort is responsible for digestion, metabolism, assimilation, and distribution of nutrients throughout the body (Long, 1998). Only with sufficient availability of nourishment can the immune system work.

The importance of *Pi* (TCM spleen) in Chinese medicine is unique. Dysfunction of the spleen may involve many other systems and functions of the body. For example, in a state of *Pi* deficiency, many pathological changes are revealed, such as low activity of digestive enzymes, hypofunction of absorption, disorder of gastrointestinal motility, metabolic disturbance, derangement of autonomic nervous system activity, and hypoactivity of cellular immunity (Zhou and Liu, 1993).

Five groups of phytomedicines are traditionally used to treat the disorders of the digestive system, which in turn correct the disorders related to digestion and elimination (Dong et al., 1998). These herbs are called stomachics and include:

1. *Qi*-tonic stomachics, such as ginseng, codonopsis, astragalus root, Chinese yam, and white atractylodes (see Chapter 5).
2. *Qi*-invigorating stomachics, such as orange peel, immature orange, magnolia bark, and radish seed (see Chapter 7).
3. Internal Damp-eliminating stomachics, such as atractylodes, agastache, and amomum fruit.
4. Interior-warming stomachics, such as ginger, cinnamon bark, and evodia (see Chapter 9).
5. Digestion-promoting stomachics, such as hawthorn and germinated barley.

Other herbs are complementary for food digestion and elimination including antiulcer herbs (cuttlebone), emetic, antiemetic, and spasmolytic herbs (white peony), purgatives (rhubarb), and anthelmintics (areca seed).

This section discusses internal Damp-eliminating, digestive-invigorating, and laxative herbs. Table 12.1 lists common gastrointestinal disorders and herbal remedies.

TABLE 12.1. Herbal Stomachics for Gastrointestinal Disorders

Etiology	Symptoms	Herbal Remedies
Indigestion and food accumulation	Abdominal pain and distension, gas, poor appetite, food retention, belching, nausea, vomiting, acid regurgitation, irritable bowels, masses, constipation or diarrhea, accumulation of toxins	Herbs hawthorn fruit, germinated barley, raphanus seed, magnolia bark, evodia fruit Patent Medicines *Bao He Wan, Zhi Shi Dao Zhi Wan, Yue Ju Wan*
Internal Dampness of Middle-*Jiao*	Abdominal distension, nausea, anorexia, lassitude, weariness, fullness in the chest, heavy sensation, epigastric distension, acid regurgitation, loose stool, sweet taste in mouth, tongue with whitish greasy coating	Herbs atractylodes, agastache, amomum fruit Patent Medicines *Ping Wei San, Huo Xiang Zheng Qi Wan, Xiang Sha Liu Jun Zi Tang*
Constipation and stagnation of *Qi*	Dry stool, constipation, food stagnation, fluid retention, interior Heat and toxins accumulation, edema, weight gain	Herbs rhubarb, senna leaf, areca seed Patent Medicines *Hou Po San Wu Tang, Da Cheng Qi Tang, Ma Zi Ren Tang (Wan)*

Table 12.2 lists the common and individual actions of herbs that regulate digestion and elimination.

On the following pages, ten medicinal herbs, which are used treat gastrointestinal disorders, are introduced and further discussed.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica)]. Beijing: Zhong Guo Zhong Yi Yao Press.

Golan, R. (1995). *Optimal Wellness*. New York: Ballantine Books.

Long, Z. X. (Ed.) (1998). *Basic Theories of Traditional Chinese Medicine*. Beijing: Academic Press.

Zhou, J. H. and Liu, G. (1993). *Recent Advances in Chinese Herbal Drugs*. Beijing: Science Press.

TABLE 12.2. The Actions of Herbs That Regulate Digestion and Elimination

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Hawthorn *(shan zha)*	10-15	Improves digestion, removes retention of food, promotes blood circulation, resolves stasis	Improves appetite; invigorates digestion, metabolism, and absorption; removes food stagnation.
Germinated barley *(mai ya)*	10-15	Improves digestion, relieves stagnation of the liver and breast disorders	
Raphanus *(lai fu zi)*	3-9	Improves digestion, resolves excess phlegm and food stagnation	
Agastache *(huo xiang)*	5-10	Relieves Exterior syndromes and Summer Heat, improves appetite, stops nausea and vomiting	Resolves pathogenic Dampness, invigorates stomach and spleen, regulates *Qi*
Amomum fruit *(sha ren)*	3-6	Relieves diarrhea, activates stomach and spleen, treats vomiting during pregnancy, prevents miscarriage	
Atractylodes *(cang zhu)*	5-10	Strengthens the spleen by eliminating Dampness, removes Wind-Cold-Damp exopathogens, and relieves arthralgia	
Magnolia bark *(hou po)*	3-10	Promotes the flow of *Qi,* eliminates Dampness, removes food stagnation, relieves cough and asthma	
Rhubarb *(da huang)*	5-10	Removes Heat from the blood, relieves constipation, clears away toxins, removes blood stagnation	Moistens the bowels, dispels retained waste, eliminates metabolic toxins
Senna leaf *(fan xie ye)*	1.5-3	Relieves food retention, purgative	
Areca seed *(bing lang)*	6-15	Relieves stagnation of food, relieves constipation, anthelmintic action	Anthelmintic, stomachic
Evodia fruit *(wu zhu yu)*	1.5-5	Soothes the liver, relieves stomach pain, stops vomiting and regurgitation	Interior Warming, dispels pathogenic Cold and Dampness

HAWTHORN
Fructus Crataegi
Shan zha

This herb is the dried ripe fruit of *Crataegus pinnatifida* Bge. and *C. cuneata.* Sieb. of the family Rosaceae. It is widely grown throughout the mountainous regions of north and south China. After harvesting in autumn, the fruit is cleaned, sliced, dried, and used unprocessed. The fruit, when ripe, has a sour and sweet taste (Jiang Su New Medical College, 1977). Hawthorn is a digestion-improving stomachic.

In classical Chinese materia medica, the fruit was described as anti-scorbutic, laxative, stomachic, deobstruant, and alterative. It was administered to assist digestion and to promote the circulation of the blood (Smith and Stuart, 1973).

Today hawthorn is used to improve digestion and elimination, treat dyspepsia and stagnation of fatty food, invigorate blood circulation, improve blood pressure, and lower blood cholesterol levels (Dong et al., 1998).

TCM Properties

Sour and sweet taste, and slightly warm, it acts on the spleen, stomach, and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Improves digestion and eliminates retention of food: for abdominal distention, anorexia, abdominal pain, dyspepsia, and diarrhea caused by enteritis, hawthorn is taken alone in a decoction, or in combination with medicated leaven and germinated barley in a decoction (Dong et al., 1998), or with aucklandia root *(mu xiang),* white atractylodes, dolichos nut *(bai bian dou),* myristica, and bitter orange in a decoction (Wang, 1994).
2. Invigorates blood circulation and resolves blood stasis:

    - For the treatment of hypertension, angina, and coronary heart disease, hawthorn is made into a decoction, or combined with prunella, chrysanthemum, and scute to make a daily tea if hyperten-

sion is caused by hyperactivity of the liver yang (Dong et al., 1998).
- Hawthorn is also blended with acronychia (dalbergia), codonopsis, carthamus, salvia root, and red peony root in a decoction for chest pain, dyspnea, and to prevent coronary blood clots (Wang, 1994).

3. For postpartum abdominal pain or gastralgia, hawthorn is mixed with Chinese angelica, cnidium, leonurus, corydalis tuber, and pollen typhae *(pu huang)* (Wang, 1994). It can be combined with leonurus, cyperus tuber, and cinnamon twig to treat dysmenorrhea and amenorrhea caused by stagnation of blood circulation (Wang, 1994).
4. Treats hyperlipemia: hawthorn is blended with salvia, chrysanthemum, germinated barley, and lonicera in a decoction.

Dosage

In a decoction of 10 to 15 g per day. For hypertension and hyperlipemia, 30 to 60 g can be taken in three doses after meals.

Precautions

People with hyperchlorhydria or stomach ulcers, and pregnant women should not use this herb or use with extra caution.

Side Effects and Toxicity

The therapeutic dose rarely causes undesirable side effects or toxicity. Long-term administration did not produce any side effects (Zhu, 1998). Some patients may experience an upset stomach or light diarrhea (Dong et al., 1998). Female mice receiving a daily dose of 100 mg/kg of the flavones of the fruit for one month had normal pregnancies. The offspring had normal blood profiles and other clinical indices. The intravenous LD_{50} of the flavones was 1650 mg/kg (Wang, 1983).

Modern Research Findings

Chemical Constituents

Hawthorn leaves and berries contain flavonoid compounds, quercetin, vitexin, hypecrin, hyperoxide, cyanin, quercitrin, catechin, anthocyanidins, and proanthocyanidins. Its triterpenic acids include crataegoic acid, chloro-

genic acid, oleanolic acid, ursolicacid, and caffeic acid; citric, succinic, and malic acid (Hu et al., 1989; Su and Qiao, 1989). The berries also contain cardiotonic amines, cholins, acetycholine, vitamins B_1, B_2, and C, fructose, amygdalin, pectins, and essential oils (Leung and Foster, 1966).

Pharmacological Findings

1. The fruit increases the secretion of digestive enzymes and promotes digestion. It also increases the actions of lipase and protease (Wang, 1983).
2. Hawthorn lowers serum cholesterol levels. The serum cholesterol and triglyceride levels of rabbits receiving an oral dose of 9.5 g of the fruit's extract were significantly lower than that of the control group. Experimental hyperlipidemia in rabbits could be abated by oral administration of 10 g/kg of the fruit's alcohol extract. In twenty-five-day-old rats, an oral dose of 0.25 mg/g of the 30 percent extract of the fruit decreased hyperlipidemia by 45 ± 12 percent after ten days of medication (Wang, 1983).
3. The flavones of the herb perfused into a rabbit's heart produced a marked increase in coronary blood flow (Wang, 1983).
4. The fruit was shown to strengthen contractions of the heart muscle, increase cardiac output, and decrease the heart rate (Wu, 1983).
5. Other effects: hawthorn extract showed antimicrobial, antiarrhythmia, sedative, analgesic, uterine muscle-contraction, and body temperature-lowering properties (Dong et al., 1998; Zhu, 1998).

Clinical Findings

The alcohol extract of the fruit was used in sixteen cases of coronary disease with angina pectoris, with four weeks being one treatment course. Marked effects were observed in one case at the end of one course, and marked effects in six cases and improvement in nine cases were obtained at the end of three courses. Improvement was also observed in twelve cases of atypical angina pectoris (Zhu, 1998).

The tablets of the fruit extract (each tablet was equivalent to 3.1 g of the fruit) were used in 104 cases of hypercholesterolemia, at a protocol of five tablets, three times daily for fifteen months. Serum cholesterol was normalized in seventy-seven cases, reduced by 20 percent in fifteen cases, and elevated in one case. Using the same dosage in twenty-one cases of hypertriglyceridemia, seventeen cases resulted in normalization of serum triglyceride levels (Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Hu, S. L., Chi, Q., and Zhao, Z. Z. (1989). *The Indigenous and Superior Chinese Herbal Drugs*. Harbin: Heilongjiang Science and Technology Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Leung, A. and Foster, S. (1966). *Encyclopedia of Common Natural Ingredients.* New York: John Wiley and Sons, Inc.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Su, Z. W. and Qiao, C. Z. (1989). *Pharmacognosy.* Shanghai: Shanghai Medical University Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

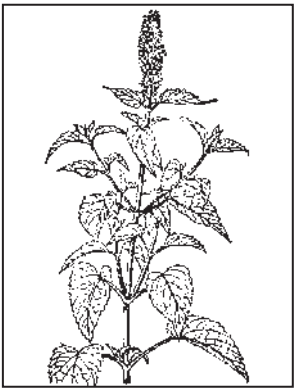
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Wu, B. J. (1983). *Pharmacology of Chinese Herbal Medicine*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

AGASTACHE

Herba Agastaches seu Pogostemi
Huo xiang



This herb is the dried aerial parts (branches and leaves) of *Agastache rugosus* (Fisch. et May) O. Ktze or *Pogostemon cablin* (Blanco) Benth of the family Labiatae (Jiang Su New Medical College, 1977). It is chiefly grown in the Guangdong province of China and harvested in summer. This plant is not indigenous to China, having been introduced from India and other parts of Southeastern Asia (Smith and Stuart, 1973). Agastache is either cut into pieces, dried, and used unprocessed, or the fresh herb is used. This herb is a Damp-resolving stomachic.

Its principle uses are as a carminative and stomachic. Nausea and pregnancy (morning sickness) is another difficulty for which this plant was recommended (Smith and Stuart, 1973).

In TCM, the aromatic herb was used for resolving Dampness. Today, it is commonly used to dispel Summer Heat and Dampness, Cold in the gastrointestinal tract, poor appetite, dyspepsia, nausea, and vomiting (Dong et al., 1998).

TCM Properties

Pungent in taste and slightly warm, it acts on the spleen, stomach, and lung meridians.

Effects, Medicinal Uses, and Combinations

1. Improves digestion, and stops nausea and vomiting:

   - Agastache is used with codonopsis root and licorice root to invigorate digestion.
   - For the treatment of a disturbance of Middle-*Jiao,* with an accumulation of Dampness, epigastric fullness, abdominal distension, anorexia, fatigue, nausea, and vomiting, and acute gastroenteritis, agastache is combined with atractylodes rhizome, ginger, licorice root, pinellia, orange peel, and magnolia bark, as in *Bu Huan Jin Zheng Qi San,* in a decoction (Dong et al., 1998).

2. Relieves the afflictions caused by exopathogenic Summer Heat, Cold, or impairment of the viscera. These conditions occur when spoiled or unhealthy foods are eaten in the summer months, or during summer travel. Symptoms include manifestations of flu, fever, headache, chest oppression, abdominal distension, nausea, vomiting, diarrhea, fatigue, and poor appetite. Agastache blended with perilla seeds, white atractylodes, dahurica angelica root, pinellia tuber, magnolia bark, and other herbs as in *Huo Xiang Zheng Qi San* capsules (R-48), is an excellent remedy (Dong et al., 1998; Wang, 1994).
3. Stops vomiting: agastache is prescribed with codonopsis, clove, ginger, tangerine peel, and pinellia to treat vomiting after eating, and lack of appetite caused by pathogenic Dampness in the spleen and stomach. It is also used with amomum fruit and pinellia tuber to alleviate vomiting caused by morning sickness (Dong et al., 1998; Wang, 1994).

Dosage

In a decoction of 5 to 10 g.

Precautions

People with yin deficiency and hyperactivity of Middle-*Jiao* should not take this herb or take with great caution. In making a decoction, do not overcook this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Agastache rugosus contains 0.28 percent of volatile oil. The oil's main ingredients are methylchavicol, anethole, anisaldehyde, d-limonene, p-methoxycinnamaldehyde, a-pinene, 3-octanone, p-cymene, linalool, beta-humulene, and beta-farnesene, tannin, and bitter substance (Jiang Su New Medical College, 1977).

Another species, *P. cablin,* contains 1.5 percent volatile oil. The main components in the oil are patchouli alcohol. Other ingredients include pogostol, alpha- and beta-patchoulene, eugenol, cinnamic aldehyde, patchoulipyridine, epiguipyyidine, pyridines, and tannins (Jiang Su New Medical College, 1977; Su and Qiao, 1989).

Pharmacological Findings

1. Agastache decoction and alcohol extract, and the active ingredients' alcohol are strongly antimicrobial. They inhibit the growth of *S. aureus, Beta-hemolytic streptococci,* pneumococci, pseudomonas, *E. coli, S. hemolyticus,* and fungi *C. albicans* and *C. neoformans* (Dong et al., 1998; Su and Qiao, 1989).
2. Stimulates the gastric mucous membranes, increases the secretion of gastric juices, and inhibits the excessive peristalsis of the gastrointestinal tract (Dong et al., 1998).
3. Antiemetic. The effect is even stronger when combined with ginger (Dong et al., 1998).
4. Antifungal and antispirochetic (Dong et al., 1998).
5. Antidiarrhetic (Dong et al., 1998).
6. The volatile oil of agastache is diaphoretic (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

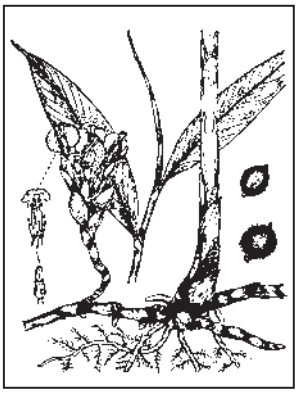
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Su, Z. W. and Qiao, C. Z. (1989). *Pharmacognosy*. Shanghai: Shanghai Medical University Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

AMOMUM FRUIT

Fructus Amomi
Sha ren



This herb is the dried, ripe fruit of *Amomum villosum* Lour or *A. longiligulare* T. L. Wu of the family Zingiberaceae. The former is mainly grown in the Guangdong province of China, and the latter is grown in the Hainan province. The herb is harvested in summer or early autumn, cleaned, dried, and used unprocessed (Jiang Su New Medical College, 1977). This herb is a Damp-resolving stomachic.

Amomum fruit has stomachic, tonic, astringent, carminative, sedative, and antitussive properties that are similar to those of cardamoms in general (Smith and Stuart, 1973.

Amomum fruit, an aromatic herb, is used for treating ulcers, as a diarrhea-averting agent for chronic diarrhea, for the treatment of pregnancy-related vomiting, and the prevention of miscarriage (Dong et al., 1998).

TCM Properties

Pungent in taste and warm, it acts on the spleen and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Resolves Dampness and activates the stomach and spleen:

   - To treat epigastric fullness, abdominal distension, indigestion, anorexia, vomiting, or diarrhea caused by an accumulation of Dampness in the Middle-*Jiao,* amomum fruit is used with magnolia bark, aucklandia root, and atractylodes (Wang, 1994).
   - For stagnation of food and indigestion, amomum fruit can be combined with aucklandia root, immature bitter orange, and white atractylodes rhizome (Wang, 1994).
   - For anorexia, a feeling of fullness, and diarrhea caused by stagnation of *Qi* and spleen deficiency, amomum fruit is prescribed with codonopsis, atractylodes, poria, and white atractylodes, as in *Xiang Sha Liu Jun Zi Tang* (Dong et al., 1998; Wang, 1994).

2. Relieves diarrhea: for diarrhea caused by a deficiency of the Spleen-*Qi* and an accumulation of Cold-Dampness in the abdomen, amomum

fruit can be taken alone in the powdered form, or with dried ginger, prepared aconite, and nutmeg in a decoction (Wang, 1994).

3. Amomum is used as an antiabortive and stabilizes the fetus, reducing threatened abortion:

   - Eliminates pernicious vomiting and prevents miscarriage. Amomum fruit can be taken with loranthus, white atractylodes, dipsacus, and perilla stem, or it can be dispensed with eucommia bark, loranthus, and dipsacus in a decoction to stop pernicious vomiting during pregnancy, threatened abortion, and to prevent miscarriage (Wang, 1994).
   - To stabilize excessive fetal movement, amomum is combined with eucommia, dipsacus, and loranthus in a decoction (Wang, 1994).

Dosage

In a decoction of 3 to 6 g.

Precautions

People with yin deficiency and endogenous Heat should not use the herb (Wang, 1994).

Side Effects and Toxicity

No undesirable effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Amomum fruit contains essential oil. The essential oil of *A. villosum* and *A. longiligulare* have bornyl acetate and camphor as its major components. Nerolidol and linalool have also been found in the oil (Gu and Yang, 1985; Yang et al., 1985).

Pharmacological Findings

1. An amomum fruit decoction dilates gastrointestinal smooth muscle in rabbits.
2. Alcohol detoxifier (Yang et al., 1985).
3. Antiemetic.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Gu, M. X. and Yang, Y. (1985). Gas chromotographic determination of bornyl acetate and camphor in essential oil of amomum species. *Chinese Journal of Pharmaceutical Analysis* 5: 359-360.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

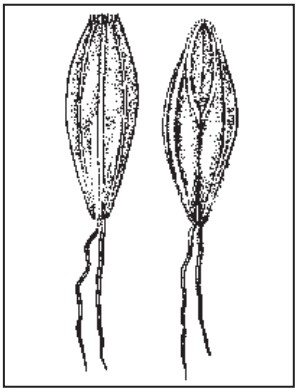
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Yang, Z. Q., Zhang, J., Zhang, B. L., and Qin, X. L. (1985). Investigation on the Quality of *Sha Ren (A. villosum). Chinese Journal of Pharmaceutical Analysis* 5: 351-358.

GERMINATED BARLEY

Fructus Hordei Germinatus
Mai ya



This herb is the dried, germinated ripe fruit of *Hordeum vulgare* L. of the family Gramineae, available in every province of China. Like hawthorn, this medicinal agent is a stomachic that improves digestion. It is used unprocessed or stir baked to a dark brown (Jiang Su New Medical College, 1977).

The Chinese consider barley to be very nourishing. It prevents fever and provides vigor and strength to the body. Continued consumption of it is said to prevent hair from turning grey. Germinated barley is considered to be stomachic, peptic, lenitive, demulcent, expectorant, and abortifacient (Smith and Stuart, 1973).

Germinated barley (unprocessed) is a stomachic, and improves the appetite. Processed barley improves digestion and dyspepsia. Germinated rice and millet produce similar results.

TCM Properties

Sweet in taste and neutral, it acts on the spleen, stomach, and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Improves digestion: for indigestion, lack of appetite, dyspepsia, fullness in the stomach, and abdominal distension, germinated barley is often combined with hawthorn fruit and medicated leaven (Dong et al., 1998).
2. Relieves stagnation and pain of the breasts (mastalgia), delactation (cessation of lactation), and distending pain in the breasts: for this condition, unprocessed germinated barley, or equal amounts of unprocessed germinated barley and stir-baked germinated barley are made into a decoction in water for tea, and are taken daily to relieve a distended feeling and pain in the breasts. Germinated barley is also used for masses in the breasts in a decoction with bupleurum, tangerine peel, and cyperus or germinated barley (50 g) combined with 15 g each of hawthorn and schisandra. This is divided into two doses and taken for seven to eight days to treat hyperplasia of mammary glands (Dong et al., 1998).

Precautions

To be used with caution by those who are breast-feeding.

Dosage

In a decoction of 10 to 15 g; large dose can be 30 to 120 g.

Side Effects and Toxicity

The therapeutic dose does not cause adverse effects or toxicity. An extremely large dose caused headache and constipation in some patients (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

Germinated barley contains several enzymes, diastase, peptidase protease, lipase, choline, hordenine, (amylace, invertase), and dextrin, phospholipids, maltose, glucose, and vitamins A, B, C, and D (Jiang Su New Medical College, 1977).

Pharmacological Findings

1. Germinated barley is a stomachic and is effective in helping digestion. Because of its digestive enzymes, the herb is able to digest carbohydrates and proteins (Wang, 1994).
2. Oral administration of the decoction decreased blood glucose in rabbits and nondiabetic rabbits (Dong et al., 1998).
3. Hypoglycemic (Wang, 1994).

REFERENCES

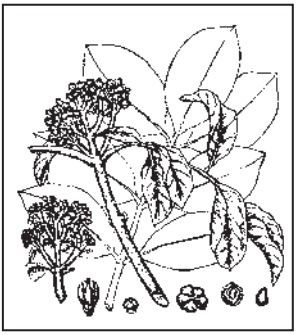
Dong, K. S., Want, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

EVODIA FRUIT
Fructus Evodiae
Wu zhu yu



This herb is the fruit of *Evodia rutaecarpa* (Juss.) Benth. of the family Rutaceae. It is mainly grown in the Guangxi, Guizhou, Hunan, Hubei, Saanxi, Sichuan, and Yunnan provinces of China. It is harvested in autumn when the fruit is nearly ripe, dried in the sun, used unprocessed or decocted and processed in licorice root juice (Jiang Su New Medical College, 1977). This herb is an interior-warming stomachic.

The herb was used as a stimulant, carminative, stomachic, deobstruant, astringent, and anthelmintic remedy. It was even recommended for sterility and barrenness (Smith and Stuart, 1973). Evodia fruit's stomachic action is good for dispelling internal Coldness, lowering the adverse flow of *Qi,* relieving diarrhea, soothing the liver, and relieving pain (Dong et al., 1998). It is used commonly for acute and chronic gastritis, colitis, and enteritis (Wang, 1994).

TCM Properties

Pungent and bitter taste; warm and slightly toxic, it acts on the liver, spleen, and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Dispels pathogenic Cold: to treat abdominal coldness with pain, evodia fruit is used with dried ginger root and aucklandia. It is also combined with fresh ginger, ginseng, and jujube, as in *Wu Zhu Yu Tang* (R-71), to treat coldness in the Middle-*Jiao,* headaches, and adverse flow of Liver-*Qi* (Dong et al., 1998). It is often used with psoralea fruit, nutmeg, magnolia fruit, schisandra, fresh ginger, jujube, and psoralia fruit, as in *Si Shen Wan* (R-28), to treat diarrhea before dawn, anorexia, loose stools with undigested food, abdominal pain, and coldness of the limbs caused by spleen-yang and kidney-yang deficiencies (Dong et al., 1998).
2. Relieves vomiting and acid regurgitation: for the treatment of coldness in the stomach and acid regurgitation, evodia fruit is prescribed with dried ginger root and pinellia tuber.

3. Stops vomiting during pregnancy: to treat nausea and vomiting in general, as well as during pregnancy, evodia fruit is used alone or combined with ginseng, jujube, and fresh ginger in a decoction (Wang, 1994).

Dosage

In a decoction of 2 to 5 g.

Precautions

People with yin deficiency and excessive internal Heat in the blood should avoid this herb. Pregnant women should avoid this herb or use with caution.

Side Effects and Toxicity

This herb is slightly toxic as recorded in classical Chinese materia medica (Dong et al., 1998; Jiang Su New Medical College, 1977). It should not be overdosed or used for a long period of time. Long-term use may cause vision difficulties (Wang, 1994).

Modern Research Findings

Chemical Constituents

Evodia fruit contains a number of alkaloids, including an indole alkaloid, evodiamide, dihydrorutaecarpine, ocimenc, evodin, evodol, gushuynic acid, evodiamine, rutaecarpine, evocarpine, isoevodiamie, evodinone, evogin, and rutaevin. Its volatile oil contains bitter principles, evodol, evodinon, obacunone, jangomolide, rutavin acetate, graucin A, and other elements (Sugimoto, Miyasa, et al., 1988; Sugimoto, Ueno, et al., 1988; Wang, 1983).

Pharmacological Findings

1. Evodia fruit is a bitter stomachic. The volatile oil or the alkaloids of the fruit showed significant stomachic action. Also, the volatile oil of the herb prevents abnormal fermentation in the intestines. An oral administration of an evodia fruit decoction showed antiemetic activity. The antiemetic effect was synergistic with ginger (Wang, 1983).

2. Intravenous administration of the decoction or distillate of the herb was significantly hypotensive in normal dogs and dogs with artificially induced unilateral renovascular hypertension. In dogs receiving the decoction, blood pressure was lowered to 62 percent of the original level. This action lasted for more than three hours. The decoction taken orally also showed hypotensive activity, although to a lesser extent. The hypotensive effect was believed to be due to dilation of the peripheral blood vessels and the diuretic action of the herb (Wang, 1983).
3. The active ingredient of the herb, dehydroevodiamine, inhibited acetylcholinesterase activity in a dose-dependent and noncompetitive manner. A single dose of 6.25 mg/kg of dehydroevodiamine to rats significantly reversed the scoplamine-induced memory impairment in a passive avoidance test. The antiamnestic effect of dehydroevodiamine was more potent than that of tacrine (the FDA-approved drug). This potent antiamnestic action of dehydroevodiamine is thought to be caused by the combined effects of acetylcholinesterase inhibition and the cerebral blood flow enhancement of the herb (Park et al., 1996).
4. An analgesic reaction was observed in rabbits given an intravenous dose of 1 percent evodiamine hydrochloride (Wang, 1983).
5. The herb's alkaloid, rutaecarpine, showed uterotonic activity on rat uterus in vitro.
6. The decoction of evodia fruit inhibited *Vibrio cholerae, P. aeruginosa, S. aureus,* and some pathogenic fungi in vitro (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Park, C. H., Kim, S. H., Choi, W., Lee, Y. J., Kim, J. S., and Kang, S. S. (1996). Novel anticholinesterase and antiamnesic activities of dehydroevodiamine, a constituent of *Evodia rutaecarpa. Planta Medica* 62: 405-409.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Sugimoto, T., Miyasa, T., Kuroyanagi, M., and Ueno, A. (1988). Limonoid and qinolone alkaloids from *Evodia rutaecarpa* Bentham. *Chemical Pharmaceutical Bulletin* 36: 4453-4461.

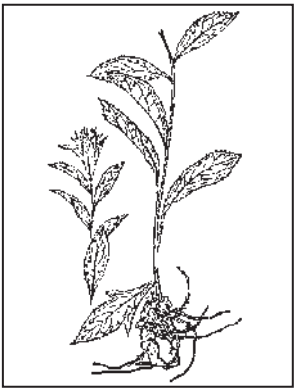
Sugimoto, T., Ueno, A., Kadota, S., Cut, C. B., and Kikachi, T. (1988). New 5-B-H limooside from *Evodia rutaecarpa* Bentham. *Chemical Pharmaceutical Bulletin* 36: 1237-1240.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

ATRACTYLODES

Rhizoma Atractylodes
Cang zhu



This herb is the dried rhizome of *Atractylodes lancea* (Thunb.) DC., *A. chinensis* (DC.) Koidz, or *A. japonica* Koidz of the family Compositae. The first is mainly grown in the Hubei and Jiangsu provinces, and the second and third are grown in Jilin, Liaoning, Shandong, Inner Mongolia of China, and Korea. It is dug in the spring, cleaned, sliced, and stir baked to a yellow-brown color (Jiang Su New Medical College, 1977).

Atractylodes is recorded as a stomachic, stimulant, arthritic, and tonic remedy used for fever, catarrh, chronic dysentery, general dropsy, rheumatism, profuse sweating, and apoplexy (Smith and Stuart, 1973). Atractylodes rhizome is an aromatic internal Dampness-resolving stomachic herb. It is an effective herb for eliminating Wind-Cold-Damp exopathogens, and for treating arthralgia and gastrointestinal ailments (Dong et al., 1998).

TCM Properties

Pungent and bitter in taste, and warm, it acts on the spleen and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Strengthens the spleen, eliminates Dampness, and improves digestion: for the treatment of indigestion, dyspepsia, weariness, exhaustion, epigastric distress, abdominal distension, anorexia, nausea, acute and chronic gastritis, gastrointestinal neurosis and vomiting, atractylodes is often used with magnolia bark and tangerine peel, as in *Ping Wei San* (R-59) (Dong et al., 1998; Wang, 1994).
2. Removes Wind-Cold-Damp exopathogens and relieves arthralgia: to treat swollen knees and foot pain, atractylodes is combined with cinnamon twig and notopterygium root. It can also be blended with phellodendron and achyranthes root, as in *San Miao San,* for the treatment of Fixed-*Bi* syndrome with pain in the joints and extremities (Zhang, 1988).

3. Relieves night blindness: for night blindness, oculopathy, and optic atrophy, atractylodes is taken alone or with black sesame seed, liver, processed rehmannia, and haliotis *(shi ju ming)* in a decoction (Wang, 1994).
4. Relieves symptoms caused by Damp-Heat: symptoms such as swelling in the knees and feet, lower-limb eczema, or leukorrhagia, actractylodes combined with phellodendron bark, as in *Er Miao San,* gives good results (Wang, 1994).
5. Reduces stress and relieves depression: atractylodes relieves stagnant Liver-*Qi* and restores the normal function of the depressed liver (due to depression), as in *Yue Ju Wan* (Dong et al., 1998).

Precautions

People with yin deficiency, deficiency of essence, and external asthenia and sweating should not use this herb or use with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Dosage

In a decoction of 5 to 10 g.

Modern Research Findings

Chemical Constituents

Atractylodes lanceae contains about 3 to 5 percent of volatile oil, while *A. chinensis* contains only 1 percent oil. The main principles of the oil are atractylodin, hinesol, beta-eudesmol, atractylol, and atractybon. Cymol, alpha-isovetivene, beta-selinene, curcumene, beta-bisabolene, and alpha-bisabolol were also found in the oil (Yoshida and Kimura, 1969; Zhou, 1993).

Pharmacological Findings

1. Atractylodes possess aromatic Damp-eliminating, stomachic properties.
2. Hypoglycemic. The decoction increased blood-sugar levels in normal rabbits but lowered the blood-sugar levels in alloxan-diabetic rabbits. Atractyloside, a glycoside from *A. gumnifera,* decreased blood-sugar

levels in rats, mice, rabbits, and dogs, and lowered muscle glycogen and hepatic glycogen. It suppressed the synthesis of glycogen and also decreased oxygen consumption (Wang, 1983).

3. Atractylodes apparently eliminates Na and K ions but is not a diuretic (Dong et al., 1998).
4. An atractylodes decoction showed no antimicrobial activity. However, its incense or fumigant is lethal to various viruses (Dong et al., 1998; Wang, 1983).
5. The essential oil of the herb had a sedative effect in frogs with concurrent exaggeration of the spinal reflexes. At a higher dose, it caused inhibition and finally death from respiratory paralysis (Zhu, 1998).

Clinical Findings

After three years of observation, burning one coil of antiseptic atractylodes incense for every 45 m^3 of space significantly decreased the incidence of varicella, mumps, and scarlet fever in kindergartens and nurseries (Wang, 1994). The study also showed that fumigation for two hours was significantly antiseptic against a number of microbes. The effect is similar to formalin solution or ultraviolet sterilization of the air (Jiang Su New Medical College, 1977).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

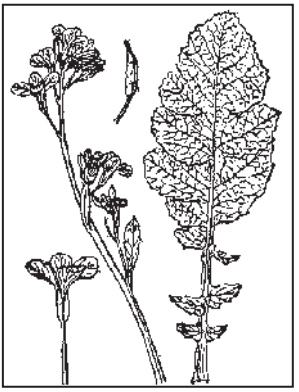
Yoshida, I. and Kimura, T. (1969). Constituents of atractylodes XI. Structure and absolute configuration of hinseol. *Chemical Pharmaceutical Bulletin* 117: 856-857.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica*. Beijing: China Medical and Pharmaceutical Science Press.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

RAPHANUS OR RADISH SEEDS

Semen Raphani
Lai fu zi



This herb is the dried, ripe seeds of *Raphanus sativus* L. of the family Cruciferae, which is grown in all parts of China. It is collected in summer, dried, and used unprocessed or stir baked as roasted radish seed. Raphanus is used to improve digestion, as a carminative and corrective agent for food stagnation, and for gastrointestinal distension (Jiang Su New Medical College, 1977). The seeds are peptic, diuretic, carminative, corrective, and expectorant (Smith and Stuart, 1973).

TCM Properties

Pungent in taste, and neutral, it acts on the spleen, stomach, and the lung meridians.

Effects, Medicinal Uses, and Combinations

1. Improves digestion and removes food stagnation: for abdominal distension, impaired digestion, belching, acid regurgitation, and abdominal pain due to retention of undigested food and gas, raphanus is combined with hawthorn fruit, medicated leaven, and tangerine peel, as in *Bao He Wan* (Wang, 1994).
2. Depresses the abnormal flow of Lung-*Qi* and resolves excess phlegm: for excessive phlegm, cough, and dyspnea, raphanus is used with white mustard seed and perilla seed (Dong et al., 1998).
3. Treats primary hypertension: the decocted raphanus seed preparation used in China showed effectiveness in treating primary hypertension and hyperlipemia (Dong et al., 1998).
4. Treats hyperosteogenesis: for conditions of cervical spondylosis, spondilitis, bone spur and hyperosteogenesis, raphanus (9 g) is combined with processed rehmannia (45 g), epimedium (15 g), paederia (30 g), drynaria (30 g), pyrolae *(lu han cao),* and cistanche (15 g each) in a decoction or in a honey pill, as in *Gu Zhi Zeng Sheng Wan* (Dong et al., 1998).

Dosage

In a decoction of 3 to 9 g.

Precautions

People with *Qi* deficiency and those not suffering from food stagnation should use this herb with caution (Wang, 1994).

Side Effects and Toxicity

The stir-fried or processed raphanus is safe and nontoxic. The raw seed is slightly toxic to the heart and causes nausea. The LD_{50} of the aqueous extract of the herb was administered 127.4 g/kg to mice by intreperitoneal administration and most died of seizures within one hour (Zhu, 1998). An oral administration of 100, 200, and 400 g/kg to rats for three weeks did not produce significant change in blood profiles or liver and kidney functions (Wang, 1983).

Modern Research Findings

Chemical Constituents

Raphanus contains fatty oil and a small amount of volatile oil. The main components in the oil are erucic acid, linoleic acid, lenolenic acid, glycerol sinapate, sinapine, and raphanin. The components of the essential oil include methyl mercaptan, and alpha- and beta-hexanal (Jiang Su New Medical College, 1977; Wang, 1983).

Pharmacological Findings

1. Raphanus significantly inhibits bacteria, such as *S. aureus, S. pneumoniae,* and *E. coli*.
2. Raphanus is antifungal and a decoction lowers blood pressure. Intravenous administration of the aqueous extract of the herb produced hypotension in anesthetized rabbits, cats, and dogs (Wang, 1983). The action was slow but prolonged.
3. Raphanus demonstrated anti-inflammatory, analgesic, and detoxification properties (Dong et al., 1998).

Clinical Findings

In a clinical investigation on the efficacy of the herb in treating patients with primary hypertension, the herb was made into 0.3 g tablets, with each tablet containing a 6 g equivalent of the herb. The oral dose was five tablets at a time, three times a day (with no mention for how long). In fifty-six cases it was very effective, in fifty-two cases it was effective, and there was no difference in twelve cases. The total effective rate was 90 percent in comparison with the control group.

Prior to treatment, the study group had a blood pressure reading of 174.2/108 mmHg. After treatment, readings were 148/94 mmHg. The blood pressure lowering was 26.1 $\pm$ 2.58 / 14 $\pm$ 1.007 SD. Blood cholesterol levels showed a significant lowering, as well as improvement in the cardiograms of the patients (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

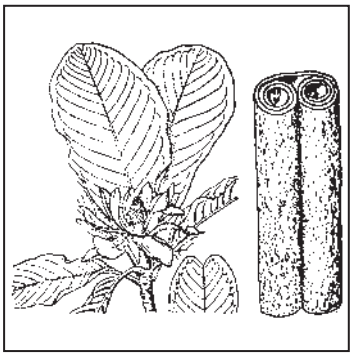
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

MAGNOLIA BARK

Cortex Magnoliae Officinalis
Hou po



This herb is the dried bark of the root or trunk of *Magnolia officinalis* Rehd. et Wils. of the family Magnoliaceae. It is mainly grown in the Hubei, Sichuan, and Zhejiang provinces of China. Collected in the spring, it is boiled in ginger juice, cut into sections, and dried. Magnolia bark is an aromatic, *Qi*-invigorating stomachic agent. The taste of the bark is aromatic and bitter. Medicinally, it reduces food stagnation, it is tonic, stomachic, quieting, and anthelmintic. It was prescribed for diarrhea, flatulence, amenorrhea, pyrosis, and a variety of gastrointestinal difficulties (Smith and Stuart, 1973). Today, magnolia bark is commonly used for gastrointestinal distension with pain caused by food stagnation, and to treat coughs and asthma caused by an accumulation of phlegm in the lungs (Wang, 1994).

TCM Properties

Bitter and pungent in taste, and warm, it acts on the spleen, stomach, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Promotes the flow of *Qi* and eliminates Dampness in Middle-*Jiao:* to treat food stagnation and indigestion, magnolia bark is combined with orange peel and atractylodes, as in *Ping Wei San* (R-59). It can be prescribed with rhubarb and bitter orange, as in *Hou Po San Wu Tang,* to treat gastrointestinal distention, constipation, nausea, and vomiting (Wang, 1994).
2. Promotes circulation of *Qi,* and relieves coughs and asthma: for an excessive cough, phlegm accumulation in the lungs, and asthma, magnolia bark is used with ephedra, pinellia tuber, and bitter apricot kernel, as in *Hou Po Ma Huang Tang* (Wang, 1994). For stagnancy of phlegm, pharyngitis, and pharyngoneurosis, magnolia is combined with pinellia, poria, and perilla leaf, as in *Ban Xia Hou Po Tang* (Dong et al., 1998).

3. Invigorates the circulation of Liver-*Qi:* for pain in the epigastric region, depression, belching, and lack of appetite, magnolia bark is prescribed with curcuma, aquilaria, and bupleurum, as in *Shu Gan Tang (Wan)* (R-52) (Jiang Su New Medical College, 1977).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with spleen and stomachic asthenia, and pregnant women should use this herb with caution.

Side Effects and Toxicity

The therapeutic dose does not cause side effects or toxicity. Toxicological studies in mice showed that an oral dose of 60 mg/kg decoction did not generate any fatalities within three days. The intraperitoneal LD_{50} of the decoction in mice was 6.12 ± 0.04 g/kg and that of magnocurarin was 45 mg/kg (Wang, 1983; Zhu, 1998).

Modern Research Findings

Chemical Constituents

Magnolia bark contains phenol compounds of magnolol, isomagnolol, honokiol, and essential oils. Other ingredients are machilol, endesmol, magnocurasine, magnoflavoine, and salicifoline (Jiang Su New Medical College, 1977; Zhu, 1998).

Pharmacological Findings

1. Stomachic. Magnolia bark and its volatile oil stimulate the secretion of saliva, gastric juices, and gastrointestinal peristalsis, and improve digestion (Dong et al., 1998).
2. Antiulcerative. Magnolol inhibited the formation of gastric ulcers induced by Shay's pylorus ligation and water-immersion stress. It also inhibited histamine-induced duodenal spasms. Magnolia inhibited the increase of gastric-acid secretion in the perfused stomachs of anesthetized rats (Wang, 1983).

3. Magnolia bark is antimicrobial, antifungal, and antiamebic. Its decoction showed antimicrobial activities in vitro against many bacteria, including *S. aureus, S. hemolyticus, B. diphtheriae, B. subtilis,* and *B. dysenteriae,* and some skin fungi (Clark et al., 1981; Zhu, 1998).
4. Lowers blood pressure, increases heart rate, and relaxes muscles (Dong et al., 1998).

Clinical Findings

The powdered, decoction, or injection solution of the herb used in acute enteritis, and bacillary or anemic dysentery showed effectiveness in clinical investigations (Zhu, 1998).

REFERENCES

Clark, A. M., El-Feraly, F. S., and Li, W. S. (1981). Antimicro activity of phenolic constituents of *Magnolia grandiflorra. Journal of Pharmaceutical Sciences* 70: 951-952.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

RHUBARB
Radix et Rhizoma Rhei
Da huang

This herb is the dried root and rhizome of *Rheum palmatum* L., *R. tanguticum* Maxim. ex Balf, or *R. officinale* Baill of the family Polygonaceae. It is mainly grown in the Qinghai, Gansu, Sichuan, and Yunnan provinces of China. Collected in the late autumn when the stem and leaves begin to wither, it is dried and sliced for use unprepared or stir baked with wine (Jiang Su New Medical College, 1977).

Rhubarb is used as a purgative and detoxicant for treating intestinal obstruction, food stasis, and distension, and has been known in China since the time of the Five Rulers (circa 2852-2205 B.C.). It is beneficial to the stomach and spleen, invigorates blood circulation, eliminates toxins from the bowels, and prevents senility. It is regarded more as a general eliminant and tonic for the digestive tract. It was recommended in women's diseases, especially those attended by congestion of the pelvic organs, such as dysuria and dyspareunia. It was also used in malarial fever and the fevers of children. The purgative properties of rhubarb are not as highly regarded by the Chinese as they are in the West (Smith and Stuart, 1973). Today, rhubarb is known as a good gastrointestinal detoxicant, laxative, blood-inactivating, and Heat-purging drug (Wang, 1994).

TCM Properties

Bitter in taste, and cold, it acts on the spleen, large intestine, liver, and heart meridians.

Effects, Medicinal Uses, and Combinations

1. Loosens the bowels and treats bloat: for intestinal food stagnation and constipation, and to relieve pathogenic Heat or toxins in the intestines, rhubarb is an excellent herb. It is often used with mirabilite, immature orange, and magnolia bark, as in *Da Cheng Qi Tang* (R-73), for abdominal pain, constipation, and a feeling of fullness in the abdomen (Wang, 1994).

2. Invigorates blood circulation: for acute postpartum pain, tenderness in the lower abdomen, mass formation, traumatic injuries, and other syndromes due to blood stagnation, rhubarb is combined with peach kernel and ground beetle (Wang, 1994).
3. Detoxifies and removes Heat in the blood: for hematemesis, nosebleed, bloodshot eyes, sore throat, and swelling of the gums, as well as other pains due to inflammation and excessive Heat in the blood, rhubarb is used with coptis rhizome, scutellaria root, platycodon, licorice root, and cow-bezoare *(Calculus bovis),* as in *Niu Huang Jie Du Wan*.
4. For accumulation of Heat, dry stools, constipation, epidemic febrile diseases with high fever, unconsciousness, delirium, madness, headaches, bloodshot eyes, and gum swelling with pain, rhubarb is combined with gardenia, scute, forsythia, and licorice root, as in *Liang Ge San* (Wang, 1994).
5. Removes Damp Heat and has choleretic action to relieve jaundice and strangury: rhubarb is mixed with capillaris and gardenia, as in *Yin Chen Hao Tang,* to treat jaundice (Zhang, 1988), or with akebia caulis *(mu tong),* plantago leaves, and gardenia, as in *Ba Zheng San,* to treat strangury (Wang, 1994).

Dosage

In a decoction of 3 to 12 g.

Precautions

It is not recommended during pregnancy, menstruation, or breast-feeding.

Side Effects and Toxicity

The therapeutic dose of rhubarb does not generate side effects or toxicity. However, an overdose may cause nausea, vomiting, vertigo, or stomachache. Long-term use resulted in liver damage, and hypertrophy of the thyroid and stomach tissues. Anthraquinone causes diarrhea. The LD_{50} value of the anthraquinones via oral dose in mice was 0.56 g/kg for emodin, 1.15 g/kg for physcin, and 10 g/kg for chrysophanol (Wang, 1985; Zhu, 1998).

Modern Research Findings

Chemical Constituents

Rhubarb contains about 4.6 percent anthraquinone derivatives, which can be divided into free anthraquinones, anthraquinone glycosides, and bianthrones. More than thirty-three ingredients have been isolated. Some of the important ingredients are tannins, organic acids, pectins, minerals, and mucilage (Jiang Su New Medical College, 1977; Zhu, 1998).

Pharmacological Findings

1. Purgative. Rhubarb is a well-known purgative. Anthraquinone derivatives cause the purgative action (Jiang Su New Medical College, 1977; Wang, 1985).
2. Hemostatic. The hemostatic action has been proven experimentally and clinically for both external and internal hemorrhage (Liang et al., 1986; Weng et al., 1986).
3. Choleretic. Rhubarb stimulates constriction of the gallbladder and relaxes Oddi's sphincter, thus promoting bile secretion. It also increases the contents of bilirubin and bile acid (Wang, 1985).
4. Lowers blood density and blood cholesterol levels in rabbits (Wang, 1994).
5. Lowers blood pressure, and is diuretic and a stomachic (Dong et al., 1998).
6. Antidiarrheal. Rhubarb contains astringent tannins. Rhubarb taken in a small dose (0.1 to 0.3 g) has an astringent and an antidiarrheal action in mild forms of diarrhea. A high dose (100 to 400 g) produces a mild laxative effect. Since the contents of emodins and tannins are variable, the laxative action is somewhat uncertain. The German pharmacopeia describes a rhubarb root extract that is made with 70 percent ethanol. This extract is adjusted with lactose as needed to obtain a 4 to 6 percent anthranoid content (Schulz et al., 2001).
7. Immunosuppressive. Emodin suppressed the responses of human mononuclear cells to phytohemagglutinin and mixed lymphocyte reaction. It may be a new hope for the development of better immunosuppressive agents for use against transplantation rejection and autoimmune diseases (Huang et al., 1991).

8. Antineoplastic and antimutagenic. Intraperitoneal administration of emodin produced an inhibition against mammary carcinoma in mice. It also inhibited Ehrlich ascites carcinoma (Kubo et al., 1992).
9. Other effects: rhubarb was also demonstrated to be diuretic, antispasmodic, antimicrobial, antiparasitic, and anti-inflammatory (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Huang, H. C., Chu, S. H., and Chao, P. D. I. (1991). Vasorelaxants from Chinese herbs, emodin and scoparone, possess immunosuppressive properties. *European Journal of Pharmacology* 198: 211-214.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Kubo, I., Murai, Y., Soediro, I., Soetarno, S., and Sastrodihardjo, S. (1992). Cytotoxic anthraquinone from *Rheum palmatum*. *Phytochemistry* 31: 1063-1065.

Liang, Z. J., Chen, Y. J., Shao, Y. D., Jiao, D. H., and Liu, X. C. (1986). Effect of *Rheum palmatum* on the hemorheology of rabbits. *Chinese Journal of Integrated-Traditional and Western Medicine* 6: 294-296.

Schulz, V., Hansel R., and Tyler, V. (2001). *Rational Phytotherapy*. Heidelberg, Germany: Springer-Verlag.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, J. M. (1985). *Chinese Herbal Pharmacology*. Shanghai: Shanghai Science and Technology Press.

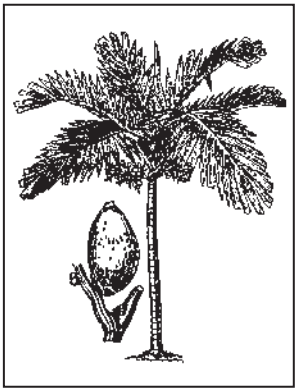
Weng, W. L., Cui, J., Chen, Y. C., and Wang, J. C. (1986). Effects of *da huang* on platelet aggregation and thrombus formation in vitro. *Chinese Traditional and Herbal Drugs* 17: 507-508.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

ARECA SEED

Semen Arecae
Bin lang or Bing lang zi



This herb is the dried, ripe seed of *Areca catechu* L. of the family Palmae. It is mainly grown in the Fujian, Hainan, Taiwan, and Yunnan provinces of China. Harvested in summer, it is peeled, dried, sliced after maceration, and used unprocessed (Jiang Su New Medical College, 1977).

The seed was formerly used in a tea as a tonic, stomachic, astringent, antiperiodic, detergent, and anthelmintic (Smith and Stuart, 1973). Areca seed is mainly used as an anthelmintic for the treatment of taeniasis, ascariasis, and fasciolopsiasis. It is also used as a purgative to treat abdominal distension (Wang, 1994).

TCM Properties

Pungent and bitter in taste, and warm, it acts on the stomach, spleen, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates digestion, and relieves food stagnation: as a stomachic, areca seed can be used along with aucklandia root, rhubarb, cyperus, blue citras, phellodendron bark, coptis, zedoaria, and other herbs, as in *Mu Xiang Bing Lang Wan* (R-62) (Wang, 1994).
2. Induces diuresis: to treat edema, areca seed is blended with chaenomeles fruit, evodia fruit, and perilla seed, as in *Ji Ming San* (Wang, 1994).
3. Induces anthelmintic action: areca seed is used to treat worms in the intestinal tract or bile duct. Different worms can be treated with areca combined with other specific herbs to increase the efficiency of the treatment. For example, areca with pumpkin seed is used for tapeworms, and chinaberry bark and omphalia is used for ascariasis and ancylostomiasis. Stemona root is combined with areca for the treatment of enterobiases (Wang, 1994).

Dosage

For use as an anthelmintic 6 to 15 g is used. For severe conditions, up to 50 or 60 g can be administered in a decoction for treating cestodiasis and fasciolopsiasis.

Precautions

People with asthenia, spleen deficiency, and downward sinking of Middle-*Jiao Qi* should avoid this herb.

Side Effects and Toxicity

The therapeutic dose does not produce side effects or toxicity. However, the alkaloid of the plant, arecoline, is slightly toxic. This is the active ingredient in its anthelmintic action (Jiang Su New Medical College, 1977).

Modern Research Findings

Chemical Constituents

Areca seed's main ingredients are alkaloids of arecolin. Others are arecailine, arecolidine, guvacine, guvacoline, homoarecolin, catechin, fat, tannin, and areca red pigment (Jiang Su New Medical College, 1977).

Pharmacological Findings

Areca seed is antifungal, antiviral, and antiparasitic. It is effective in treating tapeworms, pinworms, host worms, and roundworms. Areca seed also has a parasympathetic nerve-mimicking effect. It stimulates the gastrointestinal smooth muscles, increases peristalsis, increases the secretion of digestive juices, decreases the cardiac rate, and is hypotensive (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College. (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Chapter 13

Dampness-Eliminating Herbs: Treating Urinary Tract Disorders

The medicinal herbs covered in this chapter are diuretics. Diuretic medicine helps eliminate edema (TCM calls it Dampness elimination) and treats disorders of the urinary tract system (Dong et al., 1998).

Dampness is one of the six pernicious environmental factors that play a part in health and disease. Based on Chinese medicine, summer, particularly the late summer, is the dampest period of the year. The wet weather, rain, and high humidity in the air are exogenous factors that cause illness. If the body is attacked by exogenous Damp evil, the spleen becomes distressed and fails to perform its functions, which, in turn, leads to endogenous Damp syndrome. If the spleen yang is deficient or impaired, the fluid and metabolite cannot be dispersed or eliminated, causing edema and other illnesses (Long, 1998).

When the Dampness becomes predominant or accumulated in the Middle-*Jiao* of the body (the stomach and intestinal areas), it gives rise to polydipsia, lassitude, gastrointestinal ailments, such as vomiting, diarrhea with sticky stool, epigastric fullness, anorexia, and edema (Long, 1998; Berkow, 1997) (see Chapter 12).

If the Dampness becomes predominant or accumulated in the Lower-*Jiao* (the urinary bladder area) of the body, it causes a number of disorders and gives rise to common symptoms such as difficulty urinating, strangury, scanty dark urine, dribbling, painful urination, dysuria, leukorrhea, diarrhea, dysentery, leg swelling, and edema (Long, 1998). In severe cases, the urinary bladder and even the gallbladder are affected. Urinary tract infections are usually caused by Damp-Heat invasion of the Lower-*Jiao* (see Chapter 14). Herbs inducing diuresis and excreting fluids are particularly useful in treating edema of the Lower-*Jiao* and in the lower extremities. These effects are similar to those of diuretics in modern medicine.

When administering an herbal diuretic, it is important to select proper and supporting herbs to treat edema and associated different diseases. For example, for treating cardiac-related swelling, diuretic herbs should be combined with certain cardiac tonic herbs. To treat liver-related swelling, diuretic herbs should be used with liver-protecting herbs. For spleen-related swelling, diuretics should be prescribed with spleen tonic herbs. For general edema with exogenous afflictions, diuretic herbs should be combined with diaphoretic herbs (Dong et al., 1998).

In traditional Chinese medicine, two groups of herbal remedies are commonly used to treat urinary tract ailments:

1. Herbal diuretics that eliminate Internal Dampness and relieve edema. This is accomplished by invigorating and regulating fluid metabolism, inducing diuresis, and relieving painful urination. Herbs in this group include alisma, hoelen, polyporus, coix seed, lobellia, phaseolus, and morus bark (Dong et al., 1998).
2. Herbal diuretics that eliminate Internal Damp-Heat and relieve *Lin* syndrome (strangury) relieve fluid retention. In addition, this group of herbs is also capable of treating urinary tract infections, dysuria, phlegm retention, and turbid urine; they remove lithiasis, relieve jaundice, and leukorrhagia. Commonly used herbal diuretics for *Lin* syndrome include plantain herb, plantain seed, akebia, tokoro, sophora, polygonum herb (knoteweed), abutilon seed, and lysimachia (glechoma) (Dong et al., 1998).

Edema is often associated with diseases of the heart, kidneys, liver, and the endocrine system. Some herbal diuretic drugs are useful supplements when treating these ailments or conditions, such as edema caused by pregnancy poisoning (edema in pregnancy is due to lack of nutrition, particularly protein). Supporting herbs are useful in treating associated conditions of hypertension, ulcers, jaundice, or diarrhea, and to help speed up the elimination of metabolic toxins and fluid from the body (Dong et al., 1998).

Table 13.1 lists symptoms of pathogenic Dampness or pathogenic Damp-Heat invasion of the Lower-*Jiao,* enuresis, and the commonly prescribed herbal diuretic remedies.

Table 13.2 lists the same and individual actions of the medicinal herbs most frequently used for urinary tract disorders.

Seven herbal diuretics are further discussed in the following section.

TABLE 13.1. Herbal Diuretics and Astringents for Urinary Tract Disorders

Etiology	Symptoms	Herbal Remedies
Pathogenic Damp invasion of the Lower-*Jiao*	Dampness in the urinary bladder or kidneys, fluid retention, dysuria, edema, phlegm retention	Herbs hoelen, polyporus, coix seed, alisma, lobelia Patent Medicine *Wu Ling San, Fang Ji Huang Qi Tang, Ling Gui Zhu Gan Tang*
Pathogenic Heat and Damp invasion of Lower-*Jiao*	*Lin* syndrome (fluid retention, edema, painful urination, strangury, dysuria, phlegm retention, jaundice)	Herbs plantain herb, plantain seed, akebia, sophora, polygonum herb, abutilon seed, lysimachia Patent Medicine *Ba Zheng San, Yin Chen Hao Tang, Dan Dao Pai Shi Tang*
Urinary bladder disorder, deficiency of Kidney-*Qi*	Frequent urination, continuous dripping of urine, enuresis, seminal emission, leukorrhea	Herbs rubus (raspberry fruit), alpinia fruit, cornus fruit Patent Medicines *Suo Quan Wan, Liu Wei Di Huang Wan*

REFERENCES

Berkow, R. (Ed.) (1997). *Merck Manual of Medicinal Information*. Westpoint, PA: Merck and Co.

Dong, K. S., Wang, X Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Long, Z. X. et al. (Ed.) (1998). *Basic Theories of Traditional Chinese Medicine.* Beijing: Academy Press.

TABLE 13.2. The Actions of Herbs for Urinary Tract Disorders

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Alisma *(ze xie)*	5-10	Expels pathogenic Heat in the kidneys and urinary bladder, relieves edema, reduces blood cholesterol levels	Induces diuresis, excretes Dampness
Poria *(fu ling)*	10-15	Invigorates the spleen, replenishes the Middle-*Jiao,* tranquilizes the mind, diuretic	
Polyporus *(zhu ling)*	5-10	Diuretic effect (stronger than poria)	
Plantain herb *(che qian cao)*	10-15	Antimicrobial effect, induces diuresis, treats bloodshot eyes	Induces diuresis, excretes Damp-Heat, relieves strangury (*Lin* syndrome)
Plantain seed *(che qian zi)*	5-10	Relieves diarrhea, relieves Heat from the liver, improves the acuity of vision, lowers blood pressure	
Lysimachia *(jin qian cao)*	30-60	Treats lithiasis formation in the urinary tract, relieves jaundice	
Akebia *(mu tong)*	3-10	Promotes lactation, relieves strangury	
Capillaris *(yin chen hao)*	10-30	Treats hepatitis, jaundice, cholecystitis	
Rubus *(fu pen zi)*	3-10	Nourishes the liver and kidneys, resolves male and female infertility, increases acuity of vision	Herbal astringent, relieves frequent urination and enuresis
Cornus fruit *(shan zhu yu)*	5-10	Nourishes the liver and kidney, induces astringency, treats incontinence	

ALISMA
Rhizoma Alismatis
Ze xie

This herb is the dried tuber of *Alisma orientalis* (Sam.) Juzep. of the family Alismataceae. It grows plentifully in ditches and ponds in the Fujian, Jiangxi, and Sichuan provinces of China, and is collected in the winter, sliced, and dried or stir baked with saltwater (Jiang Su New Medical College, 1977). Alisma is also called water plantain tuber (Smith and Stuart, 1973).

Alisma is an excellent diuretic agent, used widely for dysuria, edema, and different urological disorders, such as nephritis. It has been used in modern times to reduce arteriosclerosis and hyperlipemia, to improve the metabolism of fat in the liver, and to treat fatty liver, acute nephritis, swelling during pregnancy, and obesity. Alisma is a good fat-reducing and antiaging medicinal herb (Dong et al., 1998).

TCM Properties

Sweet in taste, and cold, it acts on the kidney and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Induces diuresis: for dysuria, oliguria, strangury with turbid urine, edema, and female leukorrhagia disorders, alisma is prescribed with poria, polyporus, atractylodes, and cinnamon twig, as in *Wu Ling San* (R-68) (Wang, 1994).
2. Relieves acute diarrhea: for the treatment of acute diarrhea caused by acute gastroenteritis, alisma is used with poria and white atractylodes (Wang, 1994).
3. Reduces vertigo and dizziness: alisma is commonly prescribed with white atractylodes, as in *Ze Xie Tang,* for the treatment of vertigo caused by retention of phlegm (Wang, 1994).
4. Reduces blood cholesterol level and hyperlipedemia: alisma is used in a decoction to lower blood cholesterol levels and triglycerides, reduce a stuffy chest and fatty liver (Dong et al., 1998), and prevent arteriosclerosis (Wang, 1994).

5. Reduces pregnancy-related edema: alisma is combined with poria, white atractylodes, morus bark, and bitter orange in a decoction (Dong et al., 1998).

Dosage

In a decoction of 5 to 10 g.

Precautions

People with asthenia of the kidneys or seminal emission should use this herb with caution.

Side Effects and Toxicity

The therapeutic dose of this herb is safe to use. One case of an allergic skin rash was reported in more than 200 cases of hyperlipedemia patients using the herb. Discomforting digestive disorders were also reported in a few cases of long-term use (Wang, 1994). The intravenous and intraperitoneal LD_{50} values of the methanolic extract of the rhizome in mice were 0.98 g/kg and 1.27 g/kg, respectively. No deaths occurred at an oral dose of 4 g/kg. No toxic effects were observed in rats fed with a diet containing 1 percent of the herb for two and a half months (Zhu, 1998).

Modern Research Findings

Chemical Constituents

Alisma contains tetracyclic triterpene, alisols A-C and their monoacetates, and epi-alisol A (Murata, Shinohara, Hirata, Kamiya, et al., 1968; Murata, Shinohara, Hirata, and Miyamoto, 1968). Two sesquiterpenes, alismol and alismoside, have also been isolated (Murata and Miyamoto, 1970; Murata, Shinohara, and Miyamoto, 1970; Murata, Shinohara, Hirata and Miyamoto, 1968; Murata, Shinohara, Hirata, Kamiya, et al., 1968; Yamahura et al., 1986). Other components are essential oil, alkaloids, choline, lecithin, methionine, starch, fatty acids, resin, amino acids, sugars, and vitamin B_{12}, biotin, and stigmastole (Yamahura et al., 1986; Wang, 1983).

Pharmacological Findings

Alisma is a strong diuretic and an agent for lowering blood cholesterol. Diuretic activities of the herb were reported to increase urine volume (sodium ions and urea excretion) by 63 percent in healthy people but it was less active or not active in rabbits or dogs when orally administered (Wang, 1983). Alisols A and B produced a significant increase in sodium ion excretion in rats when given orally at a dose of 30 mg/kg (Wang, 1983; Hikino et al., 1982).

The lipophilic fraction of the rhizome significantly decreased the cholesterol levels in hypercholesteromlic rabbits and also showed an antiarteriosclerosis activity (Wang, 1983). Oral administration of 1 g/kg of acetic acetate extract of the rhizome also decreased cholesterol levels in normal rats (Wang, 1985).

The rhizome reduced the fatty levels in the livers of rabbits fed cholesterol and high lipids. It also showed lipotropic activity in low-protein-fed rats and protected animals against carbon tetrachloride-induced liver damage (Wang, 1983).

The extract of alisma was also shown to be antihypertensive, and antimicrobial, to dilate heart arteries, and increase coronary circulation (Dong et al., 1998).

Clinical Findings

In human subjects, the rhizome reduced serum triglyceride levels and cholesterol levels. It increased high density lipoprotein (HDL) levels and the ratio of HDL cholesterol/total cholesterol (Wang, 1983). The absorption of cholesterol in the intestines and esterization of cholesterol were inhibited by the extract of the rhizome (Wang, 1985).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Hikino, H., Iwakawa, T., Oshima, Y., Nishikawa, K., and Murata, T. (1982). Efficacy of oriental drugs. XXXIV. Diuretic principles of *Alisma plantago-aquatica* var. oriental rhizomes. *Shoyakugaku Zasshi* 36: 150-153.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Murata, T. and Miyamoto, M. (1970). Biologically active triterpenes of alismatis rhixoma. II. Structures of alisol A and alisol A monoacetate. *Chemical Pharmaceutical Bulletin* 18: 1354-1361.

Murata, T., Shinohara, M., Hirata, T., Kamiya, K., Nishikawa, M., and Miyamoto, M. (1968). New triterpenes of *Alisma plantago-aquatica* L. var. *orientale* Samuels. *Tetrahedron Letters:* 103-108.

Murata, T., Shinohara, M., Hirata, T., and Miyamoto, M. (1968). The structures of alisol B and alisol A monoacetate—Occurrence of a Facile acyl migration. *Tetrahedron Letters:* 849-854.

Murata, T., Shinohara, M., and Miyamoto, M. (1970). Biologically active triterpenes of alismatis rhizoma. IV. Structures of alisol B, alisol B monoacetate and arisol chrysanthemum monoacetate. Reactions of the α-hydroxy epoxide of the alisol B derivatives. *Chemical Pharmaceutical Bulletin* 18: 1369-1384.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, J. M. (1985). *Chinese Herbal Pharmacology*. Shanghai: Shanghai Science and Technology Press.

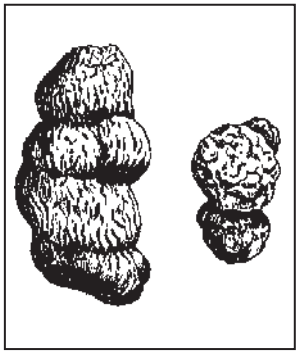
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yamahara, J., Matsuda, H., Murakami, H., and Fujimura, H. (1986). The active principle of alismatis rhizoma which inhibits contractile responses in aorta. *Chemical Pharmaceutical Bulletin* 34: 4422-4424.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PORIA OR HOELEN

Poria Cocos
Fu ling



This herb is the sclerotium of the fungus *Poria cocos* (Schow.) Wolf. of the family Polyporaceae, produced mainly in the Anhui and Yunnan provinces of China. Poria with a reddish inner surface are called red poria; those with a white inner side are called white poria. In the United States, *P. cocos* in America is called Indian bread. It is collected in autumn, dried, sliced, and used unprocessed (Jiang Su New Medical College, 1977).

The herb was medicinally considered to be peptic, nutrient, diuretic, and quieting, especially for the nervous disorders of children. It has been prescribed for wasting diseases. The red variety was especially recommended for diarrhea and disorders of the bladder (Smith and Stuart, 1973).

In modern times, poria is prescribed as a diuretic for dropsy and oliguria, a sedative for palpitations and insomnia, a stomachic to eliminate food stagnation, and an anti-inflammatory medicine for ulcers (Dong et al., 1998). It is also an antiaging medicinal herb.

TCM Properties

Sweet in taste, and neutral, it acts on the heart, spleen, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Invigorates the spleen and replenishes the Middle-*Jiao:* to treat lassitude, anorexia, and loose stools, poria is prescribed with codonopsis, white atractylodes, and licorice, as in *Si Jun Zi Tang* (R-2) (Wang, 1994). It is also used with licorice root, siler, schizonepeta, cnidium, white peony, ephedra, white atractylodes, cinnamon twig, rhubarb, and other herbs, as in *Fang Feng Tong Sheng San* (R-65), to treat food stagnation and constipation caused by slow metabolism.
2. Replenishes deficiency of the spleen and the heart: to treat fright, palpitations, and insomnia, poria is combined with codonopsis, longan aril, and wild jujube seed, as in *Gui Pi Tang* (R-6) (Zhang, 1988).
3. Induces diuresis: to treat dysuria, edema, phlegm retention, and other symptoms caused by fluid retention, poria is mixed with alisma, polyporus, white atractylodes, and cinnamon twig, as in *Wu Ling San* (R-68) (Wang, 1994).

4. Relieves palpitations and promotes sleep: poria is blended with polygala root and acorus, as in *An Shen Ding Zhi Wan,* to treat imbalance in the functions of the heart and the kidneys (Zhang, 1988).
5. Tranquilizing and sedative: to treat anxiety and insomnia, poria is dispensed with zizyphus, cnidium, licorice, and anemarrhena, as in *Suan Zao Ren Tang* (R-40) (Wang, 1994).
6. Replenishes deficiency of the spleen and expels Dampness: poria is combined with codonopsis and white atractylodes in a decoction to treat gastric and duodenal ulcers, indigestion, full stomach, and diarrhea (Dong et al., 1998).

Dosage

In a decoction of 10 to 15 g.

Precautions

Those with yin deficiency, polyuria caused by kidney deficiency, spermatorrhea, or prolapse of urogenital organs should avoid this herb or use with caution (Wang, 1994).

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Poria contains a large amount of polysaccharides-B-pachman and several triterpene acids, including tetracyclic triterpenic acid, tumulosic acid, eburicoic acid, pachymic acid, and pinicolic acid. It also contains ergosterin, choline histidine, adenine, lecithin, alenine, ergosterol, choline, fat, glucose, lipase, and protease (Huang, 1993; Yin and Guo, 1993; Zhou, 1993).

Pharmacological Findings

Poria is a sedative, diuretic, and a cardiac tonic. It has shown antitumor properties in mice.

1. Intraperitoneal administration of 0.5 g/kg of the 25 percent alcoholic extract of the herb for five days was significantly diuretic in rabbits. The diuretic activity was comparable to that of 0.1 mg/kg of salyrgan by intramuscular administration (Wang, 1983).
2. Intraperitoneal administration of the decoction decreased the activity of mice and reduced overexcitation induced by caffeine (Wang, 1983).
3. Poria extract exerted a direct relaxant action on isolated rabbit intestines. It inhibited gastric ulcers in rats by polorus-ligation, and decreased gastric secretion and free acidity. The herb also protected rats against carbon tretrachloride-induced hepatotoxicity, reduced GPT activity, and prevented necrosis of hepatocytes (Wang, 1983).
4. Topical application of the methanol extract of poria significantly reduced the percentage of tumor-bearing mice and the number of tumors per mouse induced by DMBA plus 12-0-tetradecanoylphorbol-13-acetate (TPA). The triterpene isolated from the herb significantly produced inhibition on TPA-induced inflammatory ear edema in mice (Kaminaga et al., 1996).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Huang, K. C. (1993). *The Pharmacology of Chinese Herbs*. Boca Raton, FL: CRC Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Kaminaga, T., Yasukawa, K., Takido, M., Tai, T., and Numoura, Y. (1996). Inhibitory effect of *Poria cocus* on 12-0-tetradecanoylphorbol-13-acetate-induced ear edema and tumor promotion in mouse skin. *Phytotherapy Research* 10: 581-584.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Yin, J. and Guo, L. G. (1993). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 1)*. Beijing: Academic Press.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica*. Beijing: China Medical and Pharmaceutical Science Press.

POLYPORUS

Polyporus Umbellatus
Zhu ling

This herb is the dried sclerotium of the fungus *Polyporus umbellatus* (Pers.) of the family Polyporaceae. It is produced mainly in the Hebei, Henan, and Shaanxi provinces of China, and collected in spring or autumn, sliced, and dried (Jiang Su New Medical College, 1977).

Polyporus is a tuberiform fungus that grows on liquid amber roots aboveground. Its medicinal virtues are regarded more highly than those of amber or *Poria cocos* (Smith and Stuart, 1973).

Polyporus is used to induce diuresis, excrete Dampness, and relieve edema.

TCM Properties

Sweet in taste, and neutral, it acts on the kidney and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Promotes diuresis and excretes Dampness: for the treatment of dysuria, edema, oliguria, painful urination with turbid urine, and female leukorrhagia, polyporus is used alone in a decoction or with hoelen and alisma, as in *Si Ling San,* to increase the diuretic effect (Dong et al., 1998; Wang, 1994).
2. Treats acute infections of the urinary system: polyporus is blended with polygonum herb, plantain seed, and akebia in a decoction to treat urinary tract infections (Wang, 1994).
3. Relieves Cold-Dampness in the abdomen: polyporus is combined with phellodendron and myristica (nutmeg), as in *Zhu Ling Tang,* to warm up the Middle-*Jiao,* and induce diuresis or relieve diarrhea (Dong et al., 1998).

Dosage

In a decoction of 5 to 10 g.

Precautions

People with no accumulation of fluid or Dampness should not use this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Polyporus contains ergosterol, alpha-hydroxy-tetracosanoic acid, protein, biotin, and polysaccharides I (GU-I) (Hu et al., 1989).

Pharmacological Findings

Polyporus is antimicrobial, a strong diuretic, and lowers blood sugar. The extract of polyporus has been found to increase cellular immunity and is being clinically explored for treating tumors (Dong et al., 1998).

Subjects taking the decoction of 8 g of the herb were shown to have a 62 percent increase in urinary output and a 54 percent increase in chloride excretion above normal (Wang, 1983).

The extract and the alcohol extract of the herb enhanced reticuloendothelial phagocytosis in mice. A hemolytic plaque test found that the extract increased the antibody-forming cells in the spleens of tumor-bearing mice (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Hu, S. L., Chi, Q., and Zhao, Z. Z. (1989). *The Indigenous and Superior Chinese Herbal Drugs*. Harbin: Heilongjing Science and Technology Press.

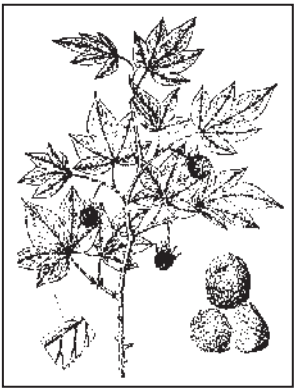
Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

RUBUS

Fructus Rubus Chingii
Fu pen zi



This herb is the dried fruit of *Rubus chingii* Hu. of the family Rosaceae. It is grown chiefly in the eastern part of China and collected in early summer. The fruit is dipped in boiling water, and then dried in the shade (Jiang Su New Medical College, 1977). The Chinese name of the fruit means "a turned over bowl," referring to the shape of the fruit. The dried fruit was used to give vigor to the body and prevent the hair from turning grey. Tonic, restorative, and aphrodisiac properties are ascribed to it, and it was recommended in phthisis, wasting, diabetes, impotence in males, and sterility in females (Smith and Stuart, 1973).

Today, rubus is used as an astringent herb to treat polyuria and frequent urination, and to reduce the secretion of urine, particularly in the elderly (Dong et al., 1998; Wang, 1994).

TCM Properties

Sweet and sour in taste, and slightly warm, it acts on the liver and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Nourishes the liver and kidney: to treat frequent urination, seminal emission, enuresis, and dribbling urination, rubus is prescribed with alpinia fruit, mantis egg case, and Cherokee rose hip *(jin ying zi)* (Wang, 1994).
2. Infertility: for male or female infertility, rubus is combined with pilose antler powder, cistanche, dragon bone, polygala, dry ginger, schisandra fruit, and morinda root (Wang, 1994).
3. Increases visual acuity: to treat blurred vision and loss of clear eyesight, rubus is frequently mixed with lycium fruit, processed rehmannia, cuscuta seed, ligastrum fruit, and mulberry leaf in a decoction (Dong et al., 1998; Wang, 1994).
4. Treats impotence: rubus is combined with lycium fruit (9 g each), schisandra fruit (6 g), and cuscuta (12 g) in a decoction (Dong et al., 1998).

Dosage

In a decoction of 3 to 5 g.

Precautions

People with kidney deficiency with Heat should use this herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Rubus contains organic acids, citric acid, beta-sitosterol, glucose, and vitamin A.

Pharmacological Findings

Rubus is astringent and antimicrobial against *S. aureus* and *V. cholerae* in vitro.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

PLANTAIN SEED
Semen Plantaginis
Che qian zi

This herb is the dried, ripe seed of *Plantago asiatica* L. or *P. depressa* Willd. of the family Plantaginaceae. The former is produced in all parts of China, the latter in the Heilongjiang and Liaoning provinces. The seeds are collected in the summer, dried, and used unprocessed or stir baked with saltwater. Plantain herb is the entire plant dried, which is also used in medicine (Jiang Su New Medical College, 1977). The seeds are eaten and considered to be quieting, diuretic, antirheumatic, and tonic. They are good for wasting diseases in men and women, and promote the secretion of semen and, therefore, are conducive to fertility (Smith and Stuart, 1973).

Today, both the plantain seed and the herb are used as diuretics to treat strangury and as anti-inflammatory agents for urinary tract infections (Wang, 1994). To induce diuresis and arrest diarrhea, the seed should be stir baked. To resolve phlegm, the unprocessed seed is used.

TCM Properties

Sweet in taste, and cold, it acts on the kidney, urinary, and bladder meridians (Wang, 1994).

Effects, Medicinal Uses, and Combinations

1. Induces diuresis and relieves painful strangury: plantain seed is prescribed with akebia, gardenia, and talc, as in *Ba Zheng San,* to treat strangury, edema, dysuria, acute nephritis, cystitis, pyelitis, and general infections of the urinary tract system (Wang, 1994).
2. Eliminates Summer Heat and Dampness pathogens from the body: to treat chronic watery diarrhea in the summer months, it is used with poria, white atractylodes, and elshotzia *(xiang ru),* as in *Che Qian Zi San* (Wang, 1994).
3. Removes Dampness and Heat from the liver, and improves acuity of vision. Plantain seed is used with chrysanthemum, gentiana root, coptis root, and cassia seed to treat cataracts, blurred vision, and bloodshot, swollen, and painful eyes caused by an accumulation of

pathogenic Heat and Dampness in the liver (Wang, 1994). Dizziness associated with headache, and hypertension, due to Heat in the liver, can be treated with plantain seed combined with chrysanthemum flower and prunella spike in a decoction (Wang, 1994).

4. Rids the body of Heat and resolves phlegm in the lungs: plantain seed can be prescribed with platycodon root and bitter apricot kernels to treat profuse sputum.
5. Treats hypertension: plantain seed is an antihypertensive herb. The herb alone in a decoction is particularly helpful in lowering diastolic pressure, or it can be used in combination with salvia, gentiana root, leonurus, cnidium, and cassia seed for a more effective therapy (Dong et al., 1998; Wang, 1994).
6. Treats infertility in males: plantain seed is mixed with lycium fruit, schisandra fruit, cuscuta, rubus, epimedium, and pilose antler, as in *Wu Zi Yan Zong Wan* (five seeds for nourishing kidney yang for sperm production) (Wang, 1994).
7. Relieves acute enteritis and prostatitis: plantain seed can be used in a decoction or used with *Ba Zheng San* (Dong et al., 1998).

Dosage

Plantain seed: 5 to 10 g in a decoction. Plantain herb: 10 to15 g in a decoction. The seed has to be wrapped in gauze and decocted in water.

Precautions

People with kidney deficiency should use this herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Plantain seed contains mucilage polysaccharides, phantasan comprised of xylose, acabinose, galacturonic acid, and rhamnose. Other isolated chemical components include phenylpropyl glucoside, iridoids, acecibin, adenine, and choline. Isolated organic acids include arachicumic acid,

palmitic acid, stearic acid, and oleic acid. Other components include fatty oil and vitamins A and B. Plantain herb contains baicalin, baicalein, plantagin, aucubin, ursolic acid, and beta-sitosterol (Jiang Su New Medical College, 1977; Zhu, 1998).

Pharmacological Findings

Plantain seed is a diuretic, antitussive, expectorant, and antihypertensive phytomedicine. Plantain herb has diuretic, antimicrobial, antispasmodic, anti-inflammatory, and antitumor properties (Dong et al., 1998).

The herb, at a dose of 3 to 10 g, has also been used with other diuretic herbs to treat renal edema, chronic pyelonephritis, dysuria, and mephrolithiasis (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

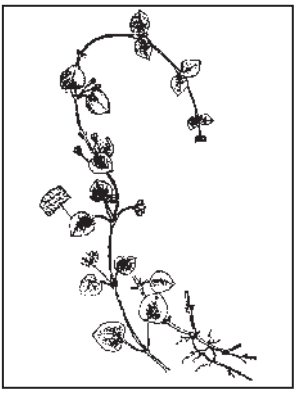
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

LYSIMACHIA

Herba Lysimachiae
Jin qian cao



This herb is the dried whole plant of *Lysimachia christinae* Hance of the family Primulaceae. It is grown mainly in the areas of Sichuan, Zhejiang, and other provinces of southern China. The plant produced in the Sichuan province is considered to be the best. The plant is collected in the summer, dried, cut into pieces, and used unprocessed (Jiang Su New Medical College, 1977).

Lysimachia is an antipyretic and diuretic herb. It invigorates the functions of the gallbladder and is useful for the treatment of strangury, jaundice, acute icteric hepatitis, calculi of the biliary, and urinary tract disorders (Dong et al., 1998; Wang, 1994).

TCM Properties

Slightly sweet in taste, cold and neutral, it acts on the liver, gallbladder, kidney, and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Induces diuresis and removes lithiasis: lysimachia is useful in treating strangury and lithiasis (formation of calculus) in the kidneys, urinary bladder, ureter, gallbladder, and liver. It can be used alone in a tea, which is drunk daily for a few months, or mixed with chicken gizzard membrane and lygodium *(hai jin sha)* in a decoction for an intensified effect (Wang, 1994).
2. Removes Heat and Dampness in the liver and gallbladder, and relieves jaundice:

   - To treat acute icteric hepatitis, lysimachia is combined with capillaris, gardenia, and polygoni *(hu zhang).*
   - Lysimachia is blended with capillaris, rhubarb, scute root, curcuma, aucklandia root, and bitter orange for gallbladder or liver stones, obstructive pain in the gallbladder, and jaundice (Wang, 1994; Zhang, 1988).

3. Disperses Heat and detoxifies: fresh lysimachia is used alone as a fresh juice or combined with dandelion, wild chrysanthemum, and lonicera in a decoction to treat boils, furuncles, and other pyogenic infections on the surface of the body. The preparation can be taken internally, applied externally, or used both ways (Wang, 1994).

Dosage

In a decoction of 30 to 60 g.

Precautions

People with jaundice not due to internal Heat and Dampness should use this herb with caution.

Side Effects and Toxicity

No side effects were observed in ten cases of cholethiasis treated with the herb at a daily dose of 150 to 200 g for over six months. No toxic reaction was observed in one case treated for 318 days. Another case given 100 g of the herb daily for seven days for ureteral calcali reported no adverse reactions (Zhu, 1998). Long-term use of the herb may cause dizziness or palpitations due to the excretion of large amounts of salts (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

Lysimachia contains flavones, glycosides, phenol, flavanone, amino acid, tannin, essential oil, lactones, choline, and potassium salt (Wang, 1983).

Pharmacological Findings

Lysimachia is a diuretic, increases the secretion of bile by the liver cells, removes stones in the urinary tract and gallbladder, and treats urinary infections (Dong et al., 1998).

1. Choleretic lithigogic effects: daily oral administration of 5 ml of the 1:1 decoction of the herb for six weeks significantly promoted bile secretion and excretion in rats (Wang, 1983). Drainage of the human duodenum showed that it had a choleretic action. Experiments showed

flow of bile from the gallbladder was greatly increased in dogs given the decoction of the herb. Bile secretion was increased by three to twenty times and the concretion components in the bile were decreased in six out of seven anesthetized dogs ten to twenty minutes after administration of the decoction (Zhu, 1998).

2. Injection of the decoction of 120 g of the herb into the duodenum of anesthetized dogs increased the ureteral peristalsis and concurrently the urine output, similar to the responses elicited by hydrochlorthiazide. An oral administration of the herb's decoction rendered the urine acidic, promoting the dissolution of stones formed under alkaline conditions (Wang, 1983).

Clinical Findings

Three varieties of lysimachiae have been identified. They are *L. christinae (jin qian cao), Desmodium styracifolium (guang dong jin qian cao),* and *Glechoma longituba (lian qian cao).* Based on clinical trials, all three varieties are diuretic, effective in the treatment of strangury and calculi of the urinary tract and gallbladder, antipyretic, detoxifying, and antimicrobial. However, studies indicate that *jin qian cao* is more effective in treating gallbladder and liver calculus. *Guang dong jin qian cao* and *lian qian cao* are more effective in treating urinary calculus, and *jin qian cao* is more effective at detoxification and as an antipyretic (Dong et al., 1998).

In China, food poisoning, drug poisoning, lead poisoning, and mercury poisoning were treated with the lysimachia decoction (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

CAPILLARIS

Herba Artemisiae capillaris
Yin chen hao

This herb is the dried plant of *Artemisia scoparia* Waldst. et Kit. or *A. capillaris* Thunb. of the family Compostiae. It is mainly grown in the Shaanxi, Anhui, and Shanxi provinces of China. It is collected in the spring or autumn, dried, and used unprocessed (Jiang Su New Medical College, 1977).

Traditionally, the herb was used as a febrifuge, diuretic, antispasmodic, and antiperiodic, and for jaundice, dysmenorrhea, ague, and ephemeral fevers (Smith and Stuart, 1973). Today, capillaris is used to eliminate Heat-Dampness in the liver and gallbladder and to treat hepatitis, jaundice, cholecystitis, and calculus in the gallbladder (Wang, 1994).

TCM Properties

Bitter in taste, and slightly cold, it acts on the spleen, stomach, liver, and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Eliminates internal Heat and Dampness: to treat acute hepatitis, jaundice, yellow discoloration of the eyes and skin, fever, and scanty, dark urine due to Heat and Dampness accumulation in the liver and gallbladder, capillaris is prescribed with rhubarb and gardenia, as in *Yin Chen Hao Tang* (R-67) (Dong et al., 1998; Zhang, 1988).
2. Treats inflammation of the gallbladder and gallstones: capillaris is combined with scute root, curcuma, lysimachia, and bupleurum to treat these conditions (Wang, 1994).
3. Eliminates parasites: to treat ascariasis and enterobiasis in the gallbladder, capillaris can be used with chrysanthemum and coptis root in a decoction (Wang, 1994).
4. Lowers blood cholesterol levels: capillaris can be consumed as a tea or in a decoction to be drunk daily for one to three months to reduce blood cholesterol levels (Dong et al., 1998).

Dosage

In a decoction of 9 to 15 g.

Precautions

People with jaundice not caused by Heat and Dampness should use this herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica. A daily dose of 24 g for thirty days caused dizziness, nausea, upper abdominal distension, and heartburn in seven out of seventy-one patients. These symptoms usually appeared in the first day of medication and gradually disappeared. Two other cases had mild diarrhea and one patient complained of transient palpitations (Tang and Eisenbrand, 1992).

Modern Research Findings

Chemical Constituents

Capillaris contains essential oils, coumarins, and flavones.

1. *Artemisia scoparia:* from the essential oil, alpha- and beta-pinene, myrcene, cineol, p-cymol, carvone, thujone, apiole, and isoeugenol were isolated. From the flavones, 7-methylaromadendrin, rhamnocitrin, eupalitin, cirsimaritin, and eupatolin were isolated (Hu, Chi, and Zhao, 1989; Tang and Eisenbrand, 1992).
2. *Artemisia capillaris:* in the volatile oil, capillene, capillone, capillin, capillarisin, dehydrofalcarinone, scoparone, and norcapillene were isolated. In the flavones, cirsilineol, cirsimarine, genkwanin, rhamnocitrin, capillarisin, arcapillin, and eupatolitin were isolated. In the coumarins, scoparone, and two stereo isomers constituents, capillartemisins A and B, were isolated (Harada and Iwasaki, 1982; Kitagawa et al., 1983; Miyazawa and Kameoda, 1976; Yamahura et al., 1982).

Pharmacological Findings

Capillaris increases the secretion of bile, bile salt, and bilirubin. It is antihypertensive, diuretic, antipyretic, analgesic, hypotensive, anti-inflammatory, and antimicrobial, and lowers blood cholesterol (Dong et al., 1998; Tang and Eisenbrand, 1992). A decoction, aqueous extract, essential oil, and alcoholic extract of *A. capillaris* and its active principle, scoparone, increased bile secretion. An intravenous injection of 0.25 g/kg of the aqueous extract to dogs with acute gallbladder intubation or administration of 1 g/kg of a refined extract of the herb to dogs with chronic gallbladder fistulae produced a cholagogic effect no matter whether the animals were healthy or had liver damage caused by carbon tetrachloride (Wang, 1983). Scoparone was found to be one of the choloretic principles.

The methanol extract of *A. capillaris* protected mice from carbon tetrachloride-induced hepatoxicity and inhibited elevation of serum glutamine oxalactic transaminase (GOT) and glutamine pyruvic transaminase (GPT). The active principles of the plant were flavone eupatolitin and arcapillin (Kimura et al., 1985; Kiso et al., 1982).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Harada, R. and Iwasaki, M. (1982). Volatile components of *Artemisia capillaris. Phytochemistry* 21: 2009-2011.

Hu, S. L., Chi, Q., and Zhao, Z. Z. (1989). *The Indigenous and Superior Chinese Herbal Drugs*. Harbin: Heilongjing Science and Technology Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Kimura, Y., Okuda, H., Okuda, T., Hatano, T., Agata, I., and Arichi, S. (1985). Studies on the activities of tannins and related compounds from medicinal plants and drugs VII. Effects of extracts of leaves of Artemisia species, and caffeic acid and chlorogenic acid on lipid metabolic injury in rats fed peroxidized oil. *Chemical Pharmaceutical Bulletin,* 33: 2028-2034.

Kiso, Y., Sasaki, K., Oshima, Y., and Hikino, H. (1982). Liver-protective drugs V. Validity of the oriental medicines. 42. Structure of arcapillin, an antihepatoxic principle of *Artemisia capillaris* herba. *Heterocycles* 19: 1615-1617.

Kitagawa, I., Fukuda, Y., Yoshihara, M., Yamahara, J., and Yoshikawa, M. (1983). Cappillartemisin A and B, two new choleretic principles from *Artemisia capillaris* herba. *Chemical Pharmaceutical Bulletin* 31: 352-355.

Miyazawa, M. and Kameoda, H. (1976). Norcapillene, a new acetylenic hydrocarbone from the essential oil of *Artemisia capillaris. Phytochemistry* 15: 223-224.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Tang, W. and Eisenbrand, G. (1992). *Chinese Drugs of Plant Origin: Chemistry, Pharmacology and Use in Traditional and Modern Medicine*. Berlin/Heidelberg: Springer-Verlag.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yamahara, T., Matsuda, H., Sawada, T., Mibu, H., and Fujimira, H. (1982). Biologically active principles of crude drugs. Pharmacological evaluation of *Artmeisia capillaris* flos. *Yakugaku Zasshi* 102: 185-291.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Chaper 14

Herbal Antipyretics, Antimicrobials, and Detoxicants: The Last Line of Defense Against Infections

The medicinal herbs covered in this chapter aid in the treatment of internal febrile or infectious diseases. These herbs are mostly bitter, Cool, or Cold and have broad-spectrum antimicrobial actions. TCM classifies these herbs as antipyretic, antimicrobial, and detoxifying agents. Classical Chinese materia medica classifies this group of herbs as Heat-clearing drugs (Wang, 1994).

The diaphoretic and antipyretic herbs covered in Chapter 9, are mainly used to treat Exterior syndromes or superficial disorders. These herbs also possess anti-inflammatory activities. The Heat-clearing herbs discussed in this chapter are used for treating interior Heat syndromes or internal febrile ailments. Some of these herbs are broad-spectrum antimicrobial agents as well.

These antipyretic phytomedicines are classified into the following five categories: (1) herbs that reduce or clear intense internal Heat; (2) herbs that reduce or clear intense Heat in the ying and blood systems; (3) herbs that reduce or dry internal Dampness and Heat in the viscera or bowels; (4) herbs that reduce or clear internal noxious Heat and toxins; and (5) herbs that clear interior Heat of the deficient type (Dong et al., 1998).

1. Herbs for reducing or clearing intense internal Heat: commonly used herbs include prunella spike (to clear up internal Heat in the lungs and stomach), apocynum (to reduce Heat in the liver), gypsum (to reduce Heat in the lungs) and anemarrhena *(zhi mu)* (to treat acute hectic fever due to yin deficiency), cassia seed (for acute ophthalmological inflammations), and gardenia (for high fever, dysphoria, unconsciousness, and delirium).
2. Herbs for reducing or clearing intense Heat in the ying and blood systems are blood-cooling herbs. They are sweet or salty and cold, and are commonly used to treat epidemic febrile diseases. Commonly

used herbs are moutan bark, imperata (wooly grass), red peony root, scrophularia root, rhinoceros horn, and dried rehmannia root.

3. Herbs for reducing or clearing intense internal Heat and dry Dampness. These herbs are bitter and cold, with broad-spectrum antimicrobial activities. They are used to treat different infectious diseases, painful joints, acute jaundice, acute dysentery, urinary infections, eczema, boils, carbuncles, and other suppurative infections. Herbs listed in this group are valuable and also are effective against certain microorganisms that have developed a resistance to penicillin, streptomycin, chloramphenicol, and oxytetracycline HCl. Coptis root, phellodendron bark, scute root, sophora root, gentiana root, fraxinus bark, and dittany bark belong to this group.
4. Herbs to reduce or clear intense internal noxious Heat and toxins. These herbs are antipyretic, antimicrobial, or antiviral and detoxicants, and are used to clear away pathogenic Heat and subdue pyogenic infections. Some of these herbs enhance the immune system. Commonly used herbs are lonicera flower, isatis root, isatis leaf, dandelion, subprostate sophora, pulsatilla root, paridis root, forsythia fruit, green chiretta, oldenlandia, scandent hops, houttuynia, patrinia herb (thlaspi), and wild chrysanthemum (Zhang, 1988).
5. Herbs that reduce or clear internal Heat in the blood and Heat of the deficient type due to yin deficiency and summer Heat. Symptoms of this type of Heat are tidal fever, feverish sensation in the palms and soles, and chronic low fever. Commonly used herbs are sweet wormwood and wolfberry bark.

Table 14.1 lists the symptoms caused by pathogenic Heat and the frequently prescribed antipyretic, antimicrobial, and detoxifying herbal remedies. Table 14.2 lists the common and individual actions of the most frequently used antipyretic, antimicrobial, and detoxifying phytomedicines. Eighteen antipyretic medicinal herbs are introduced and discussed in the following section.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica)]. Beijing: Zhong Guo Zhong Yi Yao Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Rong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

TABLE 14.1. Herbal Antipyretics, Antimicrobial, and Detoxication Remedies for Infections

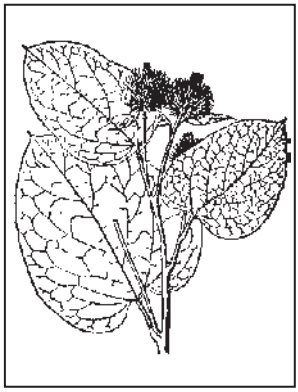
Etiology	Symptoms	Herbal Remedies
Group 1 Intense internal Heat and fever in the *Qi* system (Lung-*Qi* and Stomach-*Qi*)	Interior syndrome, excessive Heat, high fever, sweating, thirst, dysphoria, delirium and madness, scanty dark urine, dry tongue with yellow coating, forceful pulse	Herbs prunella spike, gypsum, anemarrhena, gardenia, apocynum, cassia seed Patent Medicines *Qing Wen Bai Du San, Ma Xing Shi Gan Tang, Zhi Bai Di Huang Wan, Yin Chen Hao Tang*
Group 2 Intense pathogenic Heat and fever in the ying and blood systems	Unconsciousness, delirium, restlessness, bleeding, hematemesis, epistaxis, hematuria, metrostaxis, deep red tongue	Herbs rhinoceros horn, moutan bark, dried rehammia root, scrophularia root, red peony root, lycium bark Patent Medicines *Xi Jiao Di Huang Wan, Xiao Luo Wan*
Group 3 Internal Dampness and Heat in the viscera or bowels	Dysphoria, dry and bitter taste in mouth, swollen and painful joints, nervousness, acute jaundice, urinary infection, insomnia, delirium, stuffy chest, diarrhea with fever, dysentery, pulmonary abscess, red tongue, forceful pulse	Herbs (broad-spectrum herbal antimicrobials) scute root, coptis root, phellodendron bark, gentiana root, sophora root, fraxinus bark *(qin pi),* dittany bark *(bai xian pi)* Patent Medicines *Huang Lian Jie Du Tang, Ban Xia Xie Xin Tang, Long Dan Xie Gan Tang*
Group 4 Internal noxious Heat and Fire (pyogenic infections)	Pyogenic infections, epidemic febrile diseases, sores and carbuncles, furuncles, headache, swellings, erysipelas, maculas and eruption, sore throat, mumps, dysentery with purulent bloody stool, red tongue, rapid and forceful pulse	Herbs (herbal antimicrobials and detoxicants) lonicera flower, forsythia fruit, isatis root, isatis leaf, pulsatilla root, wild chrysanthemum, dandelion, houttuynia, subprostrate sophora, oldenlandia Patent Medicines *Bai Tou Weng Tang, Pu Ji Xiao Du Yin*

TABLE 14.2. The Actions of Antipyretics, Antimicrobials, and Detoxicants

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Gardenia *(zhi zi)*	3-10	Relieves dysphoria, stops bleeding, diuretic	Clears intense internal Heat in general
Prunella spike *(xia ku cao)*	10-15	Relieves hyperactivity of the liver, detoxicant	
Moutan bark *(mu dan)*	6-12	Promotes circulation, dissipates blood stasis	Clears internal Heat from the ying and blood systems
Red peony root *(chi shao)*	6-15	Dissipates blood stasis, relieves pain	
Scrophularia root *(xuan shen)*	9-30	Nourishes yin, kidneys, and lungs	
Gentiana root *(long dan cao)*	3-6	Removes Heat and Dampness in the liver and gallbladder	Clears internal Heat and eliminates Dampness in the viscera
Scute root *(huang qin)*	3-10	Relieves acute febrile disease syndromes and stops bleeding and threatened abortion, prevents miscarriage	
Coptis root *(huang lian)*	2-10	Relieves acute febrile disease syndromes, dysentery, and suppurative infections in the skin	
Phellodendron bark *(huang bai)*	2-10	Relieves acute febrile disease syndromes, dysentery, urinary tract infections, night sweating	
Wild chrysanthemum *(ye ju hua)*	9-15	Clears suppurative infections, detoxifies, reduces liver hyperactivity	Clears internal noxious Heat and is a detoxicant
Forsythia *(lian qiao)*	5-8	Relieves suppurative infections, detoxifies, reduces liver hyperactivity	
Lonicera *(jin yin hua)*	9-15	Treats dysentery and various skin infections	
Isatis root *(ban lan gen)*	10-15	Relieves exogenous infections	
Dandelion *(pu gong ying)*	10-30	Relieves Heat-Dampness ailments, and urinary difficulties	

ARCTIUM OR BURDOCK FRUIT

Fructus Arctii
Niu bang zi



This herb is the dried ripe fruit of *Arctium lappa* of the family Compositae. It is mainly produced in the Hebei, Heilongjiang, Jilin, Liaoning, and Zhejiang provinces of China. The ripe fruit is collected in the fall, dried in the sun, and used unprocessed (Jiang Su New Medical College, 1977). Arctium fruit is a diaphoretic, effective in treating Exterior syndromes, and is also used for treating febrile disease and throat infections, such as acute pharyngytis and tonsilitis (Dong et al., 1998).

TCM Properties

Acrid and bitter in taste, and cool, it acts on the lung and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves flu and colds caused by exogenous Wind-Heat pathogens: to treat inflammation of the throat, acute pharyngitis, and acute tonsillitis, arctium fruit is mixed with lonicera, forsythia fruit, and peppermint, as in *Yin Qiao San* (Wang, 1994).
2. Antimicrobial actions: arctium fruit is combined with isatis root *(ban lan gen),* cimicifuga, and scute root *(huang qin)* in a decoction to treat carbuncles, erythemas, mumps, and acute febrile maculopapular skin rash (Dong et al., 1998).
3. Relieves rashes and measles: arctium fruit is blended with pueraria and mentha for treating the early stages of measles (Wang, 1994). It is also used for mumps, erysipelas, carbuncles, and sores (Zhu, 1998).

Dosage

In a decoction of 3 to 9 g.

Precautions

People with spleen deficiency, diarrhea, and *Qi* and blood deficiency should avoid this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Arctium fruit contains several ingredients: lignans, thiophene derivatives, sesquiterpenes, triterpenes, polyenic compounds, and polysaccharides, as well as phytosterols. The most important lignans are arctiin, lapaols A, B, C, and E arctigenin, beta-sitosterol, and isoarctigenin. The fatty acids include arachidonic acid, stearic acid, oleic acid, linoleic acid, and palmitic acid, as well as vitamins A, B, and C (Zhu, 1998).

Pharmacological Findings

Arctium fruit shows antifungal activity in vitro and is hypoglycemic, diuretic, antipyretic, and purgative, and also lowers blood pressure (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica)]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

GARDENIA
Fructus Gardeniae
Zhi zi

This herb is the ripe fruit of *Gardenia jasminoides* Ellis of the family Rubiaceae. It is mainly grown in the Hunan, Jiangxi, and Zhejiang provinces of China. The fruit is dried after harvesting, and used unprocessed or stir baked to a brown color (Smith and Stuart, 1973).

Traditionally, the fruit was used for dying purposes. It renders a beautiful yellow color. Medicinally, it was used for fevers, fluxes, dropsy, lung diseases, jaundice, and externally as a vulnerary remedy (Smith and Stuart, 1973). Gardenia is an antipyretic, sedative, and hemostatic agent for bleeding in febrile diseases (Wang, 1994).

TCM Properties

Bitter in taste, and cold, it acts on the heart, lung, stomach, and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves Heat and alleviates dysphoria: gardenia is an antipyretic and a sedative, and is used with prepared soybean or with coptis root and scute root, as in *Qing Wen Bai Du Yin,* to treat high fever, dysphoria, melancholia, uneasiness, restlessness, anxiety, and unconsciousness or delirium due to excessive internal Heat (Zhang, 1988).
2. Dispels stagnation of pathogenic Heat and Dampness: for high fever, jaundice, scanty dark urine, and hepatitis due to an accumulation of Damp-Heat in the liver and gallbladder, gardenia is prescribed with capillaris, rhubarb, and phellodendron bark, as in *Yin Chen Hao Tang* (R-67) (Zhang, 1988). Gardenia is used with plantain seed, akebia caulis, polygonum stem *(ye jiao teng),* licorice root, and rhubarb, as in *Ba Zheng San,* to treat urination disturbances, such as painful urination, frequent urination, dysuria, dripping of urine, cystitis, and acute urethritis (Wang, 1994).
3. Relieves the stagnant Liver-*Qi:* to relieve headaches, dizziness, painful menstruation, costal pain, red and painful eyes, spontaneous perspiration, night sweating, and urinary difficulties due to stagnation of the Liver-*Qi,* gardenia is combined with moutan, white peony root,

Chinese angelica, bupleurum, and cyperus tuber, as in *Dan Zhi Xiao Yao Wan* (R-42) (Zhu, 1998).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with spleen deficiency, diarrhea, and Cold in the stomach should avoid this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Gardenia contains iridoid glycoside including gardenoside, scanposide, geniposide, gardoside, and shanzhiside. Other ingredients include pigment, crocetin, crocin, gardenin, mannitol, beta-sitosterol, and nonacosane (Smith and Stuart, 1973; Zhu, 1998).

Pharmacological Findings

Gardenia showed sedative, antipyretic, hypnotic, cholagogue, antiparasitic, and hypotensive activities (Zhu, 1998).

REFERENCES

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PHRAGMITES RHIZOME
Rhizoma Phragmites
Lu gen

This herb is the dried rhizome of the common reed *Phragmites communis* Trin. of the family Graminea. It is grown in all parts of China, collected in the spring, summer, or autumn, cleaned after the side roots are removed, dried, and cut into sections (Jiang Su New Medical College, 1977).

Medicinally, the root is regarded as cooling and diuretic. Traditionally, it was used for nausea and vomiting, hiccups, and fluxes. The root is slightly bitter, a poison antidote, and it was highly recommended for choleraic (a disease of the bile) difficulties and various types of flesh and medicinal poisons. The flowers are made into a strong decoction and administered as a very efficacious remedy for cholera, and fish and puffer poisoning. Its ashes are used to stop hemorrhaging (Smith and Stuart, 1973).

Phragmites is an antipyretic herb. It is used today to reduce fever, and promote secretion of body fluids as a diuretic, and as a detoxicant to counteract fish, crab, and shrimp poisoning (Dong et al., 1998; Smith and Stuart, 1973).

TCM Properties

Sweet in taste, and cool, it acts on the lung and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves Heat, promotes secretion of body fluids, and quenches thirst: for the treatment of thirst, acute febrile disease, and excess Heat in the stomach and lungs, phragmites rhizome is used with trichosanthes root, ophiopogon, gypsum, and dendrobium (Wang, 1994).
2. Treats pulmonary abscess: it is mixed with coix seed *(yi yi ren),* persica (peach kernel), and benincasa *(dong gua zi)* in a decoction (Wang, 1994).
3. Induces diuresis: to treat acute urinary infection and painful urination, phragmites rhizome can be used with imperata, akebia caulis, and plantago herb (Wang, 1994).

Dosage

In a decoction of 15 to 30 g, or 30 to 60 g if fresh rhizome is used.

Precautions

People with spleen deficiency and diarrhea should not use this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Phragmites rhizome contains coixol, asparagine, protein, fat, glucose, and vitamins B_1, B_2, and C (Dong et al., 1998).

Pharmacological Findings

Phragmites rhizome is diuretic, antiemetic, and effective in urinary tract infections (Dong et al., 1998).

REFERENCES

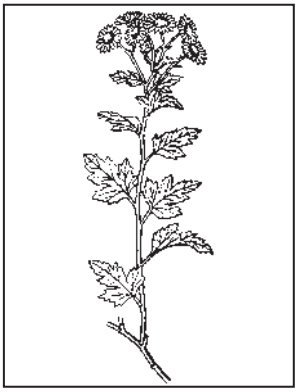
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

WILD CHRYSANTHEMUM
Flos Chrysanthemi Indici
Ye ju hua



This medicinal herb is the dry flower head of *Chrysanthemum indicum* L. of the family Compositae. It is mainly grown in the northern, northwestern, and southwestern parts of China, collected in the summer and autumn, dried in shade, and used unprocessed (Jiang Su New Medical College, 1977).

The medicinal values of chrysanthemum are different depending on the varieties. The white or yellow chrysanthemum was used for colds, headaches, and inflamed eyes (see Chapter 9). Pillows made of the white chrysanthemum flowers are recommended to treat these difficulties (Smith and Stuart, 1973). The wild variety was made into a decoction to treat retained menses, as a wash for infected and cancerous sores, and as a fomentation for enlarged glands. Antivinous (alcohol detoxifying) properties were also ascribed to this plant (Smith and Stuart, 1973).

Today, wild chrysanthemum is used as an antipyretic and anti-inflammatory herb, and is prescribed to clear away Heat, detoxicate, subdue swelling, dissolve lumps, and treat respiratory infections (Dong et al., 1998).

TCM Properties

Bitter in taste, and cold, it acts on the lung and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Helps reduce inflammation and detoxifies: wild chrysanthemum is particularly useful against eye inflammations and external infections. This herb can be used alone in a decoction or the squeezed juice of the fresh flower can be applied to the skin for external infections. It is prescribed with lonicera, forsythia fruit, dandelion, and viola in a decoction for oral administration and/or applied externally for various external infections of furuncles and boils on the skin or deep in the tissues (Wang, 1994).
2. Dispels Wind-Heat pathogens: to treat high fever, coughs, and a sore throat due to pathogenic Wind-Heat in the respiratory tract, this herb

can be used with morus (mulberry) leaves, lonicera, forsythia fruit, and arctium in a decoction (Dong et al., 1998)

3. Reduces liver-Fire: for dizziness, headaches, hypertension, fullness in the head, and bloodshot, swollen, and painful eyes due to hyperactivity of the liver (liver- Fire), wild chrysanthemum is used alone in a decoction or combined with prunella spike, cassia seed, and morus leaves in a decoction.

Dosage

In a decoction of 9 to 15 g. Fresh wild chrysanthemum juice can be applied externally on infected areas.

Precautions

People with spleen-stomach deficiency and Cold should avoid this herb.

Side Effects and Toxicity

The therapeutic dose is safe. With a large dose, a few patients complained of gastric discomfort, poor appetite, borborygmus, and mushy stool after taking the decoction or alcohol extract of the flower (Wang, 1983; Zhu, 1998).

Modern Research Findings

Chemical Constituents

The flower *C. indicum* contains essential oil with camphor as the major component. Other ingredients in the oil include alpha- and beta-pinene, chrysanthenone, camphene, myrcene, and limonene (Wang, 1983). In addition to essential oil, some sesquiterpene lactones have been isolated from the flower such as yejuhua lactone, chrysetunone, tunflin, and cumambrin (Chien et al., 1963; Yu and Xie, 1987). Vitamins A and B have also been identified (Jiang Su New Medical College, 1977).

Pharmacological Findings

Wild chrysanthemum is antimicrobial against *S. aureus, Shigella dysenteriae,* and some enterocytopathogenic human orphan (ECHO) viruses (Dong et al., 1998). The 1:5 decoction of the herb inhibited *S. dysenteriae*

and several other pathogenic bacteria in vitro. High concentrations of the decoction also inhibited many skin fungi. In the primary monolayer culture of epithelial cells of human embryonic kidney or lung, the decoction of the herb delayed the pathological alteration in the cells induced by $ECHO_{II}$ virus, herpes virus, and influenza virus $JK_{68\text{-}1}$ strain (Wang, 1983). The decoction of the herb also enhanced the phagocytic function of human leukocytes against *S. aureus* (Wang, 1983).

It lowers blood pressure in dogs and cats. In human subjects, it showed hypolipemic and increased coronary circulation, and prevented colds and respiratory diseases (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Chien, M. K., Chen, C. H., and Tseng, K. F. (1963). The constituents of *Yijuhua,* the flower of *Chrysanthemum idicum* II. The structure of *Yejuhua* lactone. *Acta Pharmaceutica Sinica* 10: 129-134.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Yu, D. O. and Xie, F. Z. (1987). Chemical constituents of *Chrysanthemum indicum* L. *Acta Pharmaceutica Sinica* 22: 837-840.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PRUNELLA SPIKE

Spica Prunellae
Xia ku cao

This herb is the entire plant, including the dried spike, of *Prunella vulgaris* L. of the family Labiatae. It is grown mainly in the Anhui, Henan, Jiangsu, and Zhejiang provinces of China, where it is collected in the summer and dried in the sun (Jiang Su New Medical College, 1977). Traditionally, this herb was used to treat fevers and also as an antirheumatic, alterative, and tonic remedy (Smith and Stuart, 1973).

Prunella spike is an antipyretic and detoxicant. Its actions resemble those of the chrysanthemum and wild chrysanthemum. However, it is more effective than chrysanthemum for treating disorders of the eyes, such as conjunctivitis (Dong et al., 1998). Prunella spike is also used for hypertension, inflammation of the lymph nodes, lymphoid tuberculosis, mastitis, scrofula, and as an antimicrobial agent (Dong et al., 1998).

TCM Properties

Pungent and bitter in taste, and cold, it acts on the liver and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves hyperactivity of the liver: to treat dizziness, ringing in the ears, blurred vision, hypertension, headache, and acute conjunctivitis due to hyperactivity of the liver, prunella spike is used alone in a tea, or with cassia seed (30 g each), or combined with chrysanthemum, uncaria stem, and dandelion in a decoction (Wang, 1994).
2. Eliminates masses and detoxifies:

   - Prunella spike can be mixed with scrophularia, *(xuan shen),* fritillary bulb, seaweed, oyster shell, and other ingredients to treat mumps, lymphoid masses, and goiter (Wang, 1994).
   - For breast abscesses and acute mastitis, prunella spike can be used alone or with wild chrysanthemum, dandelion, viola, and lonicera stem in a decoction (Dong et al., 1998).

Dosage

In a decoction of 10 to 15 g.

Precautions

People with spleen and stomach deficiency should take this herb with caution. Those with yang deficiency should avoid this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Prunella spike contains triterpenoids, flavonoids, sterol glycosides, and coumarins. The triterpene compounds include ursolic acid and betulinic acid. The flavonoids include delphinidine, cyanidin, and rosmarinic acid. The sterol glycosides include beta-sitosterol-beta-D-glucoside. Other ingredients are alkaloids, oleanolic acid, rutin, hyperoside, caffeic acid, tannin, volatile oil, and vitamins A, C, and K (Ling, 1995; Zhu, 2001).

Pharmacological Findings

1. Prunella spike flowers have rather broad antimicrobial properties, especially against *Shigella SPP., S. typhi, E. coli, P. aeruginosa, Mycobacterium tuberculosis,* and *Streptococcus,* as well as many pathogenic fungi (Wang, 1994). The decoction of the herb inhibited *B. dysentery, B. typhosus, B. proteus, M. tuberculosis,* and *Vibrio comma,* in vitro (Zhu, 1998).
2. The 50 percent decoction caused prominent and prolonged concentration of the isolated uterus of nonpregnant rabbits (Zhu, 1998).
3. The herb's ethanolic extract was shown to be hypotensive (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

GENTIANA ROOT
Radix Gentianae
Long dan cao

This herb is the root and rhizome of *Gentiana manshurica* Kitag., *G. scabra* Bge., *G. triflora* Pall., or *G. rigescens* Franch. of the family Gentianaceae. It is mainly grown in the northern and southern provinces of China. The herb is collected in autumn, cleaned, dried, cut into sections, and used unprocessed (Jiang Su New Medical College, 1977).

The herb was prescribed for fever, rheumatism, poisonous effluvia of the viscera, fluxes, and general debility. It was used for localized skin diseases, ulcers, and afflictions of the throat. It was especially recommended for nocturnal sweating, hematuria, and ophthalmia (Smith and Stuart, 1973).

Gentiana root is an antipyretic and a detoxicant, particularly useful for eliminating Heat and Dampness in the liver and gallbladder. Today, gentiana root is commonly used to treat acute hepatitis, cystitis, bacterial infections of the eyes, ears, and throat, urinary tract infections, conjunctivitis, and hypertension (Dong et al., 1998).

TCM Properties

Bitter in taste, and cold, it acts on the liver and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves Heat and Dampness: to treat jaundice, gentiana root is used with capillaris and gardenia. It can also be combined with plantain seed, phellodendron bark, atractylodes, and sophora root in a decoction administered orally or externally to treat scrotal swelling, perineal pruritus, painful and sweating testes, and malodorous, yellowish, thick leukorrhagia (Wang, 1994).
2. Relieves intense internal Damp and Heat in the liver and gallbladder: gentiana root is used with fresh rehmannia, bupleurum, scute, and gardenia, as in *Long Dan Xie Gan Tang* (R-78) (Dong et al., 1998) or *Jia Wei Long Dan Xie Gan Wan* (R-83), to treat headaches, hypertension, stuffiness and fullness in the head, pain in the hypochondriac region, bitter taste in the mouth, deafness, pain in the ears, sore throat,

and bloodshot, swollen and painful eyes caused by Dampness and intense Heat in the liver (Wang, 1994).

3. To relieve acute infections, hepatitis, cholecystitis, hepatitis, and pain in the costal regions, gentiana root is combined with capillaris and gardenia in a decoction (Dong et al., 1998).

Dosage

In a decoction of 3 to 6 g.

Precautions

People with Cold and stomach-spleen deficiency should avoid this herb. Avoid an overdose.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica. It may cause gastrointestinal discomfort, impairment of the stomach, headache, and vertigo when a large dose or overdose is taken (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The root of *G. manshurica* contains bitter principles, mainly secoiridoid compounds. The major bitter principle is gentiopicroside (gentiopicrin). Sweroside, swertiamarin, amarogentin, and amaroswerin were also isolated and identified (Zhoa, 1993; Zhu, 1998). Ingredients including gentianine and swertiamarin were isolated form *G. scabra* plant (Ling, 1995).

Pharmacological Findings

Gentiana root is a broad-spectrum antimicrobial agent against many common pathogenic bacteria. It is a stomachic, increases gastric secretions, and increases appetite. It is hepatoprotective and choleretic. The alkaloid of gentiana inhibits the central nervous system, is a sedative, muscle relaxant, and antipyretic, and lowers the body temperature (Dong et al., 1998). The decoction of the herb inhibited the in vitro growth of *P. aeruginosa, Proteus vulgaris, S. typhi, S. aureus, Trichophyton cypsum,* and *Nocardia asteroides* (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhoa, R. H. (1993). *Resource Science of Chinese Medicinal Materials*. Beijing: China Medical and Pharmaceutical Science Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

FORSYTHIA FRUIT

Fructus Forsythiae
Lian qiao

This herb is the dried fruit of *Forsythia suspensa* (Thunb.) Vahl of the family Oleaceae. It is grown mainly in the Henan, Gansu, Shaanxi, and Shanxi provinces of China. The fruit is collected when it is starts to ripen, and then is cleaned and dried for use (Jiang Su New Medical College, 1977). The values of the fruit are reputed to be antiphlogistic, antiscofulous, laxative, diuretic, and emmenagogue (Smith and Stuart, 1973). Forsythia fruit is a diaphoretic, antipyretic, and antimicrobial agent, and is used to treat various internal disorders. It is also used externally for conditions such as scrofula, boils, and carbuncles (Dong et al., 1998).

TCM Properties

Bitter in taste, and slightly cool, it acts on the lung, heart, and gallbladder meridians.

Effects, Medicinal Uses, and Combinations

1. Alleviates pathogenic Heat and detoxifies: Forsythia fruit is the most commonly used herb to treat exogenous, Wind-Heat-type colds and flu at early stages. It is used with lonicera, schizonepeta, and arctium, as in *Yin Qiao San* or *Yin Qiao Jie Du Pian* (R-46) (Wang, 1994).
2. Relieves suppurative infections and detoxifies: forsythia fruit is one of the most important herbs for external infections. It can be used alone or combined with wild chrysanthemum, dandelion, and lonicera in a decoction for the treatment of various suppurative infections on the surface of the body such as scrofula, boils, and carbuncles. This herb is also mixed with viola, lonicera flower, wild chrysanthemum, and trichosanthes root, as in the recipe *Lian Qiao Bai Du San* (Wang, 1994).

Dosage

In a decoction of 5 to 15 g, or 30 g for severe conditions.

Precautions

People with Cold in the spleen and stomach, diarrhea, or with an abscess should avoid this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica. Toxicological studies showed that the LD_{50} of the seed was more than 30 g/kg in mice by intraperitoneal administration (Wang, 1983).

Modern Research Findings

Chemical Constituents

Forsythia fruit contains lignans, phenolic glycosides, natural alcohols, and triterpenes (Takizawa et al., 1981). The isolated lignans include phillygenine, pinoresinol, and others. The isolated phenolic glycoside includes forsythiasides A, B, C, and E. A number of alcohols and their isolated glucosides include rengyol and its glycoside rengyosides (Zhu, 1998). Other isolated ingredients include oleanolic acid, matairesinoside, matairesinoside, artigenin, arctin, 0-methyl acetigenen, saponin, and flavonoid glycoside (Takizawa et al., 1981).

Pharmacological Findings

Forsythia fruit is a broad-spectrum antimicrobial. The extract of the herb showed strong inhibition against *S. aureus, S. hemolyticus,* and *Neisseria catarrhalis*.

It is anti-inflammatory, antipyretic, diuretic, immunostimulating, choleretic, hepatoprotective, and antiemetic. It has been demonstrated to lower blood pressure (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica)]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

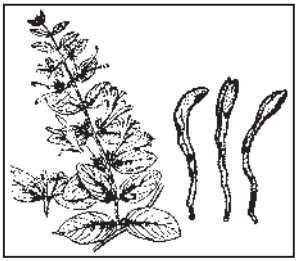
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Takizawa, Y., Suzuki, E., and Mitsubashi, T. (1981). Naturally occurring antioxidation (1). Isolation and determination of natural phenolic antioxidants from *Forsythia suspensa* Vahl. *Tokyo Gakugei Daigaku Kiyo* 33: 119-123.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.



LONICERA
Flos Lonicerae
Jin yin hua

This herb is the dried flower buds of *Lonicera japonica* Thunb., *L. hypoglauca* Miq., *L. confusa* DC., or *L. dasystyla* Rehd. of the family Caprifoliaceae. It is mainly grown in the Henan and Shandong provinces of China. The flower buds are collected in early summer, dried in the shade, and used unprocessed (Jiang Su New Medical College, 1977). Traditionally, the herb was used to increase vitality and to lengthen life. Antifebrile, corrective, and astringent properties were ascribed to it and it was used to treat all sorts of infections and poisons (Smith and Stuart, 1973).

Lonicera is an antipyretic and detoxicant. It is a broad-spectrum antimicrobial and is used both internally and externally. It is said that prolonged use of lonicera increases vitality and longevity. Today, it is commonly used for upper respiratory tract infections, common colds, acute laryngitis, pneumonia, gangrene, appendicitis, acute mastitis, and infections of the blood (Dong et al., 1998).

TCM Properties

Bitter in taste and cold, it acts on the lung, stomach, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Alleviates noxious Heat and detoxifies: to treat epidemic febrile disease, influenza, and Wind-Heat-type colds in the early stages, lonicera is often prescribed with forsythia fruit, mentha, and other herbs, as in *Yin Qiao San* or *Yin Qiao Jie Du Pian* (R-46) (Wang, 1994).
2. Treats dysentery: lonicera is used alone in a decoction or with scute root, coptis root, pulsatilla root, dried rehmannia, and moutan bark for diarrhea and dysentery with purulent and bloody stool (Wang, 1994).
3. Relieves skin infections: lonicera is an important and effective herb for the treatment of sores, carbuncles, furuncles, swelling, and inflammation of the skin. It is usually prescribed in combination with viola and dandelion, wild chrysanthemum, and semiaquilegia root *(tian kui zi),* as in *Wu Wei Xiao Du Yin* (a decoction of five detoxicants) (Wang, 1994).

Dosage

In a decoction of 9 to 15 g.

Precautions

People with Cold and deficiency of the stomach and spleen should not use this herb.

Side Effects and Toxicity

No adverse side effects or toxicity at the therapeutic dose were reported. Oral administration of the aqueous extract of the herb to rabbits and dogs produced no toxic reactions, nor any change in respiration, blood profile, and urine output (Zhu, 1998). Toxicological studies found that the LD_{50} of the extract of the herb was 53 g/kg in mice by subcutaneous administration (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The flower contains chlorogenic acid, isochlorogenic acid, inositol, flavonone compounds, and essential oil. The main components in the essential oil are 2,6,6-trimethyl-2-vinyl-5-hydroxytetra-hydropyran and linalool (Wang, 1994).

Pharmacological Findings

Lonicera is a broad-spectrum antimicrobial. The extract of both the flower and the vine inhibited the following bacteria in vitro: *S. aureus, S. hemolyticus, E. coli, S. dysenteriae, V. cholerae, S. typhi, S. paratyphi, D. pneumoniae, Neisseria meningitidis, P. aeruginosa,* and *M. tuberculosis* (Zhu, 1998).

Chlorogenic acid and isochlorogenic acid are believed to be the chief antibacterial components of the herb. Antifungal activity was observed with its aqueous extract against *Microsporum ferrugineum* and *Nocardia asteroides* (Wang, 1983). It has been effective in lowering blood cholesterol levels and is antispasmodic, anti-inflammatory, and has antitumor properties (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs.* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SCUTE ROOT

Radix Scutellariae
Huang qin

This herb is the dried root of the *Scutellaria baicalensis* Georgi of the family Labiatae. It is grown mainly in the Hebei and Shanxi provinces, and Inner Mongolia of China. Collected in the autumn, it is cleaned, sliced, and dried, or stir baked with wine, or carbonized to charcoal (Jiang Su New Medical College, 1977).

Scute root was prescribed for fevers, jaundice, diarrhea, ulcers, colic, amenorrhea, fluxes, boils, carbuncles, and breast cancer (Smith and Stuart, 1973).

Scute root is an important antipyretic and Dampness-dissipating agent. It relieves symptoms such as acute enteritis, dysentery, and urinary tract infections due to Heat-Dampness accumulation in the Lower-*Jiao,* and is used to treat pyogenic skin infections (Dong et al., 1998).

TCM Properties

Bitter in taste and cold, it acts on the gallbladder, lung, stomach, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves various pathogenic Heat and Dampness syndromes:

   - To treat fever or a feeling of fullness in the chest accompanied by a greasy coating on the tongue, scute root is blended with talc and tetrapanax *(tong cao)* (Wang, 1994).
   - It is prescribed with gardenia, rhubarb root, and capillaris to treat jaundice, or combined with dried rehmannia and akebia root for difficult and painful urination (Zhang, 1988), or with trichosanthes root and dahurian angelica root for suppurative infections on the skin (Zhang, 1988).

2. Relieves acute febrile disease and detoxifies: to treat acute febrile diseases with high fever, restlessness, yellow tongue coating, and rapid pulse, scute root is combined with phellodendron, coptis root, and

gardenia, as in *Huang Lian Jie Du Tang* (R-72). It is also used with bupleurum root, as in *Xiao Chai Hu Tang* (R-53), for an alternation of chills and fever (Wang, 1994).

3. Stabilizes the fetus and prevents miscarriage: scute root is dispensed with Chinese angelica, dried rehmannia, processed rehmannia, white atractylodes, ginseng root, and eucommia in a decoction to relieve the Heat in the womb and prevent miscarriage (Wang, 1994).
4. Relieves Heat in the lungs: scute root is mixed with morus bark and ophiopogon root, as in *Qing Fei Tang,* to clear the Heat in the lungs and to treat a cough with yellow sputum. Scute root with stemona herb is a useful combination in a decoction for bronchitis (Zhang, 1988).
5. Stops bleeding: carbonized scute root is used alone internally or with dried rehmannia root and imperata *(Imperata cylindrica)* for epistaxis, hematuria, hemafecia, and metrorrhagia (Zhang, 1988).

Dosage

In a decoction of 3 to 10 g. Commercially, scute root tablet (0.26 g) is available as an antimicrobial agent for bacillary dysentery, upper respiratory infections, and detoxification.

Precautions

People with Cold and deficiency of the stomach and spleen should not use this herb.

Side Effects and Toxicity

No adverse side effects or toxicity at the therapeutic dose were recorded, however, rare gastric discomfort and diarrhea were associated with the administration of the decoction or the injection of the active ingredients baicalin and baicalein (Zhu, 1998). A single oral dose of 12 to 15 g/kg of the aqueous decoction elicited no abnormal reaction in dogs during forty-eight hours of observation, except emesis in the high-dose group. Oral administration of 4 or 5 g/kg dose, twice daily, for eight weeks did not produce any significant abnormalities in routine blood profiles and histology of internal organs (Zhu, 1998).

Modern Research Findings

Chemical Constituents

More than fifty flavone derivatives have been isolated and identified from the root of *S. baicalensis*. Baicalin and wagonoside are two major components found in the root. Other ingredients include flavone-O-glycoside (scutellarin), flavone-C-glycosides, and calcones (Zhu, 1998).

Pharmacological Findings

Scute root is antimicrobial, anti-inflammatory, antiasthmatic, antiallergenic, antispasmodic, antipyretic, hepatoprotective, choleretic, sedative, diuretic, and lowers blood pressure and blood cholesterol (Dong et al., 1998; Zhu, 1998).

Antimicrobial activity: the herb is a broad-spectrum antimicrobial. Its decoction showed inhibition against hemolytic streptococcus, pneumococcus, meningococcus, *S. aureus, B. diphtheriae, B. dysenteriae, B. anthracis, B. typhosus, B. paratyphus, B. proteus, E. coli, P. aeruginosa, Bordetella pertussis,* and *Vibrio comma*. Baicalin is the active bacterial-inhibiting ingredient (Zhu, 1998).

The decoction of the herb in vitro was shown to be active against ten types of skin fungi, including *Trichophyton violaceum* and *Microsporum audouini,* and the decoction was active against nine types of fungi, including *T. violaceum* and *Microsporum canis* (Wang, 1983, 1985).

The crude extract of the herb or baicalin was shown to inhibit HIV antigen expression, and H-9 cell cultures, with 50 percent inhibitory doses of 0.6 ug/ml and 3.3 ug/ml, respectively (Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, J. M. (1985). *Chinese Herbal Pharmacology*. Shanghai: Shanghai Science and Technology Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.
Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

COPTIS ROOT

Rhizoma Coptidis
Huang lian

This herb is the dried rhizome of *Coptis chinensis* Franch., *C. deltoidea* C.Y. Cheng et Hsiao, or *C. teeta* Wall. of the family Ranunculaceae. It is grown mainly in the Hubei and Yunnan provinces of China, where it is collected in autumn, cleaned, dried, and used unprocessed or stir baked with ginger juice (Jiang Su New Medical College, 1977).

The root is yellow and its taste is intensely bitter but aromatic. The more brittle the root is, the more highly regarded are its reputed virtues. The root is reported to clear inflamed eyes, to benefit the chest, to combat fever, and to act as an alternative or a lexipharmic (panacea) drug. Traditionally, it was used for all forms of dysentery and diabetes, and to treat cases of food poisoning, especially that of the croton bean (Smith and Stuart, 1973). Its tincture is taken for indigestion.

Today, coptis root is used for infections of the digestive tract, respiratory system, gynecological region, and sense organs, such as diarrhea, dysentery, nausea, vomiting, high fever, dysphoria, and unconsciousness caused by acute febrile conditions and skin ailments (Dong et al., 1998).

TCM Properties

Very bitter in taste and cold, it acts on the heart, stomach, liver, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Relieves Heat and Dampness of the large intestines and detoxifies: to treat infections of the large intestines, such as acute enteritis, diarrhea, dysentery, and tenesmus, coptis root is prescribed with aucklandia root or with pueraria root, scute root, and licorice root, as in *Ge Gen Qin Lian Tang* (Wang, 1994). Coptis is used with scute root, pinellia, dried ginger, ginseng, processed licorice root, and jujube, as in *Ban Xia Xie Xin Tang* for a full feeling in the stomach and intestines, nausea, and vomiting (Zhang, 1988).
2. Alleviates acute febrile disease syndrome:

- To treat symptoms of high-fever-induced anguish, dysphoria, unconsciousness, and delirium, coptis root is combined with scute root, phellodendron, and gardenia, as in *Huang Lian Jie Du Tang* (R-72) (Zhang, 1988).
- Coptis root is mixed with gardenia, chrysanthemum, and prunella spike for a decoction to wash inflamed eyes (Dong et al., 1998).

3. Dissipates suppurative infections and detoxifies: to treat sores, carbuncles, furuncles, and boils on the surface of the body, swelling and pain in the ears and eyes, canker sores in the mouth, exudative skin infections, and pruritus, coptis is taken orally in a decoction or combined with dandelion, red peony, Chinese angelica, viola, and lonicera in a decoction. The herbs can be ground to a fine powder, mixed with sesame oil and egg white, and applied externally on the affected areas (Wang, 1994).

Dosage

In a decoction for oral use 2 to 10 g. The powdered coptis root is applied for external application.

Precautions

People with Cold, stomach and spleen deficiency, and pregnant women should not take this herb.

Side Effects and Toxicity

The therapeutic dose of the herb is safe. However, a large dose or long-term use may cause diarrhea, abdominal distension, borborygmus, polyuria, loss of appetite, vomiting, nausea, and epigastric discomfort (Wang, 1983). The use of the herb in jaundiced neonates and pregnant women is best avoided (Chen, 1993).

The bioactive ingredient, berberine, is potent. The LD_{50} values by intraperitoneal administration were 24.3 g/kg in mice and 205 mg/kg in rats (Wang, 1983).

Modern Research Findings

Chemical Constituents

The rhizome yields 6.7 to 13.7 percent of alkaloids with 50 to 80 percent being berberine, and small amounts of coptisine, palmatine, worenine, jatrorrhizine, and columbamine. Other ingredients include obakunone, obakulactone, and organic acids (Wang, 1983).

Pharmacological Findings

Coptis root has broad-spectrum antimicrobial and antiviral properties. Coptis root and its alkaloid, berberine, showed a strong inhibitory effect in vitro against numerous bacteria, especially *B. dysenteriae, S. aureus, Diplococcus pneumoniae,* hemolytic streptococcus, and meningococcus. Berberine was shown to be bacteriastatic at low concentrations and bactericidal at high concentrations (Wang, 1983). Berberine also markedly inhibited the secretory response of *E. coli*-heat-stable enterotoxin in rabbits and mice, and was dose-dependently effective in reducing water and electrolyte secretions induced by *E. coli*-heat-stable enterotoxin (Sack and Frochlich, 1982). In addition, the herb and berberine are antiviral against influenza virus and antifungal against pathogenic dermatomyces. Berberine sulfate inhibited the growth of numerous fungi, and completely inhibited the growth of trophozoites of *Entamoeba histolytica* and was active against infections with *E. histolytica* in hamsters and rats (Sabbiah and Amin, 1967).

It is antihypertensive, anti-inflammatory, choleretic, and diuretic. Coptis root has been shown to be antipyretic and antiadrenaline. It lowers blood cholesterol and is effective against bacillary dysentery (Dong et al., 1998).

Clinical Findings

In a multicenter, randomized, double-blind controlled trial involving 216 Type II diabetic patients who took the herb with astragalus root and lonicera flower, blood glucose values were significantly decreased only two hours after the test meal. The three herbs were well-tolerated and effective in Type II diabetes (Vray and Attali, 1995).

REFERENCES

Chen, E. (1993). Displacement of bikirubin from albumin by berberine. *Biology of the Neonate* 63: 201-208.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Sabbiah, T. V. and Amin, A. H. (1967). Effect of berberine sulfate on *Entamoeba histolytica. Nature* 215: 527-528.

Sack, R. B. and Frochlich, J. L. (1982). Berberine inhibits intestinal secretory response of *Vibrio cholerae* and *Escherichia coi* enterotoxins. *Infection and Immunity* 35: 471-475.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Vray, M. and Attali, J. R. (1995). Randomized study of glibenclamide versus traditional Chinese treatment in Type II diabetic patients. *Diabetes and Metabolism* 21: 433-439.

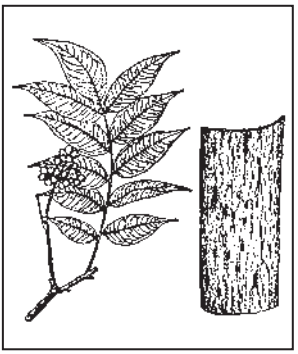
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

PHELLODENDRON BARK

Cortex Phellodendri
Huang bai



This herb is the bark of *Phellodendron chinense* Schneid. or *P. amurense* Rupr. of the family Rutaceae. It is mainly grown in the Liaoning and Jilin provinces of China. The bark is stripped off in the spring or summer, cleaned, dried, sliced, and used unprocessed or stir baked with saltwater (Jiang Su New Medical College, 1977). Traditionally, the whitish, bitter bark was regarded as a tonic, diuretic, alterative, aphrodisiac, and antirheumatic. It was prescribed for jaundice, hemorrhoids, fluxes, menstrual difficulties, chancre, sexual inadequacy, intestinal worms, nosebleed, dysuria, and favus (Smith and Stuart, 1973).

Phellodendron bark is an antipyretic herb that treats Heat-Damp-related syndromes, ailments of the gastrointestinal and urinary tracts, gynecological infections (such as acute bacillary dysentery), jaundice, and leukorrhea, and is used externally to treat boils and furuncles (Dong et al., 1998; Jiang Su New Medical College, 1977).

TCM Properties

Bitter in taste and cold, it acts on the kidney, urinary bladder, and large intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Removes pathogenic Heat and Dampness in the Lower-*Jiao:*

   - For dysentery, abdominal pain, diarrhea, and purulent and bloody stools, phellodendron bark is prescribed with coptis root, fraxinus bark, and pulsatilla root, as in the recipe *Bai Tou Weng Tang* (Wang, 1994).
   - To treat urinary tract infections, and difficult and painful urination, phellodendron is mixed with akebia stem and plantain seed (Zhang, 1988).
   - For the treatment of leukorrhea or smelly, yellow, thick leukorrhagia, phellodendron bark can be used with plantain seed, ginkgo nut, and euryale seed (Zhang, 1988).

- For hepatitis and jaundice, phellodendron bark is blended with gardenia and capillaris (Wang, 1994).
- To treat swollen and painful inflammatory joints of the knees and feet, phellodendron bark is combined with atractylodes rhizome and achyranthes root, as in *San Miao San* (Wang, 1994).

2. Relieves excess fever and inflammation of deficiency type: Phellodendron bark combined with anemarrhena, processed rehmannia, moutan, and alisma, as in *Zhi Bai Di Huang Wan,* is effective in treating night sweating, tidal fever, hectic fever, and nocturnal emission due to severe yin deficiency (Wang, 1994).
3. Relieves suppurative external infections: to treat swelling, boils, sores, ulcers, eczema, hemorrhoids, burns, scalds, and canker sores, phellodendron bark can be used alone either internally or applied externally as a tea or a decoction (Zhang, 1988).
4. Hemostatic action: phellodendron bark is dispensed with scute root, white peony, and ailanthus bark *(chun gen pi)* for metrorrhagia due to Heat in the *Chong-Ren* meridians (Wang, 1994).

Dosage

In a decoction of 2 to 10 g.

Precautions

People with Cold, stomach and spleen deficiency, or diarrhea should avoid this herb.

Side Effects and Toxicity

No adverse side effects and toxicity were reported except one case of skin allergy after oral administration of the herb decoction. Oral administration of 14 mg/kg of the alkaloid of the bark and palmatine daily for ten consecutive days did not significantly change the general physiological conditions, food intake, body weight, hepatic and renal functions, and electrocardiogram of rabbits (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The bark contains isoquinoline alkaloids. Berberine is the major component and there are small amounts of palmatine, magnoflorine, phelloden-

drine, jatrorrhizine, candicine, and menispermine (Zhou, 1993). Other ingredients are triterene, phytosterol linolate, beta-sitosterol, 7-dehydrostigmasterol, and campesterol (Dong et al., 1998).

Pharmacological Findings

Phellodendron is a broad-spectrum antimicrobial herb. It has a strong inhibition against several bacteria in vitro. The decoction or extract of the bark showed various degrees of inhibition against *S. aureus, S. albus, S. citreus, S. hemolyticus, Diplococcus pneumoniae, B. anthracis, B. subtilis, V. cholerae, S. typhi, S. paratyphi, N. meningitidis, E. coli, P. aeruginosa,* and especially against *S. flexneri, S. sonnei, S. shigae,* and *S. schmitzii* (Zhu, 1998). The decoction of the herb was also antifungal against such pathogenic skin fungi as *Trichophyton violaceum, E. floccosum, M. canis, M. andouni,* and *E. inguinale* (Wang, 1983). It lowers blood pressure and blood sugar levels, and is antipyretic, choleretic, and diuretic (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica.* Beijing: China Medical and Pharmaceutical Science Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

ISATIS ROOT

Radix Isatidis seu Baphicacanthi
Ban lan gen

This herb is the dried root of *Isatis indigotica* Fort. of the family Cruciferae. It is mainly grown in the Anhui, Fujian, Guangxi, and Jiangsu provinces of China. Harvested in autumn, it is cleaned, dried, and cut into sections (Jiang Su New Medical College, 1977). Isatis root is effective in clearing pathogenic Heat, febrile epidemics, typhoid fever, and epidemic dysentery (Smith and Stuart, 1973). It is an antiphlogestic and detoxifying drug for removing Heat and toxins from the blood. It relieves sore throats, colds and influenza in the early stages, infectious hepatitis, parotitis, mumps, and other viral infections. The antimicrobial effect of isatis root is stronger than that of isatis leaf, and for antiviral effects, the leaf is better than the root (Dong et al., 1998).

TCM Properties

Bitter in taste and cold, it acts on the heart and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Removes exogenous pathogenic Heat and detoxifies: to treat the Wind-Heat-type of common colds and influenza, and virus infections with symptoms of high fever, isatis root can be used alone or combined with bupleurum, forsythia fruit, lonicera, and peppermint in a decoction (Wang, 1994).
2. Relieves high fever and throat infections: isatis root is prescribed with scute root, burdock fruit, scrophularia, forsythia fruit, bupleurum, platycodon, licorice root, and tangerine peel, among other herbs, as in *Pu Ji Xiao Du Yin,* for high fever, headache, epidemic febrile disease, craniofacial infection characterized by a swollen head and flushed swollen face, and infections, inflammation, and throat pain (Wang, 1994; Zhang, 1988).
3. Treats hepatitis: for infectious hepatitis, isatis root can be used with patrinia and capillaris for better results (Wang, 1994).

Dosage

In a decoction of 10 to 15 g.

Precautions

People with Cold, stomach and spleen deficiency, or diarrhea should take this herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

The root and leaves contain sinalbin, indirubin, indican, beta-sitosterol, sinigrin, stachyose, and hydroxy-5-ketogluconate (Ling, 1995). Other ingredients isolated include indigo, isatin, kenetin, adenoside, gamma-sitosterol, several amino acids, alkaloids, and two sulphur-containing compounds (epigoitrin and 2-hydroxy-3-butenyl thiocyanate) (Zhu, 1998).

Pharmacological Findings

Isatis root is antimicrobial, antiviral, antiendotoxic, and antipyretic.

1. The injection of the root significantly inhibited the influenza virus (Wang, 1983).
2. The decoction of aqueous extract of the root inhibited the growth of *S. aureus, D. pneumoniae, alpha-streptococcus, Hemophilus influenzae, E. coli, S. typhi,* and *S. dysenteriae* (Wang, 1983).
3. In the Limulus amebocyte lysate test (LAL), the root's active ingredient was shown to be antiendotoxic (Wu et al., 1997).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.
Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.
Wu, X. Y., Liu, Y. H., Sheng, W. Y., Sun, J., and Qin, G. W. (1997). Chemical constituents of *Isatis indigotica. Planta Medica* 63: 55-57.
Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University, p. 130
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

ISATIS LEAF

Folium Isatidis
Da qing ye

This herb is the dried leaf and stems of *Isatis indigotica* Fort. of the family Cruciferae. It is mainly grown in the Anhui, Fujian, Guangxi, Hebei, and Jiangsu provinces of China. Collected in the summer, it is cleaned and used unprocessed either fresh or dried (Jiang Su New Medical College, 1977).

Isatis leaf, similar to isatis root, is used for epidemic febrile disease. It clears away pathogenic Heat and toxins from the blood, high fever, restlessness, unconsciousness, delirium, maculas, and skin eruptions (Wang, 1994). Today, it is taken for common colds, influenza, upper-respiratory-system infections, pneumonia, acute contagious hepatitis, and bacterial dysentery. Isatis leaf is good for treating a number of viral infections and its effect is stronger than isatis root (Dong et al., 1998).

TCM Properties

Bitter in taste and very cold, it acts on the heart, lung, and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Removes noxious Heat and detoxifies: for febrile ailments and to remove pathogenic Heat from the blood, isatis leaf is mixed with rhinoceros horn, dried rehmannia, scrophularia root, and gardenia, as in *Xi Jiao Da Qing Tang*. For the early stages of Wind-Heat-type colds, it is blended with lonicera, arctium, and other herbs (Zhang, 1988).
2. Relieves throat infections: the juice of the fresh herb can be used as a tea or as a mouthwash to treat canker sores, sore throat, and erysipelas. It is often combined with honeysuckle flower and scrophularia root (Zhu, 1998).

Dosage

In a decoction of 10 to 15 g or prepared as a tea.

Precautions

People with Cold, stomach and spleen deficiency, or diarrhea should use this herb with caution.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Isatis leaf contains two main ingredients: indirubin and indigo. Pigments, qingdainone, tryptanthrin, isatin, and n–nunacosan have also been isolated (Zhu, 1998).

Pharmacological Findings

Isatis leaf is antimicrobial, antiviral, anti-inflammatory, and antipyretic, and increases the activity of phogocytosis of white blood cells. A decoction of the leaves inhibited the growth of *S. aureus, alpha-streptococcus, N. meningitidis, N. catarrhalis, S. pneumoniae, S. typhi, E. coli, H. influenza, C. diphtheria,* and *S. dysenteriae*. The herb was also inhibitory against encephalitis B virus, mumps virus, and influenza virus. It is lethal to leptospirae (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.
Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

DANDELION
Herba Taraxaci
Pu gong ying

This herb is the entire dried plant of *Taraxacum mongolicum* Hand-Mazz., *T. sinicum* Kitag., or *T. heterolepis* Nakai et Koidz of the family Compositae. It is found in all parts of China, harvested in summer, cleaned, dried, cut into sections, and used unprocessed (Jiang Su New Medical College, 1977).

The tender shoots were eaten as a pot herb and tonic and alterative properties were ascribed for all sorts of abscesses and swelling, carious teeth, and snakebites (Smith and Stuart, 1973). Dandelion is now used to dissipate pathogenic Heat, detoxify, subdue carbuncles, and dissolve lumps. It helps relieve urination disturbances. Today, dandelion is used to relieve cancer pain, along with other cancer-treatment herbs (Dong et al., 1998).

TCM Properties

Bitter in taste and cold, it acts on the liver and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Treats sores, carbuncles, furuncles, relieves pathogenic Heat, and detoxifies. External boils, furuncles, and other pyogenic infections are treated with dandelion, either alone or with lonicera and wild chrysanthemum in a decoction. Fresh dandelion is used with vaccaria seed to make a concentrated herbal extract or to make a tincture with wine to treat acute mastitis (Wang, 1994).
2. Eliminates internal Damp-Heat: dandelion is prescribed with bupleurum, capillaris, turmeric, and gardenia for hepatitis and pain in the epigastric region (Wang, 1994).
3. Relieves urinary difficulties: for the treatment of urinary tract infections, and painful, difficult urination, dandelion can be used with lysimachia, imperata, capillaris, scute root, phellodendron bark, coptis root, and gardenia (Wang, 1994).

Dosage

In a decoction of 10 to 30 g.

Precautions

People with yin syndromes should avoid this herb.

Side Effects and Toxicity

No adverse side effects and toxicity were reported at the therapeutic doses except for occasional gastrointestinal discomfort, nausea, vomiting, and mild diarrhea (Wang, 1983; Zhu, 1998).

Modern Research Findings

Chemical Constituents

The plant contains inulin, taraxasterol, taraxacerin, taraxicin, choline, and pectin (Zhu, 1998).

Pharmacological Findings

Dandelion is antimicrobial, anti-inflammatory, and antipyretic. Dandelion has been shown to be a mild laxative, stomachic, diuretic, and choleretic. It also increases the secretion of milk from mammary glands (Dong et al, 1998). The decoction of the herb significantly increased the human peripheral lymphoblast transformation rate in vitro, indicating that the herb is immunologically stimulating (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.
Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PULSATILLA ROOT

Radix Pulsatillae
Bai tou weng

This herb is the dried root and flower of *Pulsatilla chinensis* (Bge.) Regel. of the family Ranunculaceae. It is grown mainly in the Liaoning province and Inner Mongolia of China. Collected in the spring, it is dried and used unprocessed (Jiang Su New Medical College, 1977).

Traditionally, this herb was a popular medicine. It was prescribed for fevers, insanity, ague, obstruction of the bowels, swelling of the neck from anger, poor circulation of the blood, abdominal pain, dysentery, toothache, all sorts of rheumatic pain, scrofulous glands, all forms of miasmatic poisoning, hemorrhoids, and favus (fungal skin) (Smith and Stuart, 1973). Pulsatilla root clears away pathogenic Heat, subdues pyogenic infections, and detoxifies. It is used to treat diarrhea and dysentery (Dong et al., 1998).

TCM Properties

Bitter in taste and cold, it acts on the large intestine meridian.

Effects, Medicinal Uses, and Combinations

1. Removes pathogenic Heat and relieves dysentery: for bacterial and amoebic dysentery, pulsatilla root is combined with coptis, phellodendron bark, and fraxinus bark, as in *Bai Tou Weng Tang* (Zhang, 1988).
2. Detoxifies: to treat *Trichomonas vaginalis,* a fairly common condition in women characterized by symptoms of persistent burning and itching of the vulvae tissue associated with a profuse frothy discharge, pulsatilla root is made into a decoction with sophora root, which is applied externally on the affected areas. Pulsatilla root is also effective in treating lymphnoditis (Wang, 1994). The decoction and ethanol extract of the root is antibacterial in vitro against *S. aureus, P. aeruginosa, S. dysenteriae,* and *B. subutilis* (Zhu, 1998).

Dosage

In a decoction of 6 to 15 g.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported of the herb at therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Pulsatilla root contains saponin, protoanemonin, and glycoside ranunculin, anemonin, okinalin, okenalein, stigmasterol, hederagenin, and oleanolic acid (Ling, 1995; Zhu, 1998).

Pharmacological Findings

Pulsatilla root is antimicrobial and antiamebic. It inhibits vaginal trichomonas in vitro (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

PATRINIA HERB

Herba Patriniae
Bai jiang cao

This herb is the entire plant of *Patrinia scabiosaefolia* Fisch. or *P. villosa* Juss. of the family Valevianaceae. It is mainly grown in the Fujian, Jiangsu, Jiangxi, and Sichuan provinces of China. Collected in the summer, it is cleaned, dried, cut into sections, and used unprocessed (Jiang Su New Medical College, 1977).

The root was used as a poison antidote, resolvent, amodyne, and astringent in abscesses, for postpartum pain and other puerperal difficulties, and parasitic skin diseases (Smith and Stuart, 1973). Patrinia herb is antimicrobial, antipyretic, and a detoxificant used to dissipate inflammations, eliminate pus, and treat carbuncles, chronic appendicitis, enteritis, and colitis (Dong et al., 1998).

TCM Properties

Pungent and bitter in taste, and cold, it acts on the large intestine, stomach, and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Removes inflammation and detoxifies: for intestinal abscess, patrinia is prescribed with rhubarb, lonicera, and moutan bark. For lung abscesses, it is used with dandelion, houttuynia, and platycodon. It is blended with red peony, moutan bark, and coix seed for chronic appendicitis, or with dandelion and lonicera for detoxification of external carbuncles and boils (Wang, 1994).
2. Invigorates blood circulation and relieves pain: to treat abdominal pain, swelling, and mass formation in the abdomen due to blood stasis, patrinia is mixed with cnidium, Chinese angelica, cyperus tuber, and corydalis (Wang, 1994).
3. Treats bacterial dysentery and enteritis: patrinia herb is combined with pulsatilla root (30 g each) in a decoction (Dong et al., 1998).

Dosage

In a decoction of 9 to 15 g.

Precautions

People with Cold, deficiency, abdominal pain, and pregnant women should avoid this herb.

Side Effects and Toxicity

At the therapeutic dose, the herb is safe. No adverse reactions appeared in mice that received an oral dose of 24 g/kg of the extract of the herb. Oral administration of 30 g/kg of the ethanol extract caused mild respiratory depression and diarrhea in mice (Zhu, 1998).

Modern Research Findings

Chemical Constituents

The root and rhizome of *P. villosa* contains patrinoside, scabioside, villoside, loganin, morroniside, and essential oil (Dong et al., 1998; Zhu, 2001). The root of *P. scabiosaefolia* contains volatile oil; the main ingredients of the oil are patrinene and isopatrinene (Zhu, 1998).

Pharmacological Findings

Patrinia herb is antimicrobial and choleretic. The aqueous extract of the herb showed a weak inhibition in vitro on *S. aureus, S. albus,* and *Corynebacterium paradiphtheriae*. It was inactive against *S. hemolyticus, Corynebacterium diphthereriae, Diplococcus pneumoniae, B. anthracis,* and *Clostridium tetani* (Zhu, 1998).

It promotes the regeneration of liver cells, prevents degeneration of the liver cells, and invigorates blood circulation. The alcoholic extract of patrinia herb has been shown to be markedly sedative and analgesic in mice (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SCROPHULARIA ROOT

Radix Scrophulariae
Xuan shen

This phytomedicine is the root of *Scrophularia ningpoensis* Hemsl. or *S. buergeriana* Mig. of the family Scrophulariaceae. This herb is grown chiefly in the Zhejiang and Sichuan provinces of China, harvested in the winter when the aboveground part of the plant has withered. The roots are piled and dried in the sun until the inside becomes black, and then sliced for medicinal use (Jiang Su New Medical College, 1977).

According to classical Chinese materia medica, scrophularia root is one of the five *shens* and this particular root acts on the kidneys. It was regarded as cooling, diuretic, tonic, and restorative, and used for fevers, malaria, typhoid, galactorrhae, and leukorrhea (Smith and Stuart, 1973).

As with dried rehmannia or moutan bark, this herb removes Heat from the blood and nourishes the yin. It treats affliction by exopathogenic Wind-Heat, as well as epidemic febrile ailments with Heat, and invasion of the ying-blood system. Today, this herb is used for respiratory diseases, thyroiditis, thyroid enlargement, hyperthyroidism, epistaxis, hematemesis, and other blood ailments due to Heat in the blood (Dong et al., 1998).

TCM Properties

Bitter, salty, and slightly sweet in taste, and cold, it acts on the lung, stomach, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Removes Heat and toxins, and nourishes yin:

   - For a swollen and sore throat due to affliction by exopathogenic Wind-Heat, scrophularia root is combined with arctium fruit and peppermint in a decoction (Zhang, 1988).
   - It is mixed with ophiopogon root, platycodon root, and licorice for a swollen and sore throat, and endogenous Heat (Wang, 1994).
   - To treat flu and epidemic febrile disease with Heat invasion to the ying-blood system marked by fever, thirst, restlessness, uncon-

sciousness, and delirium, scrophularia root is blended with dried rehmannia root, rhinoceros horn, lonicera flower, coptis, and forsythia fruit, as in *Qing Ying Tang* (Dong et al., 1998).

2. Nourishes the kidney and lung yin: for chronic bronchitis, sore throat, coughs, dyspnea, afternoon fever, and dry mouth, scrophularia is prescribed with dried rehmannia, white peony, ophiopogon root, Chinese angelica, platycodon, fritillaria, and lily, as in *Bai He Gu Jin Tang* (Dong et al., 1998).
3. Removes Heat in the blood: to treat hyperthyroidism, thyroiditis, and thyroid enlargement, powdered scrophularia root is dispensed with powdered processed oyster shell and *Fritellaria thunbergii* in a honey pill. Take 9 g twice per day (Dong et al., 1998).

Dosage

In a decoction of 9 to 30 g.

Precautions

People with Cold, deficient syndrome in the stomach and spleen, diarrhea, or poor appetite should not use this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

The root contains iridoid glycosides, including harpagosides, aucubin, 6-methylcatapol, ningpogosides A and B, ningpogenin, scopoliside, and harpagid. Essential oil, alkaloids, and L-asparamide were also found (Yin, 1995).

Pharmacological Findings

1. The aqueous or ethanolic extract and the decoction of the root lowered blood pressure in anesthetized dogs, cats, and rabbits. Oral ad-

ministration of 2 g/kg of the decoction twice a day produced a more marked hypotension in dogs with renal hypertension than in healthy dogs (Wang, 1983).

2. Subcutaneous or intraperitoneal administration of 2.5 to 6 g/kg of the aqueous extract of the root inhibited the spontaneous activity of mice and prolonged cyclobarbital-induced sleep (Wang, 1983).
3. Subcutaneous administration of 5 g/kg of the root's extract caused a slight decrease in blood glucose. Antipyretic and antifungal activities of the extract were also reported (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q, and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

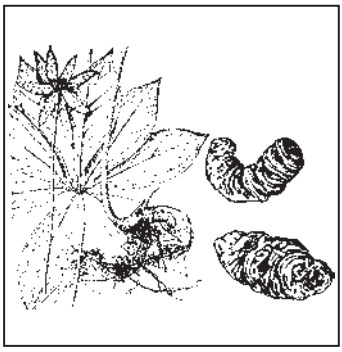
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yin, J. (1995). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 2)*. Beijing: Chinese Medical Classics Press.

Zhang, E. (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

PARIS RHIZOME

Rhizome Paridis
Chong lou



This herb is the dried rhizome of *Paris polyphylla* Smith, var. *chinensis* (Franch.) Hara, or *P. yunnanensis* (Franch.) Hand of the family Liliaceae. It is grown mainly in the provinces of Guangxi and Sichuan provinces of China.

The paris rhizome is an anti-inflammatory herb (Dong et al., 1998). It was used for acute pyrogenic inflammations, nervous afflictions, epilepsy, chorea, mania, puerperal convulsion during childbirth, eclampsia, and ague (Smith and Stuart, 1973). Today, paris rhizome is used as an anticonvulsive to treat febrile conditions of children. Paris rhizome is also used for tumors and as a detoxicant (Dong et al., 1998) and is combined with prunella spike and other anticancer herbs to treat lung cancer (Wang, 1994).

TCM Properties

Bitter in taste and cool and slightly toxic, it acts on the li ver meridian.

Effects, Medicinal Uses, and Combinations

1. Relieves inflammation and detoxifies: this herb is useful against external suppurative infections. It can be applied to the affected areas in powdered form or mixed with vinegar to make a paste. It can be taken internally with dandelion, lonicera, wild chrysanthemum flower, coptis, red peony, and trichosanthes root in a decoction to treat abscesses and boils (Wang, 1994).
2. Detoxifies poisonous snakebite: paris rhizome is used with rhubarb, viola, and wild chrysanthemum flower in a decoction to neutralize snake toxin in the blood. It can be combined with pubescent angelica, musk, and *Dysosma pleiantha (ba jiao lian)* in a decoction to combat snake nerve poison (Wang, 1994). For any ailment resulting from infections, paris rhizome is more effective and potent than dandelion, viola, or lonicera (Wang, 1994).

Dosage

In a decoction of 3 to 9 g.

Precautions

This herb is potent with a slight toxicity.

Side Effects and Toxicity

At low doses, this herb is safe. However, it causes nausea, vomiting, headaches, and even convulsions at large doses or in overdose.

Modern Research Findings

Chemical Constituents

Paris rhizome contains dioscin, pariden, and parityhnin (Ling, 1995).

Pharmacological Findings

Paris rhizome is antimicrobial, antitussive, sedative and anodyne, it has antitumor properties, and neutralizes snake toxins (Wang, 1994).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Chapter 15

Natural Antitumor Herbs: Complementary Therapy to Aid the Fight for Survival

The medicinal herbs covered in this chapter help treat malignant tumors. Most of these herbs are bitter and cool, cold and potent, or slightly toxic. Because these herbs are potent, they are capable of subduing cancer pain and shrinking or dissipating cancer cells, extending a better chance of survival time, and speeding recovery.

In the past twenty-five years, after extensive laboratory and clinical tests, certain medicinal herbs been effective in inhibiting tumor growth and permitted (by Chinese medical authorities) to be used to treat cancer patients.

In traditional Chinese medicine, the clinical anticancer therapies are based on principles such as clearing away Heat and toxic materials, activating blood to remove stasis, softening and resolving hard lumps, invigorating *Qi,* and balancing the loss of the yin and yang of the body (Dong et al., 1998).

In accordance with these principles, TCM Longhua Hospital in Shanghai treated 300 cases of primary cancer simply with medicinal herbs. The total effective rate was 51 percent, with the longest survival period being eleven years. Judged by pathological classification and observation at different stages, squamous cancer had the highest effective rate—55.85 percent. In addition, the hospital selected sixty patients with advanced squamous cancer and randomly divided them into two groups of thirty patients. One group was treated with traditional Chinese medicinal herbs and the other group was treated with chemotherapy. The survival period of the herbal group was 465 days while that of the chemotherapeutic group was 204 days. The survival rates after twelve and twenty-four months were 66.7 percent and 13.3 percent for the herbal group, and 33.3 percent and 3.3 percent for the chemotherapeutic group, respectively (Chang, 1992).

In practice, these herbs are prescribed with other antipyretic and detoxicant herbs, such as *Qi* and blood-activating herbs, yin-yang balancing herbs, *Qi* and blood tonic herbs, or mass- and tumor-dissipating herbs in complex recipes for a synergistic effect and for building up resistance (Dong et al., 1998).

Table 15.1 lists herbs used currently to treat different cancer cases in Chinese hospitals or for reducing cancer pain.

Table 15.2 lists the common and individual actions of antitumor herbs.

Accepted antitumor herbs in China include oldenlandia *(bai hua she she cao),* lobelia *(ban bian lian),* scute barbata *(ban zhi lian),* rabdosia *(dong ling cao),* akebia quinata fruit *(ba yue zha),* black nightshade *(long kui),* houttuynia *(yu xing cao),* subprostrate sophora *(shan dou gen),* zedoaria *(e zhu),* semiaquilegia root *(tian kui zi),* duchesnea *(she mei),* sarcandra *(jiu jie cha),* solanum *(bai ying),* mylabris *(ban mao),* coix seed *(yi yi ren),* clematis root *(wei ling xian),* arisaema *(tian nan xing),* cirsium *(da ji),* strychni seed *(ma qian zi),* prunella spike *(xia ku cao),* and crotalaria herb *(nong ji li).*

On the following pages, twelve antitumor herbs are introduced and are further discussed.

TABLE 15.1. Antitumor Herbs for Cancer and Relieving Cancer Pain

Etiology	Herbal Remedies
Skin cancer	Zedoaria, crotalaria herb, strychni seed
Breast cancer	Prunella spike, semiaquilegia, asparagus tuber, akebia quinata fruit, rabdosia, strychni seed, mylabris, black nightshade
Lung cancer	Subprostrate sophora, stephania, rhubarb, polyporus, semiaquilegia, houttuynia, zedoaria, black nightshade, crotalaria, scute barbata, mylabris, strychni seed
Tracheal cancer	Clematis, polyporus, alisma, oldenlandia, black nightshade, sarcandra, crotalaria herb, mylabris, robdosia
Stomach cancer	Coix seed, alisma, sarcandra, duchesnea, oldenlandia, crotalaria herb, strychni seed, scute barbata
Liver cancer	Cirsium, zedoaria, crotalaria herb, black nightshade, solanum, semiaquilegia, scute barbata, rabdosiae, strychni seed, robdosia
Colon cancer	Crotalaria herb, oldenlandia, sarcandra, lobelia
Cervical and vaginal cancer	Pinella, arisaema, coix seed, zedoaria, crotalaria herb, black nightshade, scute barbata, solanum, subprostrate sophora
Bladder cancer	Subprostrate sophora, black nightshade, solanum, semiaquilegia root
Prostate gland cancer	Oldenlandia, duchesnea, sarcandra
Pancreatic cancer	Sarcandra
Thyroid cancer	Prunella spike, oldenlandia, robdosia
Lymphatic gland cancer	Catharanthus, prunella spike, semiaquilegia root
Cancer pain	Scrophularia root, cynanchium, salvia root, borneol

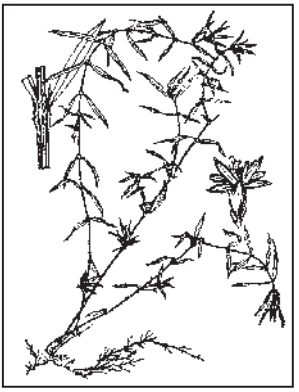
TABLE 15.2. The Actions of Antitumor Herbs

Name of Herb	Dosage (grams)	Individual Actions	Common Actions
Oldenlandia *(bai hua she she cao)*	15-60	Treats colon, stomach, esophageal, prostate gland, and tracheal cancers	Clears internal noxious Heat, detoxicating, antimicrobial effect, antitumor effect
Lobelia *(ban bian lian)*	15-30	Treats cancer of the digestive tract	
Scute barbata *(ban zhi lian)*	15-30	Treats lung, liver, stomach, esophageal, colon, and cervical cancers	
Rabdosia *(dong ling cao)*	30-60	Treats cancer of the digestive tract, breast, thyroid, and the liver, and relieves rheumatic pain	
Black nightshade *(long kui)*	9-15	Treats esophageal, lung, bladder, intestinal, liver, breast, and cervical cancers	
Houttuynia *(yu xing cao)*	10-15	Treats lung cancer, relieves urinary tract infections and diuresis	
Subprostrate sophora root *(shan dou gen)*	3-6	Treats throat, lung, nose, and cervical cancers	
Semiaquilegia root *(tian kui)*	3-10	Treats liver, breast, lymphatic, and bladder cancers	
Duchesnea *(she mei)*	15-30	Treats stomach, nostril, and cervical cancers; eliminates Damp-Heat toxins and treats bleeding	
Zedoaria *(e zhu)*	3-9	Treats liver, cervical, uterus, and skin cancers	Blood-regulating, dissipates stagnation
Sarcandra *(jiu jie cha)*	30-60	Treats prostate gland, colon, stomach, pancreas, and esophageal cancers	Antirheumatic, antimicrobial, *Qi*-regulating
Akebia quinata fruit *(ba yue zha)*	9-15	Treats breast and digestive tract cancers, liver and spleen enlargement, invigorates flow of *Qi* and blood	

REFERENCES

Chang, M. Y. (1992). *Anticancer Medicinal Herbs*. Changsha, Hunan: Hunan Science and Technology Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.



OLDENLANDIA
Herba Oldenlandia diffusa
Bai hua she she cao

This herb is the whole plant of *Oldenlandia diffusa* (Willd.) Roxb. or *O. corymbosa* L. of the family Rubiaceae. It is grown mainly in the provinces of Fujian, Guangdong, and Guangxi of China, collected in the summer or autumn, cleaned, cut into pieces, dried, and used unprocessed (Jiang Su New Medical College, 1977). Oldenlandia is a febrifugal and detoxicant herb, as well as antitumor agent. It is used to relieve Damp-Heat, pyogenic infections, difficult urination, and to dispel toxins (Dong et al., 1998).

TCM Properties

Bitter in taste and cold, it acts on the heart, liver, and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: for colon, stomach, or esophageal cancers, oldenlandia is prescribed with sophora root in a decoction (Dong et al., 1998).
2. Eliminates Heat toxins and detoxifies: oldenlandia is combined with lonicera and scute root, scrophularia root, and belamcanda *(she gan)* to treat coughs, sore throat, and tonsilitis (Wang, 1994).
3. Clears Heat and eliminates Dampness:

   - For treating carbuncles and boils, it is used with lonicera, forsythia, and viola in a decoction and/or put on affected areas of the skin (Wang, 1994).
   - For intestinal abscesses, it is blended with wild chrysanthemum, viola, and patrinia (Wang, 1994).
   - To treat jaundice, it is prescribed with lysimachia, gardenia, and capillaris to eliminate Dampness and Heat (Wang, 1994).
   - For urinary tract infections, edema, and strangury, it is mixed with plantain seed, gardenia, alisma, akebia quinata fruit *(ba yue zha),* and talc in a decoction (Dong et al., 1998).

Dosage

In a decoction of 15 to 60 g or as needed for external use.

Precautions

People with Cold, stomach and spleen deficiency, and pregnant women should avoid this herb or use with caution.

Side Effects and Toxicity

According to some traditional Chinese Materia Medica, this herb is nontoxic at suggested doses. Toxicity studies showed that the LD_{50} of the extract of the herb by intraperitoneal administration in mice was 104 g/kg (Wang, 1983).

Modern Research Findings

Chemical Constituents

Oldenlandia contains iridoid glycoside and oldenlandosides A and B. It also contains stigmasterol, oleanolic acid, beta-sitosterol, sitosterol-D-glucoside, p-coumaric acid, flavonoic glycoside, and 5-glycoside (Jiang Su New Medical College, 1977; Zhu, 1998).

Pharmacological Findings

1. Oldenlandia is an antitumor, antimicrobial, and anti-inflammatory agent. It is also analgesic, sedative, and hypnotic.
2. Oral administration of the herb's extract increased phagocytic capacity of the peritoneal leukocytes against *S. albus*. The decoction given orally to rabbits resulted in a threefold increase of phagocytic activity of leukocytes. The herb also increased the phagocytosis of *S. aureus* by human leukocytes in vitro. These results indicated that this herb enhances nonspecific immunological activity (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

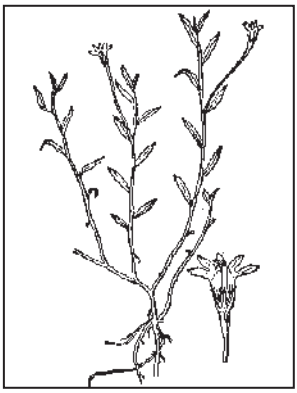
Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

LOBELIA

Herba Lobeliae
Ban bian lian



This herb is the whole plant of *Lobelia chinensis* Lour. of the family Campanulaceae. It is mainly distributed throughout the Anhui, Fujian, Guangdong, Guangxi, Hubei, Hunan, Jiangxi, Jiangsu, Sichuan, and Tiawan provinces of China. Collected in summer, it is cleaned, dried, and cut into sections (Jiang Su New Medical College, 1977).

Traditionally, this herb was used on snake and insect bites, and to treat fever, asthma, and ague (Smith and Stuart, 1973). Today, lobelia is commonly used as anti-inflammatory, Damp-Heat eliminating diuretic, as well as an antitumor agent (Dong et al., 1998).

TCM Properties

Acrid and sweet in taste, and slightly cool and neutral, it acts on the heart, lung, and small intestine meridians.

Effects, Medicinal Uses, and Combinations

1. Exerts an antitumor effect: for stomach cancer, esophageal cancer, cervical cancer, colon cancer, and other cancers of the digestive tract, lobelia is combined with scute root, barbata, skull cap, and oldenlandia in a decoction (Wang, 1994).
2. Eliminates pathogenic Heat and detoxifies: lobelia in a decoction is able to remove toxic Heat, and detoxify and neutralize toxins of poisonous snakebites (Wang, 1994).
3. Removes pathogenic Heat and Dampness: to treat a swollen abdomen, it is mixed with verbena, bitter orange, plantain seed, and polyporus. Lobelia is used with phellodendron, bitter orange, and capillaris to treat jaundice. A concentrated decoction of lobelia can be applied on the external affected areas for tinea (ringworm), on the feet, and to treat eczema (Wang, 1994).

Dosage

In a decoction of 15 to 30 g. The fresh herb can be used externally for snake and insect bites.

Precautions

People with deficiency-type edema should avoid this herb.

Side Effects and Toxicity

The classical Chinese materia medica recorded this herb as nontoxic. However, certain people may experience salivation, nausea, vomiting, headache, diarrhea, hypertension, tachycardia caused by overdose, and even convulsions, paralysis of the respiratory system, and death (Jiang Su New Medical College, 1977).

Modern Research Findings

Chemical Constituents

Lobelia contains lobeline, lobelanine, lobelanidine, isolobelanine, lobelinin, and polyfructosan.

Pharmacological Findings

Lobelia is a marked diuretic, antimicrobial, hypotensive, and antipyretic, as well as an antifungal and antitumor agent. It lowers blood pressure and increases production of bile (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs,* San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

SCUTE BARBATA

Herba Scutellariae Barbatae
Ban zhi lian

This herb is the whole plant of *Scutellaria barbata* D. Don of the family Labiatae. It is grown in the Fujian, Guangdong, Guanxi, Jiangsu, Sichuan, and Zhejiang provinces of southern China. Harvested in June, it is cleaned, cut into sections, and dried or the fresh herb is used (Jiang Su New Medical College, 1977). Scute barbata is an antipyretic, detoxicant, diuretic and Heat-Damp eliminator agent. The herb has been used to treat chronic hepatitis, snakebites, hepatomegaly, and cancers (Dong et al., 1998; Wang, 1994).

TCM Properties

Pungent, slightly bitter in taste, and cool, it acts on the lung, liver, and kidney meridians.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: to treat malignant tumors, including lung, liver, stomach, esophageal, colon, and cervical cancers, a scute barbata decoction is used. Scute barbata is used with houttuynia and *Solanum lyratum (bai yeng)* for the treatment of lung cancer (Dong et al., 1998; Wang, 1994).
2. Eliminates Heat toxins and detoxifies: for the treatment of boils, carbuncles, and snakebites, the juice of fresh scute barbata can be applied on the affected area or the dried plant can be combined with dandelion, viola, and lobelia in a decoction to be taken orally (Wang, 1994).
3. Induces diuresis and relieves edema: for acute or chronic nephritis, scute barbata combined with alisma, poria, and plantain seed can be useful in relieving abdominal edema (Wang, 1994). Scute barbata is mixed with forsythia, tokoro, anemarrhena, and phellodendron in a decoction for chronic nephropyelitis (Dong et al., 1998).

Dosage

In a decoction of 15 to 10 g, or 30 to 45 g if the fresh herb is used.

Precautions

Pregnant women should use scute barbata cautiously or not at all.

Side Effects and Toxicity

At suggested therapeutic doses this herb is safe. No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Scute barbata contains flavone compounds, scutelarein, scutelarin, carthamidin, isocarthamidin, and wogonin (Zhu, 1998).

Pharmacological Findings

Scute barbata is diuretic and antimicrobial, and has antitumor properties. The polysaccharide of the herb was shown to stimulate the murine lymphocyte transformation induced by Con. A. Intraperitoneal administration of the polysaccharide of the herb to mice increased the delayed type of hypersensitivity reaction to dinitrochlorobenzene, suggesting that the herb stimulates the immune system (Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

RABDOSIA

Herba Rabdosiae
Dong ling cao

This herb is the dried whole plant of *Rabdosia rubescens* (Hems) Hara of the family Labiatae. It is grown in the northern provinces of China. Rabdosia is an antipyretic, a detoxicant, a blood-circulation activating agent, and an anodyne, as well as an antitumor agent.

TCM Properties

Bitter in taste and cool, it acts on the lung meridian.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: rabdosia in a decoction is used in China for malignant tumors, specifically esophageal, breast, liver, stomach, lung, and thyroid cancers. It can be used alone or with other anticancer herbs (Wang, 1994).
2. Relieves Heat and detoxifies: for common colds, flu, fever, acute laryngitis, pharyngitis, and bronchitis, rabdosia is used alone in a decoction (Wang, 1994).
3. Invigorates blood circulation and relieves pain: for arthralgia, swollen joints, and pain, it is used in a decoction (Wang, 1994).

Dosage

In a decoction of 30 to 60 g or as a tincture.

Precautions

The herb is potent. Do not overdose.

Side Effects and Toxicity

As reported in classical Chinese materia medica, the herb may cause nausea, stomach pain, a feeling of fullness in the stomach, and diarrhea after administering the herb to cancer patients (Wang, 1994).

Modern Research Findings

Pharmacological Findings

Rabdosia is antimicrobial and antitumor.

REFERENCES

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

AKEBIA QUINATA FRUIT

Fructus Akebiae
Ba yue zha

This herb is the ripe fruit of *Akebia quinata* (Thunb.) Decne., *A. trifolia* (Thunb.) Koidz., or *A. trifoliata* (Thunb.) Koidz. var. *australis* (Diels) Relid. of the family Lardizabalaceae. Akebia quinata fruit is also called *bai mu tong*. It is mainly grown in the Anhui, Gansu, Hebei, Henan, Shaanxi, Shandong, Shanxi, and Zhejiang provinces of China, collected in the late summer and dried for use (Jiang Su New Medical College, 1977).

The fruit is three to four inches long, has a white pulp with black kernels, is edible, and of an agreeable sweet taste. The fruit traditionally was used as a tonic, stomachic, and diuretic. The dried stem of the herb is bitter and is used as a stimulant, diaphoretic, laxative, diuretic, stomachic, and vulnerary drug; it quickens all of the senses and faculties (Smith and Stuart, 1973). This species of plant is a *Qi*-regulating diuretic, and an antitumor agent. It is used today as a potent diuretic for all sorts of edema, urinary tract infections, and amenorrhea (Dong et al., 1998).

TCM Properties

Bitter and slightly sweet in taste and cool, it acts on the stomach and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: for cancer, particularly breast cancer, and cancer of the digestive tract, akebia quinata fruit is used alone in a decoction or with other antitumor herbs, such as prunella, frittilaria, and patrinia in a decoction (Wang, 1994).
2. Regulates the circulation of Liver-*Qi* and relieves pain: for pain in the chest, hypochondrium region, and the abdomen, akebia quinata fruit is combined with cyperus, bitter orange, and melia. It is combined with fennel seed, tangerine seed, and litchi seed to treat inflammation of the testes, testicular pain, and hernial pain (Wang, 1994).
3. Removes stagnation and obstruction of blood and dissolves blood stasis: to treat amenorrhea, dysmenorrhea, and other symptoms due to

blood stagnation, akebia quinata fruit can be mixed with salvia and leonurus (Dong et al., 1998).

4. Relieves edema: akebia herb made into an injectable form with alisma and prunella has provided good results clinically for ascites caused by cirrhosis, nephrotic edema, and cardiac edema (Dong et al., 1998).

Dosage

In a decoction of 9 to 15 g.

Precautions

People with a history of kidney disorders and the elderly should not take any species of this group of herbs. It is not recommended during pregnancy.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica. *Note:* The Chinese herb *mu tong* has many species and causes great confusion. The most commonly used is *guan mu tong (Caulis Aristolochiae manshuriensis),* the next is *chuan mu tong (Caulis Clematidis armandii).* These two species of the plant are potent (dose in a decoction, 3 to 9 g). Overdose causes kidney function impairments.

Modern Research Findings

Chemical Constituents

Akebia quinata fruit contains poly sugars, akebine, herderagenin, oleanolic acid, glycosides, and a large amount of potassium salts (Jiang Su New Medical College, 1977).

The wood part of the herb contains triterpenes. Their main ingredients are alpha-amyrin, beta-amyrin, friedelin, and clementanosides A and B (Zhu, 1998).

Pharmacological Findings

Akebia fruit is antimicrobial and diuretic, and is an antitumor agent. The 50 percent methanolic extract of the herb is diuretic and relieved edema in mice with experimental edema (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

BLACK NIGHTSHADE

Herba Solani Nigri
Long kui

This herb is the whole plant, including the seed of *Solanum nigrum* L. of the family Solanaceae. It is grown all over China, collected in the summer and autumn, cleaned, cut into sections, and dried or used fresh (Jiang Su New Medical College, 1977).

The plant was recorded to have effects similar to those of *Atropa mandragora*. Reportedly, after the administration of a small quantity of the tincture, a profound anesthesia was produced, during which operations were performed with perfect freedom from pain (Smith and Stuart, 1973). It is thought to be the drug used by the celebrated surgeon, Hua To, in certain operations on wounded intestines. The truth of this matter awaits more investigation (Smith and Stuart, 1973).

Black nightshade is heat resolving, diuretic, and antimicrobial, as well as an antitumor agent. It is used to treat respiratory and urinary tract infections, and several types of cancer (Dong et al., 1998).

TCM Properties

Bitter and slightly sweet in taste, cool, and slightly toxic, it acts on the lung and urinary bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: to treat cervical, breast, esophageal, lung, digestive system, intestinal, and liver cancers, black nightshade is used with oldenlandia, scute barbata, duchesnea, solanum lyratum *(bai ying),* zedoaria, and processed tortoise plastron (Dong et al., 1998).
2. Eliminates Heat toxins and detoxifies: for colds, flu, coughs, sore throat, and similar illnesses, black nightshade can be used alone or combined with forsythia fruit, platycodon root, and licorice root. It also can be used for boils, furuncles, and other pyogenic infections (Wang, 1994).
3. Diuretic and anti-inflammatory: black nightshade is a diuretic so it can be used for lowering blood pressure and to treat acute infections of the urinary system. It is prescribed with alisma, akebia, plantain, and pyrrosia leaf *(shi wei)* for nephritis and prostatitis (Wang, 1994).

Dosage

In a decoction of 9 to 15 g.

Precautions

This herb is highly potent and slightly toxic. Use only the suggested dose and never use it during pregnancy.

Side Effects and Toxicity

An overdose causes headache, abdominal pain, diarrhea, and mydriasis, with increased heart rate in the beginning, followed by a slowing down of the heart rate, confusion, and coma. Black nightshade has caused death in children who ate the uncooked raw fruit of the plant. The alkaloid solanine has a hemolytic effect, and solamargine is an even stronger hemolytic than solamine (Jiang Su New Medical College, 1977).

Modern Research Findings

Chemical Constituents

Black nightshade contains several alkaloids (solanine, solasonine, solamargine, and others). It also contains glycosides, and vitamins A and C (Jiang Su New Medical College, 1977).

Pharmacological Findings

Black nightshade is a cortisone-like anti-inflammatory, cardiotonic, and an antitumor agent (Smith and Stuart, 1973).

REFERENCES

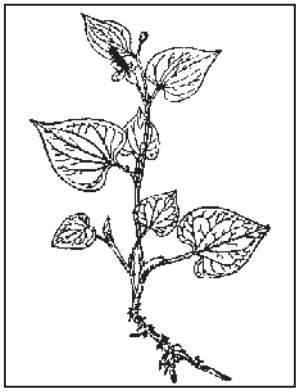
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*, San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

HOUTTUYNIA
Herba Houttuyniae
Yu xing cao



This herb is the entire plant of *Houttuynia cordata* Thunb. of the family Saururaceae. It is mainly grown in the Hubei, Jiangsu, and Zhejiang provinces of China, collected in summer or autumn, cleaned, cut into sections, and dried (Jiang Su New Medical College, 1977).

Despite the fact that this herb has a decayed, fishy smell to which its name refers, it was eaten by the Chinese as a salad. This plant was prescribed for poisoned sores (furuncles), infectious skin diseases, piles, malaria, snakebite, and other ailments (Smith and Stuart, 1973). Houttuynia has broad-spectrum antimicrobial characteristics. Today, it is used as an antipyretic and detoxicant, and is frequently used to treat pulmonary infections, such as pneumonia and pulmonary abscesses. It is antitumorous and is a special medicine for lung cancer (Dong et al., 1998).

TCM Properties

Pungent in taste and cool, it acts on the lung meridian.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: for lung cancer, houttuynia is used with smilax glabra *(tu fu ling),* abutilon seed *(dong kui zi),* and other herbs in a decoction (Wang, 1994).
2. Eliminates pathogenic Heat and detoxifies: to treat respiratory system infections, such as bronchitis, lung abscesses, and pneumonia, houttuynia is frequently combined with scute root, platycodon, biota tops, and trichosanthes root (Wang, 1994). It is used with scute root, anemarrhena, morus bark, and fritillaria bulb as an expectorant for coughs with yellow, thick sputum (Wang, 1994).
3. Treats eczema, hemorrhoids, chronic cervicitis, and vaginal itching disorders. The herb can be made into a decoction to wash the affected area.
4. Treats lung abscesses: houttuynia is blended with lonicera flower, forsythia, dandelion, isatis leaf, isatis root, and patrinia (thlapsi) herb in a decoction or in an injectable form (Smith and Stuart, 1973).

Dosage

In a decoction of 10 to 15 g.

Precautions

People with yin deficiency and a chronic cough should avoid the herb. This herb contains volatile oil and should not be cooked for a long time when making a decoction.

Side Effects and Toxicity

At the therapeutic dose, adverse side effects and toxicity are rare. However, certain people do not like the fishy taste of the herbal decoction. An overdose may cause serious gastrointestinal reactions, tachycardia, confusion, and respiratory difficulties. Houttuynia can cause skin rashes when used to treat tuberculosis or lupus erythematosus (Smith and Stuart, 1973).

Modern Research Findings

Chemical Constituents

Houttuynia contains houttuynine and quercitin (Ling, 1995) and 0.09 percent of volatile oil. The important constituents in the oil are decanoyl acetyldehyde, methyl-n-nonylketone, myrcene, lauric aldehyde, capric aldehyde, and capric acid. Other ingredients include cordarine, isoquercitrin, quereitrin, reynoutrin, hyperin, and salts of potassium chloride, potassium sulfate (Jiang Su New Medical College, 1977). In addition, the volatile oil, flavone glycosides quercitrin, isoquercitrin, afzilin, hyperin, and rutin have also been isolated (Zhu, 2001).

Pharmacological Findings

Houttuynia is antimicrobial, antiviral, antifungal, antimycobacterial, and a diuretic, as well as an antitumor agent.

1. Antimicrobial and antifungal activity. The decoction of the herb inhibited *S. aureus, S. albus, Streptococcus, hemolyticus, D. pneumoniae, N. catarrhalis, C. diphtheriae, P. vulgaris, S. shigae, S. schmitzii, S. flexneri, S. sonnei, S. enteritidis, V. cholerae suis,* and leptospirae in vitro.

Houttuynine is also antifungal. Its minimum inhibitory concentration (MIC) against the following fungi was 2 mg/ml: *C. albicans, C. neoformans, Sporotrichum, Aspergillus, Chromomycosis fungus, Epidermophyton rubrum, Tinea imbricata, Microsporum gypsum, M. ferrugineum,* and sharkskin fungus (Wang, 1983; Zhu, 2001).

2. The decoction of the herb in vitro significantly increased the phagocytic capability of human peripheral leukocytes against *S. aureus*. Houttuynine increased the leukocytic phagocytosis of *S. albus* when it was used to treat chronic bronchitis. Daily intramuscular administration of 8 mg of houttuynine for three days in rabbits increased the serum properdin level between day four and day eight. The properdin level in patients with chronic bronchitis who received houttuynine also tended to increase (Wang, 1983; Zhu, 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Smith, F. P. and Stuart, G. A. (1973). Chinese Medicinal Herbs. San Francisco: Georgetown Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SUBPROSTRATE SOPHORA ROOT

Radix Sophora
Shan dou gen

This herb is the root and rhizome of *Sophora tonkinensis* Gapnep. of the family Leguminosae. It is grown in the Guangdong, Guangxi, Guizhou, and Jiangxi provinces of China, harvested year-round, cleaned, dried, and sliced (Jiang Su New Medical College, 1977).

Subprostrate sophora root was traditionally used as a detoxicant and anodyne, and for throat and dental inflammation (Jiang Su New Medical College, 1977). Today, the herb is used as is an antipyretic, and antitumor agent to treat early stages of different types of cancer, enteritis, dysentery, inflammation of the throat, tonsilitis, and respiratory ailments (Dong et al., 1998).

TCM Properties

Bitter in taste, cool, and toxic, it acts on the lung and stomach meridians.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: to treat nasal, throat, lung, and cervical cancers, subprostrate sophora root is used with oldenlandia, houttuynia, and other antitumor herbs (Wang, 1994).
2. Relieves inflammation and pain of the throat: an especially effective remedy for sores, inflammation, and a painful throat, subprostrate sophora root is combined with peppermint, scrophularia, lonicera, isatis root, and forsythia fruit in a decoction (Dong et al., 1998).
3. Detoxifies: as an anti-inflammatory agent, it is used with scute root, trichosanthes fruit, and fritillaria bulb to treat inflammation of the lungs, and coughs with yellow, thick sputum (Wang, 1994).

Dosage

In a decoction of 3 to 6 g.

Precautions

People with Cold in the stomach and spleen, or diarrhea should not use this herb.

Side Effects and Toxicity

As recorded in classical Chinese materia medica, a large dose causes headaches, dizziness, nausea, vomiting, trembling in the limbs, and tachycardia. The toxicity of the root increases with the length of time of cooking when making a decoction (Dong et al., 1998).

Modern Research Findings

Chemical Constituents

Subprostrate sophora root contains alkaloids as the main ingredients, including matrine, oxymatrine, sophocarpine, anagyrine, and methylcytisine. Other ingredients are flavones, sophoranone, sophoradin, sopharanachromene, sophoradochromene, genistein, pterocarpine, maackian, trifolirhizin, alcohols, and acids (Jiang Su New Medical College, 1977).

Pharmacological Findings

Subprostrate sophora root is a broad-spectrum antimicrobial herb with antiarrhythmic, antiasthmatic, liver-protecting, and antitumorous actions (Dong et al., 1998).

1. The herb was highly effective against tubercule bacilli and inhibited *S. aureus, Epidermophyton floccosum,* and *C. albicans*. It also stimulated the reticuloendothelial system and increased the number of macrophages (Wang, 1983).
2. Antineoplastic. In experiments with rats with Yoshida ascitic sarcoma, ascitic hepatoma, or solid hepatoma, intraperitoneal administration of 500 mg/kg of the aqueous extract of the herb cured more than 60 percent of the animals. The presence of antitumor antibodies were detected in the 2.5 mg/kg-inhibited murine Ehrlich ascites carcinoma and sarcoma 180 both in vitro and in vivo. Oxymatrine was effective against sarcoma 180 at 1.25 mg/kg; its chemotherapeutic index was 7.8 times that of mitomycin C (Wang, 1983).

3. Antiulcerative. Intramuscular administration of 1.5 g of sophoradochromene prevented experimental gastric ulcers in rats. The precipitates from the ethanolic extract produced a healing effect on ulcers caused by ligation of pylorus, stress, or acetic acid in rats (Wang, 1983).
4. Leukocytotic. Two daily intravenous doses of 30 mg/kg or intramuscular doses of 60 mg/kg of the total alkaloids and seven daily intramuscular doses of 100 mg/kg of oxymatrine increased peripheral white blood cells (WBC) in normal rabbits. In rabbits with leukopenia (WBC < 4000/mm^3) caused by 60 roentgen of whole body X-ray irradiation, intramuscular administration of 20 mg/kg of matrine or 100 mg/kg of oxymatrine for ten days was significantly therapeutic. The WBC count reached > 6000/mm^3 in the treatment group seven days after discontinuation of the medication, whereas in the control group the WBC rose to 6000/mm^3 fourteen days later (Wang, 1983).
5. Antiarrhythmic. The total alkaloids of the root given intraperitoneally or intramuscularly at 1 to 1.5 g/kg counteracted arrhythmia induced by aconite, digitoxin, chloroform-epinephrine, or potassium chloride. It corrected multiple types of arrhythmia caused by ectopic rhythm or conduction disturbances and was therefore considered to be a broad-spectrum antiarrhythmic agent.
6. Antiasthmatic. Oral administration of 100 to 200 mg/kg of the total alkaloids or 75 to 100 mg/kg of oxymatrine was antiasthmatic against histamine-induced asthma in guinea pigs (Wang, 1983).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

ZEDOARIA
Rhizoma Curcumae Zedoaria
E zhu

This herb is the rhizome of *Curcuma zedoaria* (Berg) Rosc., *C. phaeocaulis* Valeton, *C. wenyujin* Y. H. Chen et C. Ling, or *C. kwangsiensis* S. G. Lee et C. F. Liang of the family Zingiberaceae. It is mainly grown in the Zhejiang province of China, collected in autumn or winter, cleaned, steamed, dried, and sliced to produce dried zodoaria or stir cooked with vinegar to produce processed zodoaria (Dong et al., 1998).

Zedoaria is blood and *Qi* activating, and an antitumor herb. It promotes the flow of *Qi* and relieves pain. It has been used to treat several kinds of cancer in recent years in China (Dong et al., 1998).

TCM Properties

Pungent, bitter in taste, and mild, it acts on the liver and spleen meridians.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: for liver cancer, zedoaria is used with sappan wood, carthamus, scirpus rhizome *(san leng),* and leech. Use the volatile oil or an injection preparation of zedoaria to treat externally the early stages of vulval, cervical, or skin cancers (Dong et al., 1998).
2. Treats liver and spleen enlargement: to treat an enlarged spleen or liver, zedoaria is mixed with scirpus rhizome and tortoise plastron (Dong et al., 1998).
3. Invigorates the flow of *Qi* and blood:

    - For lower abdominal pain and food stagnation, zedoaria is combined with hawthorn, immature bitter orange, saussurea, and areca seed.
    - Zedoaria is blended with coptis, phellodendron, cnidium, moutan, corydalis tuber, areca seed, orange peel, rhubarb, and saussurea, as in *Mu Xiang Bing Lang Wan* (R-62), for dysentery due to Heat and Dampness (Wang, 1994).

- For amenorrhea and lower abdominal pain caused by stagnation, zedoaria is combined with scripus rhizome *(san ling),* cnidium, moutan bark, corydalis, rhubarb, and achyranthus, as in *San Ling Wan* (Dong et al., 1998).

Dosage

A dose of 3 to 9 g.

Precautions

People with *Qi* and blood deficiency, or pregnant women should not take this herb.

Side Effects and Toxicity

No undesirable side effects or toxicity were reported at the therapeutic dose in classical Chinese materia medica.

Modern Research Findings

Chemical Constituents

Zedoaria contains mainly an essential oil. The oil includes zederone, zedoarone, curzerene, furanodiene, curzerene, isofuranogermacrene, curzerenone, epicurzeronone, curdione, curcolone, curcumenol, isocurcumenol, procurcumenol, curcumol, curcumadiol, curcumin, and starch. Other ingredients are cineol, l-camphene, ethyl p-methoxycinnamate and beta-elemene, stigmasterol, resin, mucilages, and flavonoid glycoside (Chang, 1992; Ling, 1995; Yeung, 1996).

Pharmacological Findings

1. Anticancer. The herb destroys tumor cells by degeneration, necrosis, shedding, and diminution (Yeung, 1996). Subcutaneous administration of 75 mg/kg of curcumol or curdione inhibited the growth of sarcoma 37, cervical cancer U_{14}, and Ehrlich ascites carcinoma in mice. In the shrunken tumors, a series of immune reactions were observed including an increase of fibroblasts surrounding the tumor tissue, presence of a layer of lymphocytes within the tumor mass, and phagocytic engulfment of tumor cells. In vitro, curcumol or curdione caused degeneration and necrosis of Ehrlich ascites carcinoma cells. After active immunization of 615 mice with L_{615} leukemic cells

treated with essential oil of the herb, one third of the surviving animals withstood and survived an attack by 100,000 L_{615} cells (Wang, 1983; Zhu, 1998).

2. Activates immunity: the herb increases white blood cells, phagocytosis, and increases immunity (Yeung, 1996). Intraperitoneal administration of 10 ml/kg of the essential oil of the herb or 0.3 percent of curcumol for eight days significantly offset leucopenia induced by a single intraperitoneal dose of 150 mg/kg of cyclophosphamide and promoted the increase of the white blood cell count.
3. Improves microcirculation and prevents the formation of fibrin clots.
4. Antimicrobial: it inhibits the growth of *S. aureus, B-hemolytic streptococci, E. coli, B. typhi,* and *V. cholerae* (Yeung, 1996).
5. Carminative and stomachic: it stimulates the gastrointestinal tract with an action similar to that of ginger. It is useful in relieving abdominal distension (Yeung, 1996).
6. Affects the ovaries, endometrium, and embryo: the volatile oil of the herb induces abortion (Dong et al., 1998). The ethanolic extract and the sesquiterpenes of the herb were abortifacient in rats and mice during the early gestational period and caused an anti-implantation effect in dogs. Oral administration of 15 g/kg of the suspension of the herb to mice for four days resulted in suspension of the secretory phase, and degeneration and detachment of embryos (Wang, 1983).

REFERENCES

Chang, M. Y. (1992). *Anticancer Medicinal Herbs*. Changsha, Hunan: Hunan Science and Technology Press.

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Ling, Y. (1995). *A New Compendium of Materia Medica.* Beijing: Science Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

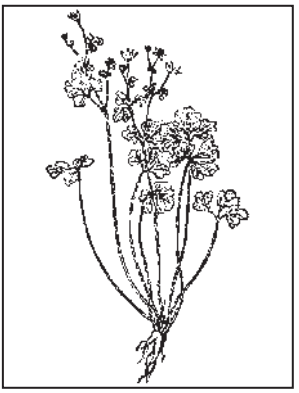
Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Yeung, H. C. (1996). *Handbook of Chinese Herbs*. Los Angeles, CA: Institute of Chinese Medicine.

Zhu, Y. (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

SEMIAQUILEGIA ROOT

Radix Semiaquilegiae
Tian kui



This herb is the dried root of *Semiaquilegia adoxoides* (DC) Mak. of the family Ranunculaceae. It is mainly grown in the Anhui, Hubei, Hunan, Jiangsu, and Yunnan provinces of China, collected in the summer, cleaned, sliced, dried, and used unprocessed. Semiaquilegia root is antipyretic, detoxicant, antimicrobial, and an antitumor agent (Jiang Su New Medical College, 1977).

TCM Properties

Sweet and bitter in taste, cool, and slightly toxic, it acts on the spleen, small intestines, and bladder meridians.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: to treat liver, breast, and acute malignant lymphatic cancers, semiaquilegia root is combined with oldenlandia and paridis in a decoction. It is used with lobilia, black nightshade, and verbena to treat bladder cancer. For breast cancer, it is commonly prescribed with oldenlandia, paridis, fritillary bulb, and trichosanthes seed or, for lymphatic cancer, with seaweed and prunella spike (Dong et al., 1998; Wang, 1994).
2. Eliminates Heat toxins and detoxifies: for the treatment of boils, carbuncles, mastitis, and similar conditions, semiaquilegia root is blended with dandelion, wild chrysanthemum, lonicera, and viola, as in *Wu Wei Xiao Du Yin* (Dong et al., 1998; Wang, 1994).
3. Induces diuresis to treat strangury: this herb is used alone in a decoction or mixed with plantain seed, pyrrosia *(shi wei),* polygonum herb, and others in a decoction (Wang, 1994).

Dosage

In a decoction of 3 to 10 g.

Precautions

People with Cold and stomach and spleen deficiency should not use this herb.

Side Effects and Toxicity

At suggested doses, no adverse side effects or toxicity were reported in classical Chinese materia medica. This herb is reported to be slightly toxic. Do not overdose.

Modern Research Findings

Chemical Constituents

Semiaquilegia root contains alkaloids, fats, organic acids, and amino acids (Dong et al., 1998).

Pharmacological Findings

Semiaquilegia root is antimicrobial and an antitumor agent (Dong et al., 1998).

REFERENCES

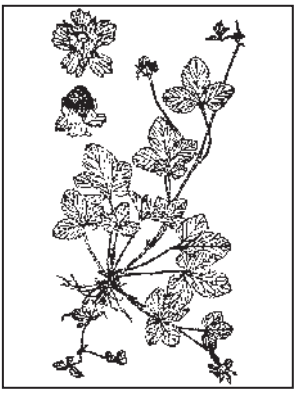
Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

DUCHESNEA

Herba Duchesneae
She mei



This herb is the whole plant of *Duchesnea indica* (Andr.) Focke of the family Rosaceae. It is mainly grown in the Liaoning, Hebei, Henan, Jiangsu, Anhui, and Fujian provinces of China. Collected in summer or autumn, it is either cleaned, dried, and cut into sections or used as a fresh herb (Jiang Su New Medical College, 1977).

Duchesnea is an antipyretic, detoxicant, antimicrobial, and an antitumor agent (Wang, 1994).

TCM Properties

Sour, sweet, and slightly bitter in taste, slightly cold, and slightly toxic, it acts on the lung, stomach, and liver meridians.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: for stomach, cervical, and nostril cancers, and other malignant tumors, duchesnea is prescribed clinically with black nightshade *(long kui)* and solanum dulcamra *(bai yeng)* in a decoction (Wang, 1994).
2. Eliminates Damp-Heat toxin: to treat sore throats, infantile convulsions, diphtheria, and diarrhea due to Dampness and Heat pathogens, duchesnea is used alone or it is combined with wild chrysanthemum flowers, viola, and dandelion in a decoction to treat carbuncles, abscesses, sores, furuncles, and boils.
3. Cools down the Heat in the blood and stops vaginal bleeding: for hematemesis, metrorrhagia, and metrostaxis, it can be used alone in decoction. It can also be combined with leonurus and cyathula root to treat amenorrhea (menostasis) due to excessive pathogenic Heat in the blood and blood stagnation (Wang, 1994) or it can be combined with a high dose of portulaca *(ma chi xian)* in a decoction for metrorrhea (Dong et al., 1998).

Dosage

In a decoction of 15 to 30 g, or used externally as needed.

Precautions

People with Cold in the stomach and spleen should use the herb with caution.

Side Effects and Toxicity

At the suggested dose, this herb may cause stomach discomfort, nausea, and vomiting (Wang, 1994).

Modern Research Findings

Chemical Constituents

Duchesnea contains volatile oil beta-sitosterol, and glycosides.

Pharmacological Findings

Duchesnea has antimicrobial, anti-inflammatory, and antitumorous actions.

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

Wang, J. H. (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

SARCANDRA

Herba Sarcandra glabra
Jiu jie cha or Guan yin cha

This herb is the leaves and stems of the plant *Sarcandra glabra* (Thunb.) Nakai. It is grown in the Guongdong, Guangxi, Hunan, and Sichuan provinces of China, harvested in summer, cleaned, dried, cut into sections, and used unprocessed (Jiang Su New Medical College, 1977). Sarcandra is a Wind-dispelling, anti-inflammatory, and pain-relieving antimicrobial and antitumor herb (Dong et al., 1998).

TCM Properties

Pungent in taste and neutral, it acts on the large intestine meridian.

Effects, Medicinal Uses, and Combinations

1. Antitumorous: to treat prostate, colon, stomach, pancreas, and esophageal cancers, sarcandra is definitely beneficial and is commonly used with other antitumorous herbs. For a tea, boil 60 g of this herb and drink it three times a day for three months. In studies reported by seventeen cancer treatment units in Shanghai City, sarcandra was shown to be an effective treatment for prostate cancer for 62 percent of the patients who drank its tea. The patients' cancer dissipated, their appetite increased, and their lives were extended (Dong et al., 1998).
2. Relieves inflammation and detoxifies: sarcandra is a broad-spectrum antimicrobial and anti-inflammatory agent used to treat a great number of infectious diseases, including pneumonia, acute appendicitis, acute gastroenteritis, appendicitis, cholecystitis, bacterial dysentery, boils, and abscesses, and it relieves the pain associated with the infection (Dong et al., 1998).
3. Relieves arthralgia: this herb dispels pathogenic Wind and relieves arthritis pain. It is commonly prescribed with cnidium, clematis, and other herbs in a decoction (Dong et al., 1998).

Dosage

In a decoction of 30 to 60 g.

Precautions

People with yin deficiency and pregnant women should not use this herb (Jiang Su New Medical College, 1977).

Side Effects and Toxicity

At the suggested therapeutic dose, no side effects were reported. An oral decoction of the herb given to humans showed no apparent adverse reactions of the liver, kidneys, blood profile, and pulse rate (Jiang Su New Medical College, 1977).

Modern Research Findings

Chemical Constituents

Sarcandra contains votile oil and glycoside.

Pharmacological Findings

Sarcandra is antimicrobial, antitussive, antiasthmatic, antiulcerative, and is an antitumor agent (Dong et al., 1998).

REFERENCES

Dong, K. S., Wang, X. Q., and Dong, Y. F. (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.

Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica*. Shanghai: Shanghai Science and Technology Press.

PART IV:
THE HEALING POWER OF POPULAR HERBAL RECIPES

Chapter 16

Herbal Recipes for Energy and Vitality

R-1 SHEN FU TANG
(GINSENG AND ACONITE TONIC)

Source: *Xiao Zhu Fu Ren Liang Fang* [The Annotated Effective Prescriptions for Women] by Chen, Ziming, A.D. 1237.

Ingredients: The recipe contains 6 to 10 g each of ginseng root, four pieces of dry ginger, four pieces of Chinese dates, and processed aconite.

Directions: The herbs are decocted in water for oral use. Take before meals.

Actions, Indications, and Clinical Applications: Recuperates depleted yang and prevents collapse. This is a fast-acting first-aid remedy that is effective for low blood pressure, heart failure, irregular heartbeat, exhaustion, shock, shortness of breath, cold limbs, spontaneous and profuse sweating, shortness of breath, and pale complexion.

This recipe is also useful for heart patients. For treating patients with arrhythmia, shock, and heart failure, and when digitalis medication becomes ineffective, this recipe is helpful. For heart conditions, it produces even better results when used in combination with *Sheng Mai Yin* (R-5).

R-2 SI JUN ZI TANG
(DECOCTION OF COMBINATION OF FOUR NOBLE HERBS)

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies] Volume 3 by Chen, Shiwen, A.D. 1151 (Song dynasty); *Chinese Pharmacopeia,* 1995.

Ingredients: The recipe contains 15 g ginseng root, 10 g each of poria and white atractylodes, and 5 g processed licorice root.

Directions: The four herbs are decocted in water for oral administration. Available commercially in pills or capsules.

Actions, Indications, and Clinical Applications: Invigorates Middle-*Jiao* (Spleen-*Qi* and Stomach-*Qi)*. This is a classical recipe for the treatment of spleen and stomach deficiency manifested as general debility, lassitude, anorexia, chronic dysentery, diarrhea, indigestion, general weakness, prolapse of the stomach or uterus, habitual diarrhea, chronic colitis, chronic enteritis, diarrhea before dawn, chronic hepatitis, and other digestive system disorders.

This recipe stimulates the central nervous system (CNS), facilitates the functional activities of organs, promotes metabolism, digestion, and absorption, and regulates gastrointestinal activities.

Precautions: People with Heat in the blood and yin deficiency should be cautious with this recipe.

R-3 REN SHEN YANG RONG TANG *(GINSENG AND REHMANNIA NOURISHING FORMULA)*

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of Peoples Welfare Pharmacies] Volume 3 by Chen, Shiwen, A.D. 1151 (Song dynasty); *Chinese Pharmacopeia,* 1995.

Ingredients: The recipe contains 100 g each of ginseng, astragalus root, white atractylodes, Chinese angelica root, white peony, cinnamon bark, tangerine peel, and processed licorice root, 75 g each of poria, processed rehmannia root, and schisandra fruit, and 50 g polygala root.

Directions: Grind ingredients into a fine powder and mix with a suitable amount of honey or water-honey mixture to make boluses. Take 6 g at a time, twice a day. Available commercially in pills or capsules.

Actions, Indications, and Clinical Applications: Invigorates *Qi* and *Xue* (TCM blood), nourishes the *Xin* (TCM heart), and tranquilizes the *Shen* (TCM mind). This recipe is used to treat mental fatigue, tiredness, poor appetite, loose stool, palpitations due to fright, amnesia, loss of body weight, spontaneous sweating, night sweating, dry skin, loss of hair, and sallow complexion due to deficiencies of the spleen and heart, and an insufficiency of *Qi* and blood.

Modern Applications: This recipe is used to treat general debility, neurasthenia, continuous violent palpitations, inflammation of bone marrow, and bone tuberculosis.

Precautions: People with *Shi* (excess) or hyperactivity should avoid this recipe.

R-4 REN SHEN FENG WANG JIANG *(GINSENG ROYAL JELLY ORAL LIQUID)*

Source: *Zhong Yao Fang Ji Yan Jiu Yu Yingyung Da Quan* [Encyclopedia of Chinese Medicine Formula Studies and Applications] by Bai, Gang, and Xiao, Hongben, 1994.

Ingredients: The recipe contains ginseng, royal jelly, schisandra fruit, and honey (amount of each herb is not disclosed).

Directions: This is a modern pharmaceutical preparation. Available commercially as an oral liquid in vials.

Actions, Indications, and Clinical Applications: Nourishes the body, invigorates the *Qi,* and strengthens the *Pi* (TCM spleen). This recipe is a popular, modern potion for treating poor appetite, malnutrition, neurasthenia, fatigue, anemia, rheumatoid arthritis, and liver disorders.

Precautions: People with hyperactivity and diarrhea should avoid this recipe.

R-5 SHENG MAI YIN *OR* SHENG MAI SAN *(GINSENG AND OPHIOPOGON COMBINATION FOR DEBILITY)*

Source: *Nei Wai Shang Bian Huo Lun* [Treatise of Differentiation of Internal and External Diseases], author and date unknown.

Ingredients: The recipe contains 15 g ophiopogon root, 10 g ginseng root, and 6 g schisandra fruit.

Directions: The ingredients are decocted in water for oral administration of three daily doses on an empty stomach. Available commercially as an oral liquid or as a powder.

Actions, Indications, and Clinical Applications: Invigorates *Qi,* promotes the production of body fluid, and arrests sweating. This formula is a stomachic. It treats poor digestion and absorption, improves general debilities, and invigorates immune functions. This recipe is also good for polyuria, dry mouth and throat, thirst, wasting disorders, a chronic cough with shortness of breath, spontaneous perspiration, weak pulse, cold extremities, and shock due to impairment of *Qi* and yin.

Clinically, it is commonly used for coronary heart disease, angina pectoris, chronic low blood pressure, and irregular heartbeat. *Sheng Mai Yin* (R-5) combined with *Liu Wei Di Huang Wan* (R-22) gives good results when used for diabetes, polyuria, and thirst. It is combined with *Shen Qi Wan* (R-7) to treat chronic low blood pressure.

Precautions: People with hyperactivity or exopathogenic attack in the summer should avoid this recipe.

R-6 GUI PI TANG
(GINSENG AND LONGAN SPLEEN AND HEART TONIC FORMULA)

Source: *Ji Sheng Fang* [Recipes for Saving Lives] by Yan, Yonghe, A.D. 1253.

Ingredients: The recipe contains 30 g each of ginseng root and poria *(fu shen),* 10 g each of Chinese angelica, zizyphus, astragalus, longan aril, and polygala, 9 g white atractylodes root, 5 g each of aucklandia root and licorice root, 3 g ginger root, and 5 pieces of Chinese dates.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: Replenishes *Qi,* nourishes blood, and strengthens the functions of the spleen and heart. It is a classical formula used to treat palpitations, irritability, insomnia, dreaminess, listlessness, shortness of breath, anorexia, uterine bleeding, lassitude, and amnesia due to deficiency of the spleen and heart. As a hemostatic remedy for female patients, it is used for uterine bleeding, excessive bleeding prior to the menstrual cycle, and persistent or continuous menstrual dripping.

This formula is also used to treat vegetative nerve disorders, cardiac neurosis, menopausal symptoms, anemia, chronic gastroenteritis, nervous gastritis, bloody stools, and uterine functional bleeding.

Precautions: People with yin deficiency and body fluid impairment should avoid this recipe.

R-7 SHEN QI GAO (WAN) *(GINSENG AND ASTRAGALUS* QI *TONIC)*

Source: *Clinical Uses of Chinese Patent Medicines* by Fang Dingya and Shen Guonan, 1994.

Ingredients: The recipe contains 100 g each of ginseng root (or codonopsis root) and astragalus root.

Directions: This is a thick and heavy pharmaceutical preparation. The dose is 0.3 to 0.5 g two or three times a day.

Actions, Indications, and Clinical Applications: Invigorates *Qi* and nourishes the spleen. This recipe effectively treats deficiencies of Lung-*Qi* and Spleen-*Qi,* as well as general debilities, lassitude, poor appetite, watery stool, sweating, and the tendency to catch colds.

This recipe is also useful for treating coughs, asthma, thirst, and kidney disorders due to deficiencies of the kidneys.

Precautions: People with phlegmatic stagnation should avoid this recipe.

R-8 WU JIA SHEN GAO *OR* CI WU JIA GAO *(SIBERIAN GINSENG EXTRACT TONIC)*

Source: *Chinese Pharmacopoeia,* 1995.

Ingredients: The recipe contains 1,000 g *Wu Jia Shen* (Siberian ginseng) and 5,000 ml 75 percent alcohol for a pharmaceutical extract.

Directions: This is a thick and heavy pharmaceutical preparation. The dose is 0.3 to 0.5 g two or three times a day.

Actions, Indications, and Clinical Applications: Invigorates *Qi* and normalizes the functions of internal organs. It is a particularly effective adaptogenic phytomedicine for *Qi* deficiency, stress, fatigue, and sleep disturbance, as well as diabetes, arthralgia, and impotence. This formula is also beneficial for an impaired immune system due to chemotherapy or radiation therapy.

This recipe augments brain functions, improves hearing and vision capacity.

Precautions: People with exogenous affliction or hyperactivity due to Summer Heat should take this recipe with caution.

R-9 BU ZHONG YI QI TANG
(GINSENG AND ASTRAGALUS COMBINATION VITAL ENERGY TONIC PILLS)

Source: *Pi Wei Lun* [Treatise of the Spleen and Stomach] by Li, Gao, A.D. 1252.

Ingredients: The recipe contains 20 g jujube, 15 g astragalus root, 10 g each of ginseng root, white atractylodes, and Chinese angelica, 6 g each of orange peel and fresh ginger, 5 g processed licorice root, and 3 g each of cimicifuga rhizome and bupleurum root.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: Invigorates Spleen-*Qi* and elevates the spleen yang. This recipe is used to treat general weakness, lassitude, debility, prolonged diarrhea, prolapse of the uterus, prolapse of the rectum, headache with aversion to cold, and shortness of breath caused by deficiencies of the Stomach- and Spleen-*Qi*.

As a vital energy tonic formula, this recipe improves the functions of the stomach and spleen, promotes digestion, metabolism, and cerebral functions, improves the immune system, as well as strengthens the muscles and tendons.

Precautions: People with internal Heat and yin deficiency should avoid this recipe.

R-10 YU PING FENG SAN
(ASTRAGALUS AND SILER IMMUNE TONIC FORMULA)

Sources: *Shi Yi De Xiao Fang* [Effective Formulas Tested by Physicians for Generations] by Wei, Yilin, A.D. 1345; *Dan Xi Xin Fa* [A Medical Book by Dan xi], A.D. 1481.

Ingredients: The recipe contains 60 g white atractylodes rhizome, 30 g astragalus root, and 30 g siler.

Directions: Grind the ingredients to a fine powder. Take 6 to 9 g two or three times a day with warm water on an empty stomach. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: Invigorates *Qi* and strengthens the immune system. This recipe is used to treat general debility, susceptibility to common colds and flu, allergic or chronic rhinitis, and night or spontaneous sweating.

It is also used to increase peripheral blood circulation, nourish the skin and tissues, regulate the functional activities of the sweat glands, arrest spontaneous sweating, and prevent the invasion of exopathogens.

Precautions: This recipe is contraindicated for people with night sweating caused by interior Heat and yin deficiency.

R-11 YI GUAN JIAN
(GLEHNIA AND REHMANNIA COMBINATION FOR NOURISHING THE YIN)

Source: *Jing Yue Quan Shu* [Jing Yue's Complete Works] by Zhang, Jiebin, A.D. 1624.

Ingredients: The recipe contains 30 g dried rehmannia, 10 g each of glehnia root, ophiopogon root, Chinese angelica, lycium fruit, and 5 g melia *(chuan lian zi).*

Directions: The ingredients are decocted in water for oral administration. Available commercially in pill or powder form.

Actions, Indications, and Clinical Applications: Nourishes the kidney yin and liver yin, and regulates and soothes the Liver-*Qi*. This recipe is particularly good for regulating the circulation of vital energy, *Qi,* and is commonly used to treat pain and discomfort in the thoracic and hypochondriac regions, symptoms of fullness in the abdomen, acid regurgitation, dryness of mouth and tongue, and mass formation in the abdomen resulting from stagnation of the Liver-*Qi*.

This recipe is also used to treat liver disorders, and to relieve inflammation and pain in the liver.

Precautions: People with phlegm stagnation should avoid this recipe.

R-12 YU QUAN WAN *(TRICHOSANTHES FORMULA FOR DIABETES)*

Source: *Zhong Fu Tang Gong Liang Fang* [Zhong Fu Tangs' Formula] by Ye, Tianshi (Qing dynasty).

Ingredients: The recipe contains 60 g each of codonopsis and ophiopogon, 45 g each of trichosanthes root and pueraria root, and 30 g each of astragalus, hoelen, black plum, dried rehmannia root, schisandra fruit, and licorice root.

Directions: Grind the ingredients to a fine powder and take 6 g four times a day before meals. The powder can be blended with honey to make honey boluses or the ingredients can be decocted. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: Nourishes the yin and the kidneys, and relieves the symptoms of diabetes. This formula effectively treats lassitude, thirst, and other symptoms and complications due to diabetes.

Precautions: People with excessive Heat should avoid this recipe.

R-13 SHEN LING BAI ZHU SAN
(GINSENG, PORIA, AND ATRACTYLODES STOMACHIC FORMULA)

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies]), Volume 3 by Chen, Shiwen, A.D. 1151 (Song dynasty), *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe contains 10 g each of ginseng root, poria, white atractylodes rhizome, licorice root, and Chinese yam, 7.5 g white dolichos, (processed *bai bian do*), and 5 g each of lotus seed, platycodon root, coix seed, and amomum fruit.

Directions: The ingredients are decocted in water for oral administration. Divide the decoction into three doses and take before meals. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: Nourishes *Qi,* strengthens the functions of the stomach and spleen, and eliminates Dampness. The recipe is mainly used to regulate gastrointestinal functions, improve appetite, promote digestion and absorption, and revitalize the body. Clinically observed symptoms, such as lassitude of extremities, general debility, dyspepsia, vomiting, diarrhea, epigastric distension, and sallow complexion can be relieved with this recipe.

Precautions: People with yin deficiency should avoid this recipe.

R-14 LI ZHONG TANG
(GINSENG AND GINGER COMBINATION STOMACH-WARMING DECOCTION)

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhong Jing (Han dynasty).

Ingredients: This recipe contains 10 g each of white atractylodes and dry ginger, and 15 g each of ginseng and 6 g licorice root (processed).

Directions: The ingredients are decocted in water for oral administration. Divide into three equal doses to be taken on an empty stomach.

Actions, Indications, and Clinical Applications: Expels Coldness by warming up the Middle-*Jiao,* replenishes the vital energy *(Qi)* of the spleen and stomach, and invigorates the functions of the stomach and spleen. This formula is mainly used to treat a cold feeling in the stomach, cold limbs, nausea, vomiting, epigastric and abdominal distention and pain, dyspepsia, poor appetite, gastritis, stomach and duodenal ulcer, loose stools, and lassitude.

The recipe is also useful for treating gastroenteritis, peptic ulcers, chronic dysentery, chronic diarrhea in children, swelling, and excessive menstruation caused by deficiency and Cold of the spleen and stomach.

Precautions: People with yin deficiency and intrinsic Heat should avoid this recipe.

Chapter 17

Herbal Recipes for Blood Nourishment and Female Ailments

R-15 SI WU TANG *(CHINESE ANGELICA AND REHMANNIA FOUR COMBINATION)*

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of Peoples Welfare Pharmacies], Volume 3 by Chen, Shiwen, A.D. 1151 (Song dynasty). *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe contains 12 g each of processed rehmannia root and white peony, 10 g Chinese angelica, and 8 g cnidium *(chuan xiong)* rhizome.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: Nourishes the liver and regulates the blood. This recipe promotes and restores imbalanced *Chong* and *Ren* meridians, corrects blood stagnation, and invigorates blood flow. Clinically, it is used to treat menstrual disorders, such as frequent abnormal menstrual pain, amenorrhea, metrorrhagia, metrostaxis with masses in the blood, habitual miscarriage, and threatened abortion with vaginal bleeding. Additional benefits include the treatment of functional disturbances of vegetative nerves, swelling in the abdomen, muscular rigidity, pain in the hypogastrium region, alternate attacks of chills and fever, menopausal syndromes, scanty menstruation, dysmenorrhea, and hypoplasia of the uterus.

Precautions: This recipe is not recommended for patients during pregnancy.

R-16 TAO HONG SI WU TANG
(CHINESE ANGELICA AND CARTHAMUS FORMULA FOR REPLENISHING BLOOD)

Source: *Yi Zong Jin Jian* [The Golden Mirror of Medicine] by Wu, Qian, A.D. 1742.

Ingredients: This recipe contains 15 g processed rehmannia, 12 g Chinese angelica, 10 g white peony root, 8 g each of cnidium *(chuan xiong)* rhizome and carthamus (safflower), and 6 g peach kernel.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: Even stronger than *Si Wu Tang* (R-15), this formula invigorates blood circulation, and eliminates and prevents blood stasis. It is commonly used to treat amenorrhea, menorrhalgia, irregular menstruation, excessive menstrual bleeding, masses in the blood, purplish blood formation due to blood stasis, retarded blood circulation, and a feeling of abdominal distension and pain.

Additional benefits include the treatment of fibromyoma of the uterus, ovarian cysts, amenorrhea, and menorrhagia caused by stagnation of blood.

Precautions: This recipe is not recommended for patients during pregnancy.

R-17 DANG GUI WAN
(CHINESE ANGELICA PILLS)

Source: *Jin Gui Yao Lue* [Synopsis of Prescriptions of the Golden Chamber] by Zhang, Zhong Jing (Han dynasty).

Ingredients: This recipe contains 100 g each of Chinese angelica, cnidium, scute, and white peony; and 50 g white atractylodes.

Directions: Grind the ingredients into a fine powder and mix with honey to make boluses or pills. Dose is 6 to 9 g taken with water three times a day before meals. This is a popular patent medicine available commercially in pills or capsules.

Actions, Indications, and Clinical Applications: Nourishes the *Xue* (blood) and promotes blood circulation. This formula is the most frequently used for menstrual disorders, such as infrequent menstruation, menstrual pain, morbid leukorrhea, amenorrhea (suppression of menstruation), sallow complexion, pale lips and tongue, dizziness, and palpitations due to blood deficiency and anemia.

Precautions: Avoid consuming cold foods while taking this medication.

R-18 BA ZHEN WAN
(EIGHT PRECIOUS HERBS FOR WOMEN)

Source: *Zheng Ti Lie Yao* [Manual of Effective Prescriptions], author and date unknown.

Ingredients: This recipe is 15 g processed rehmannia root, 10 g each of Chinese angelica root and white atractylodes, 8 g each of white peony root and poria; 5 g each of cnidium and licorice root; and 3 g ginseng.

Directions: Grind the ingredients to fine powder and mix with honey to make boluses. Take 6 to 9 g three times a day before meals. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: Invigorates the functions of the spleen and stomach, and nourishes both *Qi* and blood. This is a popular recipe for menstrual disorders, menstrual irregularity, anemia, general debility, fatigue, palpitation, pale complexion, anorexia, dizziness, blurred vision, tiredness, and lassitude caused by *Qi* and blood deficiencies. *Ba Zhen Wan* combined with perilla seed and amomum fruit (10 g each) reduces the chances of habitual miscarriage.

Precautions: People with internal Heat should avoid this recipe. Avoid cold foods and excessive sexual activities during medication.

R-19 WU JI BAI FENG WAN
(CHICKEN PHOENIX PILLS FOR WOMEN)

Source: *Jing Yan Fang* [Collection of Proved Prescriptions]; *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe is 2,000 g black-bone chicken meat; 768 g each of processed rehmannia and dry rehmannia; 432 g Chinese angelica; 384 g each of ginseng root, Chinese yam, white peony root, salvia root, and cyperus; 192 g each of cnidium *(chuan xiong),* asparagus, euryale seed, and tortoise shell; 144 g each of oyster shell, mantis egg case, and antler powder; and 96 g each of astragalus root and licorice root.

Directions: The recipe is a popular classical pharmaceutical preparation in water-honey boluses. Each bolus weighs 6 to 9 g. Take one bolus twice a day before meals.

Actions, Indications, and Clinical Applications: Replenishes *Qi* and nourishes blood, regulates menstruation, and relieves leukorrhea. This recipe is used to treat menstrual irregularities, menorrhagia, menorrhalgia, amenorrhea, postnatal bleeding, functional uterine bleeding, cramps, metrostaxis, metrorrhagia, morbid leukorrhea, night sweating, dizziness, ringing in the ears, and fever due to deficiencies of *Qi* and blood.

It is also helpful for menopausal syndrome, night sweating, postnatal fever, postmenopausal vaginitis, and thrombocytopenic purpura.

Precautions: This recipe should not be taken during pregnancy. People with excessive Dampness-Heat should be cautious when taking this recipe.

R-20 GENG NIAN AN *(REHMANNIA AND POLYGONUM COMBINATION MENOPAUSE PILLS)*

Source: *Chinese Pharmacopoeia,* 1995.

Ingredients: This recipe contains processed rehmannia, polygonum, poria, alisma, schisandra fruit, pearl shell, polygonum stem, scrophularia, light wheat, moutan, cornus, curculigo, and processed licorice root (amount of each herb is not disclosed).

Directions: Available commercially in tablets, capsules, or pills. Each tablet weighs 0.3 g. Take six tablets two or three times a day before meals.

Actions, Indications, and Clinical Applications: Nourishes kidney yin, tranquilizes the *Xin* (TCM-Mind), and relieves excessive Heat and liver-yang hyperactivity. This recipe is particularly useful for eliminating female climacteric (menopausal) syndrome marked by tidal fever, hot flashes, fe-

ver with sweating, vertigo, insomnia, night sweating, dysphoria, irritability, restlessness, and fluctuation of blood pressure. It is also useful in managing male climacteric syndrome, osteoporosis, and degenerative changes of the skin.

Precautions: Avoid smoking and drinking alcohol while taking this medication.

R-21 DANG GUI SHAO YAO WAN *(CHINESE ANGELICA AND PEONY LIVER STAGNATION FORMULA)*

Source: *Zhong Yao Fang Ji Yan Jiu Yu Yingyung Da Quan* [Encyclopedia of Chinese Medicine Formulas, Studies and Applications] by Bai, Gang and Xiao, Hongben, 1994.

Ingredients: This recipe contains 50 g red peony root, 25 g alisma, 20 g each of poria and white atractylodes, and 15 g each of Chinese angelica and cnidium.

Directions: Grind the ingredients to a fine powder. Take 3 to 6 g orally with wine two or three times a day before meals. Available commercially in pills or powder.

Actions, Indications, and Clinical Applications: Nourishes the blood, relieves stagnation of Liver-*Qi,* strengthens the spleen, and dissipates Dampness. This recipe relieves discomfort and lower abdominal pain during pregnancy.

Also, it is used to treat blood poisoning during pregnancy as a result of stagnated blood; and chronic nephritis, cystitis, uterine bleeding, menstrual irregularity, fetal movement, uterine mass formation, and infertility.

Chapter 18

Herbal Recipes That Balance the Yin and Yang

R-22 LIU WEI DI HUANG WAN *(SIX HERB KIDNEY ESSENCE TONIC)*

Source: *Xiao Er Yao Zheng Zhi Jue* [Key to Therapeutics of Children's Diseases] by Qian, Yi and reedited by Yan, Jizhong, A.D. 1119.

Ingredients: This ancient master formula contains 24 g processed rehmannia root, 12 g each of Chinese yam and cornus fruit, 9 g each of moutan, alisma, and poria.

Directions: Grind the ingredients into a fine powder and make honey or water pills. Available commercially in pills or as a powder.

Actions, Indications, and Clinical Applications: This is a classical recipe used to treat underdeveloped infants due to kidney-yin deficiency. Today it is used for treating deficiency of the vital essence (yin) of the kidneys and liver. Common symptoms associated with kidney-yin deficiency are painful loins and knees, vertigo, diabetes, thirst, night sweating, feverish sensation in the palms of the hands and soles of the feet, tinnitus, dizziness, frequent urination, tidal fevers, leukorrhea, dry mouth and throat, red tongue with thin coating, and a thready and rapid pulse. The recipe benefits balance of the endocrine functions and vegetative nerves, and lowers blood pressure, blood lipid levels, and blood sugars.

Precautions: This recipe can be taken for a long period without adverse side effects. Avoid hot and acrid foods while taking this medication.

R-23 MAI WEI DI HUANG WAN *(EIGHT HERB LONGEVITY PILL)*

Source: *Xiao Er Yao Zheng Zhi Jue* [Key to Therapeutics of Children's Diseases] by Qian, Yi and reedited by Yan, Jizhong, A.D. 1119.

Ingredients: To the recipe *Liu Wei Di Huang Wan* (R-22), add 9 g ophiopogon root and 6 g schisandra fruit.

Directions: Grind all the ingredients to a fine powder and mix with water or honey to make water pills or honey boluses. Take 9 g twice a day before meals. Available commercially in pills.

Actions, Indications, and Clinical Applications: Nourishes and invigorates the yin of the liver and kidneys, and reduces chronic cough. This patented medicine is commonly used for symptoms of chronic cough, asthma, dryness in mouth, debility, underweightedness, hectic fever, chronic bronchitis, diabetes, and all other syndromes for which *Liu Wei Di Huang Wan* (R-22) is indicated. Also, this recipe lowers blood sugar and prevents asthma attacks.

Precautions: This recipe can be taken for a long period without adverse side effects. Avoid hot and acrid foods while taking this medication.

R-24 SHEN QI WAN (JIN GUI SHEN QI WAN) *(REHMANNIA KIDNEY-YANG TONIC FORMULA)*

Source: *Jin Gui Yao Lue* [Synopsis of Prescriptions of the Golden Chamber] by Zhang, Zhongjing (Han dynasty).

Ingredients: To the recipe *Liu Wei Di Huang Wan* (R-22), add 3 g cinnamon twig and 3 g prepared aconite. This is one of the ancient master formulas.

Directions: Grind the ingredients to a fine powder, mix with honey, and make honey boluses weighing 9 g each. Take 1 bolus twice a day. The ingredients can also be decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Invigorates kidney yang. This recipe is used to treat weariness of the loins, legs, and feet, cold limbs,

lumbago, edema, difficult breathing, asthma, nocturia, polyuria, stomach and duodenal ulcers, lower abdominal pain, low back pain, impotence, shortness of breath, lassitude, and persistent diarrhea due to hypofunction or deficiency of the kidneys.

Because it is a mild sedative, this recipe is also applied to lower blood pressure, relieve asthma, enhance kidney function, and treat stomach and duodenal ulcers. *Jin Gui Shen Qi Wan* maintains homeostasis, that is, it regulates urination, body temperature, blood-sugar levels, constipation, and diarrhea.

Precautions: People with kidney-yin deficiency and with Heat should avoid this recipe.

R-25 QI JU DI HUANG WAN *(LYCIUM FRUIT, CHRYSANTHEMUM, AND REHMANNIA EYESIGHT TONIC PILL)*

Source: *Yi Fang Ji Jie* [Collection of Prescriptions with Exposition] by Wang, Ang, A.D. 1682.

Ingredients: To the recipe *Liu Wei Di Huang Wan* (R-22), add 6 g lycium fruit and 6 g chrysanthemum.

Directions: Grind the ingredients to a fine powder and mix with honey to make honey boluses weighing 9 g each. Take one bolus two to three times a day before meals. Available commercially in pills.

Actions, Indications, and Clinical Applications: Nourishes the kidney yin, and invigorates and regulates the *Gan* (TCM liver). This formula is a super medicine for the elderly. It is particularly useful for treating dizziness, weakened eyesight, eye pain, dry and blurred vision, vertigo, dizziness, ringing in the ears, photophobia, blurred vision, epiphora (abnormal overflow of tears induced by wind), and night blindness.

R-26 QI BAO MEI RAN DAN *(SEVEN TREASURE ANTIAGING REJUVENATION FORMULA)*

Sources: *Yi Fang Ji Je* [Collection of Prescriptions with Exposition] by Wang, Ang, A.D. 1682.

Ingredients: The recipe contains 80 g *ho shou wu,* 20 g each of achyranthes, poria, cuscuta, Chinese angelica, and lycium fruit, and 10 g psoralea fruit cooked with black sesame seed.

Directions: Grind the ingredients to a fine powder and mix with honey to make honey boluses. Take 8 g two or three times a day. Available commercially in pills.

Actions, Indications, and Clinical Applications: Nourishes liver yin and kidney yin. This is a classical formula used to treat lassitude, general aching of the loins, difficult movement of the legs, neurasthenia due to old age, seminal emissions, spermatorrhea, premature gray hair, and loss of hair due to *Qi* and blood deficiency. This formula is also an antiaging recipe.

Precautions: Avoid cold and raw foods while taking this medication.

R-27 ER XIAN TANG
(MORINDA AND EPIMEDIUM MERIDIAN BALANCING FORMULA)

Source: *Zhong Yi Fang Ji Lin Chuang Shou Che* [Clinical Handbook of TCM Prescriptions], author and date unknown.

Ingredients: This recipe contains 9 g each of morinda root, epimedium, curculigo, Chinese angelica, phellodendron, and anemarrhena.

Directions: The ingredients are decocted in water and taken orally in three equal doses daily. Available commercially in pills.

Actions, Indications, and Clinical Applications: Restores kidney-yang, and regulates the *Chong* and *Ren* meridians. This recipe is used to treat hypertension, dizziness, headaches, vertigo, distress, polyuria, spontaneous sweating, cold limbs, impotence, and menstrual disorders.

This recipe is also useful for andropausal (male menopausal) syndromes.

R-28 SI SHEN WAN
(FOUR MIRACULOUS HERB SPLEEN- AND KIDNEY-YANG TONIC FORMULA)

Source: *Zheng Zhi Zhun Sheng* [Standards of Diagnosis and Treatment] by Wang, Kentan, Volume 8, A.D. 1602.

Ingredients: This recipe contains 24 g fresh ginger root juice, 12 g psoralea fruit (salt-processed), 6 g schisandra (vinegar-processed), 6 g myristica, 3 g evodia, and 10 pieces of Chinese dates as a sweetener.

Directions: Grind the psoralea, schisandra, myristica, and evodia to a fine powder, and add the Chinese dates, honey, and fresh ginger juice to the powder to make honey pills. Take 9 to 10 g with saltwater before sleep.

Actions, Indications, and Clinical Applications: Nourishes and warms the spleen yang, tones the kidney yang, and relieves diarrhea with astringency. This recipe is commonly used to treat early morning diarrhea and chronic diarrhea, loose stools containing undigested food, anorexia, indigestion, abdominal pain, and associated symptoms of lower back pain, cold limbs, and exhaustion.

This recipe, with minor modifications, is used for chronic enteritis, chronic diarrhea, colitis, dysentery, allergic enteritis, intestinal tuberculosis, and other digestive tract ailments.

Precautions: People with diarrhea of the excessive-Heat type or with abdominal pain should avoid this recipe.

R-29 HE SHOU WU WAN (SHOU WU WAN)
(POLYGONUM AND REHMANNIA ANTIAGING FORMULA)

Source: *Chinese Pharmacopoeia,* 1995.

Ingredients: This recipe contains 36 g processed polygonum root *(he shou wu);* 8 g each of cuscuta, ligustrum root, and siegesbeckia; 7 g each of rosa cherokee extract and mulberry fruit extract; 4 g each of achyranthes root, psoralea fruit, and morus branch; and 2 g each of dried rehmannia, black sesame seed, and lonicera stem.

Directions: Grind the ingredients to a fine powder, and mix with honey and water to make water-honey pills. Take 6 g twice a day before meals. Available commercially in pills, tablets, or as a powder.

Actions, Indications, and Clinical Applications: Invigorates both kidney yin and liver yin. This recipe is used to nourish blood, and strengthen muscles and bones. It is commonly used to treat and prevent premature gray hair, hair loss, exhaustion, blurred vision, ringing in the ears, and numbness of the extremities. It helps lower blood lipids and cholesterol levels, as well.

Precautions: This recipe is contraindicated in people with *Qi* and spleen deficiency and stomach yang. Avoid pungent and hot foods while taking this medication.

R-30 NAN BAO
(GINSENG AND EPIMEDIUM COMBINATION MALE TREASURE PILLS)

Source: *Zhong Yao Fang Ji Yen Jiu Yu Yingyung Da Quan* [Encyclopedia of Chinese Medicine Formulas, Studies and Applications] by Bai, Gang and Xiao, Hongben, 1994.

Ingredients: This recipe contains 22 g donkey's kidney, 10 g each of ginseng, astragalus root, poria, epimedium, lycium fruit, processed rehmannia, and Chinese angelica, 5 g each of cornus fruit, psoralea, ophiopogon root, morinda, scrophularia root, pilose antler, cuscuta seed, white atractylodes, cistanche, rubus (raspberry fruit), cynomorium, curculigo, eucommia, cinnamon bark, and dog's kidneys, and 2.5 g each of achyranthes, licorice root, donkey-hide gelatin, and dipsacus.

Directions: The ingredients are decocted in water for oral administration, or ground to a fine powder and mixed with water and honey to make water-honey pills. Take 6 g twice a day. Available commercially in pills.

Actions, Indications, and Clinical Applications: Invigorates the vital function of the kidney yang. This recipe is used for male sexual debility, male impotence and seminal emission, mental tiredness, amnesia, and aches and pains of the knees and lumbar region, and symptoms caused by deficiency of kidney yang. It is also used to treat chronic nephritis.

Chapter 19

Recipes That Benefit the Heart and the Brain

R-31 DAN SHEN YIN
(SALVIA AND AMOMUM FRUIT ANGINA FORMULA)

Source: *Yi Zong Jin Jian* [The Golden Mirror of Medicine] by Wu, Qian, A.D. 1742.

Ingredients: This recipe contains 30 g salvia root, 5 g sandalwood, and 5 g amomum fruit *(sha ren).*

Directions: The ingredients are decocted in water for oral administration. Divide into three doses and take daily before meals.

Actions, Indications, and Clinical Applications: Promotes blood circulation and removes blood stasis. This recipe is used to treat angina pectoris and other cardiovascular ailments, gastritis, and epigastric and abdominal pain as a result of the stagnation of *Qi* and blood.

Precautions: Pregnant women should avoid this recipe.

R-32 FU FANG DAN SHEN PIAN
(COMPOUND FORMULA OF SALVIA HEART TABLET)

Source: *Chinese Pharmacopoeia,* 1995.

Ingredients: This recipe contains 215 g salvia extract, 141 g notoginseng, and 8 g borneol *(bing pian).*

Directions: This is a well-known modern patented medicine available commercially in tablet form. Take three tablets three times a day before meals.

Actions, Indications, and Clinical Applications: Promotes blood circulation, removes blood stasis, and alleviates chest pain. This recipe is commonly used in Chinese hospitals to treat coronary heart disease, angina pectoris, and an oppressed feeling in the chest.

Precautions: Pregnant women should avoid this recipe.

R-33 GUAN XIN BING II
(CORONARY HEART FORMULA II)

Source: *Yan Zhi Fang* [Blood Stasis Elimination for the Treatment of Difficult Cases] by Weng, Weiliang, 1993.

Ingredients: This recipe contains 24 g salvia root, 15 g each of cnidium *(chuang xiong)* and red peony, and 12 g each of acronychia *(Jiang Xiang)* and carthamus (safflower).

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills or tablets.

Actions, Indications, and Clinical Applications: Promotes blood circulation, removes blood stasis, regulates *Qi,* and relieves pain. This recipe is used for coronary heart disease, angina pectoris, cardiac infarction, chest distress with an oppressed sensation, pain in the sternal area, and cerebral thrombosis due to stagnation of blood.

Clinically observed signs of angina pectoris due to blood stasis include pericardial fixed pain or pain radiating to the left shoulder or back, an oppressed sensation in the sternal area, dark red or purplish tongue with ecchymosis, dark purple lips, black eyes, and an uneven, faint pulse.

This recipe effectively dilates the coronary artery, increases the volume of blood flow through the coronary blood vessels, increases the hypoxia tolerance of heart muscle, inhibits the formation of thrombosis and platelet aggregation, and promotes the restoration of necrotic (dead) cardiac muscle. It is also used for the prevention of a heart attack.

Precautions: This recipe is not recommended for patients with menorrhagia or during pregnancy.

R-34 BU YANG HUAN WU TANG
(GINSENG AND ASTRAGALUS PARALYSIS FORMULA)

Source: *Yi Lin Gai Cuo* [Corrections of Errors in Medicine] by Wang, Qingren, A.D. 1850.

Ingredients: This recipe contains 60 g astragalus root, 6 g each of Chinese angelica and red peony, 3 g each of cnidium, peach kernel, carthamus, and processed earthworm *(lumbricus).*

Directions: The ingredients are decocted in water for oral administration, and taken in two doses. This recipe should be taken continuously to prevent a second or third stroke. The amount of astragalus root can be increased to 120 g. Available commercially in pills or capsules.

Actions, Indications, and Clinical Applications: Invigorates and regulates the flow of *Qi,* promotes blood circulation, and removes blood stasis. This classical, popular recipe is used to treat post-stroke symptoms, such as hemiplegia, deviation of the eyes and mouth, intricate and obscure speech, involuntary drooling from the mouth, atrophy of upper or lower limbs, and frequent urination or involuntary enuresis. It may also be used to treat facial paralysis, chronic pelvic inflammation, atherosclerosis, and coronary heart disease.

Precautions: People with phlegm stagnation or yin deficiency should avoid this recipe.

R-35 JIAN NAO BU SHEN WAN
(GINSENG AND ZIZYPHUS COMBINATION BRAIN TONIC)

Source: *Zhong Yao Fang Ji Yen Jiu Yu Yingyung Da Quan* [Encyclopedia of Chinese Medicine Formulas, Studies and Applications] by Bai, Gang and Xiao, Hongben, 1994.

Ingredients: This recipe contains 84 g poria, 48 g Chinese yam, 42 g each of polygala root, amomum, zizyphus (wild jujube seed), white atractylodes root, and oyster shell, 36 g each of Chinese angelica, cyathula root, and eucommia bark, 35 g each of white peony root and dragon's bone (or its substitute), 30 g each of ginseng (or codonopsis root) and cinnamon bark, 28 g licorice root, 26 g lonicera, 18 g rosa cherokee, 14 g arctium fruit, and 7 g pilose antler.

Directions: Grind the ingredients to a fine powder and mix with honey to make honey pills. Take 6 g three times a day. The ingredients can be decocted in water for oral administration. Available commercially in powders, pills, or capsules.

Actions, Indications, and Clinical Applications: Invigorates the brain, replenishes *Qi,* stimulates the kidneys, and strengthens the Essence of Life. This formula is used to treat neurasthenia, amnesia, dizziness, tinnitus, vertigo, insomnia, palpitations, and lassitude in loins and knees.

Precautions: People with spleen deficiency and Dampness should use this recipe with caution.

R-36 YUE JU WAN *OR* XIONG ZHU WAN *(CYPERUS ANTISTAGNATION AND DEPRESSION PILL)*

Source: *Dan Xi Xin Fa* [Danxi's Empirical Therapy Formula] by Zhu, Zhenheng, A.D. 1481 (Yuan dynasty).

Ingredients: This recipe contains 12 g of cyperus tuber (vinegar-processed), 10 g each of cnidium, atractylodes (stir-fried), gardenia, and medicated leaven (stir-fried).

Directions: Grind the ingredients to a fine powder and mix with water to make water pills. It can also be decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Promotes the circulation of *Qi* and relieves ailments of stagnation. This recipe relieves six common stagnancies of *Qi,* blood, food, phlegm, Dampness, and Liver-*Qi* (Fire). Clinically observed symptoms of stagnancy are an oppressed feeling, stuffiness in the chest, distension and pain in the epigastric region, gastric discomfort, acid regurgitation, indigestion, belching, nausea, vomiting, a white greasy coating of the tongue, and a taut pulse.

The recipe is also useful for treating depression, mental strain, severe stress, neurasthenia, hysteria, menopausal syndrome, and dysmenorrhea due to stagnation of Liver-*Qi*. This recipe is an effective medicine for depression.

Precautions: Avoid excessive worry and anger while taking this medication. This recipe is not for stagnancy of deficiency type.

R-37 BAN XIA HOU PO TANG
(PINELLIA AND MAGNOLIA STAGNATION PILL)

Source: *Jin Gui Yao Lue* [Synopsis of Prescriptions of the Golden Chamber] by Zhang, Zhongjing (Han dynasty).

Ingredients: This recipe contains 24 g pinellia tuber, 15 g fresh ginger, 12 g poria, 9 g magnolia bark, and 6 g perilla leaf.

Directions: The ingredients are decocted in water for oral administration. Divide the decoction into three doses. Available commercially in pills or capsules.

Actions, Indications, and Clinical Applications: Promotes the circulation of *Qi,* reduces the adverse flow of *Qi,* resolves pathogenic phlegm, expels phlegm, arrests cough, and alleviates mental depression. The recipe is commonly used to remove the sensation of a plum pit stuck in the throat, as well as a sensation of fullness and distress in the chest and hypochondriac regions. It is also useful for treating neurosis of the pharynx, pharyngitis, edema of the vocal cords, bronchitis, bronchial asthma, gastric neurosis, and vomiting during pregnancy due to stagnancy of *Qi* and phlegm.

Precautions: This recipe is contraindicated in people with yin deficiency.

R-38 XUE FU ZHU YU TANG
(PEACH KERNEL AND CARTHAMUS BLOOD STASIS FORMULA)

Source: *Yi Lin Gai Cuo* [Corrections of Errors in Medicine] by Wang, Qingren, A.D. 1850.

Ingredients: This recipe contains 12 g each of Chinese angelica, peach kernel, and carthamus (safflower), 10 g each of bupleurum root and licorice root, 9 g each of red peony, achyranthes root, and dried rehmannia root, 6 g bitter orange, 5 g each of platycodon root and cnidium rhizome.

Directions: The ingredients are decocted in water for oral administration. Take in three doses on an empty stomach. Available commercially in pills.

Actions, Indications, and Clinical Applications: Promotes circulation of *Qi* and blood, removes blood stasis, and relieves chest pain. This recipe re-

lieves stagnation of blood in different areas of the body, particularly in the chest, which causes stinging, prickly chest pain, endless hiccups, headaches, dysphoria, angina pectoris, palpitation, insomnia, irritability, neurosis, and menorrhalgia.

Precautions: This recipe is contraindicated for pregnant women.

R-39 HUO XUE TONG MAI PIAN *(SAFFLOWER AND CYPERUS CORONARY CIRCULATION FORMULA)*

Source: *Huo Xue Hua Yu Zhi Liao Yi Nan Bing* [Secret Essentials for Combating Senility with Chinese Medicine Through Various Dynasties] by Yan Dexin, 1993.

Ingredients: This recipe contains 30 g each of salvia, notoginseng, polygonatum root, and millettia, 15 g each of ginseng and pueraria, 12 g each of acronychia *(jiang xiang),* safflower, and saussurea, 9 g cnidium, 6 g peach kernel, and 3 g borneol.

Directions: Available commercially in tablet form. Take five tablets three to four times a day.

Actions, Indications, and Clinical Applications: Promotes and strengthens coronary circulation and relieves pain. The recipe relieves pain due to poor coronary circulation, and aids in the treatment of angina pectoris, an oppressed sensation in the chest, shortness of breath, and coronary heart disease.

Precautions: This recipe is not used during pregnancy.

Chapter 20

Herbal Recipes That Ease the Mind

R-40 SUAN ZAO REN TANG
(ZIZYPHUS ESSENCE TONIC)

Source: *Jin Gui Yao Lue* [Synopsis of Prescriptions of the Golden Chamber] by Zhang, Zhongjing (Han dynasty).

Ingredients: This recipe contains 18 g zizyphus, 6 g each of poria and anemarrhena, 3 g each of cnidium and licorice root.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Nourishes the yin and blood, regulates the functions of the liver, clears endogenous Heat, and tranquilizes the mind. This recipe tranquilizes the mind, induces normal sleep, treats weakness, insomnia with vexation, palpitations, night sweating, uneasiness, fidgetiness and restlessness, dizziness, and dry throat and mouth.

R-41 XIAO YAO WAN
(BUPLEURUM AND CHINESE ANGELICA EASE FORMULA)

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies], Volume 3 by Chen, Shiwen, A.D. 1151 (Song dynasty); *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe contains 15 g each of bupleurum root, white peony, atractylodes rhizome, and poria, 6 g licorice root, 5 g Chinese angelica, and 3 g each of ginger and peppermint.

Directions: Grind the ingredients into a fine powder and make water pills or decoct them in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Soothes the liver, relieves depressed Liver-*Qi* and Spleen-*Qi,* invigorates the spleen, and nourishes the blood. This popular classical recipe is used to treat irregular menstruation and cramps, distention of the breasts, lassitude, minor headaches, anxiety, depression, loss of appetite, distention, pain in the chest and hypochondriac region, anorexia, mental weariness, alternate attacks of chills and fever, dizziness, a bitter taste in the mouth, and dry throat.

Precautions: People with *Xu* (deficiency; insufficient anti-pathogenic factors) and Cold symptoms should avoid this recipe.

R-42 DAN ZHI XIAO YAO WAN
(BUPLEURUM AND PEONY EASE PILLS)

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies], Volume 3 by Chen, Shiwen, A.D. 1151 (Song dynasty); *Chinese Pharmacopeia,* 1995.

Ingredients: To the recipe *Xiao Yao Wan* (R-41), add 3 g moutan and 3 g gardenia fruit.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Soothes the Liver-*Qi,* strengthens the spleen, nourishes the blood, and regulates menstruation. This recipe is prescribed for emotional disturbances, irritability, spontaneous sweating, night sweating, dry eyes, difficult and painful urination, poor digestion, lack of appetite, and afternoon feverishness due to an imbalance of the liver and spleen. Similar to *Xiao Yao Wan,* this recipe is also effective for treating irregular menstruation, distention with pain and lump formation in the breasts during or before menstruation, headaches, pain and distention in the lower abdomen, and menopausal syndrome.

This formula is particularly useful for emotional distress in women as a result of abortion, surgical removal of the fallopian tubes, hysterectomy, or other pelvic surgery.

Precautions: People with *Xu* (deficiency) and Cold symptoms should avoid this recipe.

R-43 AN SHEN BU XIN WAN
(ALBIZZIA BARK SEDATIVE AND HEART TONIC)

Source: *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe contains 56 g *An shen* extract (*An shen* extract is made of 200 g pearl, 50 g polygonum, and 40 g eclipta prostrate, 30 g each of albizzia bark, cuscuta, and ligustrum, and 20 g dried rehmannia), and 30 g salvia, 15 g schisandra, and 10 g acorus.

Directions: This patented medicine is available commercially in pills or tablets. The dose varies according to the directions of the product.

Actions, Indications, and Clinical Applications: Tranquilizes the mind and nourishes the heart yin. The recipe treats neuroses manifested as insomnia, nervousness, palpitations, hot feelings in the palms of the hands and feet, amnesia, dizziness, night sweating, ringing in the ears, and blurred vision.

Precautions: Avoid hot/acrid food while using this recipe.

R-44 BAI ZI YANG XIN WAN
(BIOTA SEED MIND-EASING TONIC)

Source: *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe contains 200 g poria, 100 g each of astragalus root, cnidium, Chinese angelica, and pinellia tuber, 25 g each of biota seed, ginseng, wild jujube, schisandra fruit, polygala, and cinnamon bark, and 10 g licorice root (omit cinnabar).

Directions: Grind the ingredients to a fine powder and mix with honey to make honey boluses, each weighing 9 g. Take one bolus twice a day before meals. Available commercially in pills, capsules, or as a powder.

Actions, Indications, and Clinical Applications: Replenishes Heart-*Qi,* nourishes the blood, and tranquilizes the mind. This recipe relieves anxiety and mental strain, emotional distress, palpitations, shortness of breath, insomnia, nightmares, amnesia, severe palpitations due to fright, and hyperthyroidism.

Precautions: People with hyperactivity of yang should avoid this recipe. Avoid acidic and hot foods while taking this medication.

R-45 TIAN WANG BU XIN WAN *(GINSENG AND ZIZYPHUS MIND-EASING AND HEART TONIC FORMULA)*

Source: *Shi Yi De Xiao Fang* [Effective Formulas Tested by Physicians for Generations] by Wei, Yilin, A.D. 1345.

Ingredients: This recipe contains 200 g dried rehmannia root, 50 g each of biota seed, zizyphus seed, ophiopogon root, Chinese angelica, schisandra fruit, and asparagus, 25 g each of scrophularia root, codonopsis, poria, salvia root, polygala root, acorus, licorice root, and platycodon root.

Directions: The ingredients are made into water or honey pills. Take 9 to 10 g three times a day before meals. Available commercially in pills or capsules.

Actions, Indications, and Clinical Applications: Nourishes the heart yin and blood, tranquilizes the mind, and induces sleep. This recipe is helpful for treating hypofunction of the heart and kidneys. Symptoms such as insomnia, dreaminess, forgetfulness, palpitations, mental weariness, nocturnal emission, dry stools, mouth boils, a red tongue with thin coating, and a thready and rapid pulse are helped with this recipe.

Precautions: People with stomach and spleen deficiency, Cold, and phlegm retention should avoid this recipe.

Chapter 21

Herbal Recipes to Relieve Colds, Internal Ailments, and Pains

R-46 YIN QIAO JIE DU PIAN *(LONICERA FLOWER AND FORSYTHIA COLD AND DETOXIFICATION FORMULA)*

Source: *Wen Bing Tiao Bian* [Treatise of Differentiation and Treatment of Epidemic Febrile Diseases] by Wu, Tang, A.D. 1798.

Ingredients: This recipe contains 200 g each of lonicera flower and forsythia fruit, 120 g each of peppermint, platycodon, and arctium fruit, 100 g each of licorice root and soja, 80 g each of lophatherum (bamboo leaf), and schizonepeta.

Directions: This is a commonly prescribed patent medicine, available commercially in tablet or pill form. The dose is 3 g, two to three times a day, administered orally with water.

Actions, Indications, and Clinical Applications: Relieves Wind-Heat type colds or influenza, induces diaphoresis, reduces fever, and detoxifies. This is the most commonly prescribed antipyretic formula for relieving colds through perspiration and detoxification. The Wind-Heat type colds are characterized as fever without sweating, a cough, headaches, chills and fever, dry mouth and sore throat, and runny nose.

Precautions: People with Wind-Cold colds should avoid this recipe, use *Tong Xuan Li Fei Pian* (R-47).

R-47 TONG XUAN LI FEI PIAN *(EPHEDRA AND PERILLA COLD FORMULA)*

Source: *Zheng Zhi Zhun Zheng* [Standards of Diagnosis and Treatments] by Wang, Kentang, A.D. 1602.

Ingredients: This recipe contains144 g perilla leaves, 96 g each of ephedra, peucedanum, platycodon, scute root, orange peel, hoelen, and processed bitter orange, 72 g each of bitter almond kernel, pinellia tuber, and licorice root.

Directions: This is a popular patent medicine, available commercially in tablet or pill form. Take six to eight pills twice a day before meals.

Actions, Indications, and Clinical Applications: Relieves exterior Wind-Cold-type colds, induces diaphoresis, facilitates Lung-*Qi,* and arrests coughing. This recipe is used to relieve flu and colds, stop coughs, treat asthma, stuffy nose, fever, headache, soreness and pain in limbs, and other symptoms associated with colds and flu.

Precautions: This recipe is not for Wind-Heat-type colds or for people with a cough due to yin deficiency.

R-48 HUO XIANG ZHENG QI WAN *(AGASTACHE GASTROINTESTINAL FLU PILLS)*

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies], Volume 3 by Chen, Shiwen, A.D. 1151 (Song dynasty); *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe contains 9 g agastache, 8 g licorice, 6 g each of white atractylodes, orange peel, pinellia tuber, magnolia stirred with ginger juice, and platycodon, 3 g each of perilla leaves, angelica, areca peel, and hoelen.

Directions: Grind the ingredients into a fine powder and either mix with honey for honey boluses or cook the powder for oral administration. Take 6 g each time with a decoction of fresh ginger and Chinese dates. Available commercially in pills or soft capsules.

Actions, Indications, and Clinical Applications: Relieves exterior Cold syndrome, eliminates Dampness, and regulates the Middle-*Jiao*. This recipe is useful against afflictions caused by Wind-Cold external pathogens with accumulation of Dampness, commonly seen in the summer months or during travel in the summer, with nausea, vomiting, borborygmus, intestinal distention, oppressed feeling in the chest and abdomen, diarrhea, headaches, and fever. This recipe regulates gastrointestinal functions, arrests

vomiting and diarrhea, restores the normal functioning of the stomach, induces diaphoresis, allays fever, and relieves symptoms of flu in the gastrointestinal tract.

Precautions: People with hyperactivity, yin deficiency, and allergies to alcohol should avoid this patent medicine.

R-49 CHUAN XIONG CHA TIAO SAN *(CHUAN XIONG HEADACHE RELIEF FORMULA)*

Source: *Tai Ping Hui Men He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies] by Chen, Shiwen, A.D. 1151.

Ingredients: This recipe contains 250 g mentha, 120 g each of cnidium and schizonepeta, 60 g each of angelica root, notopterygium root, and licorice root, 45 g siler, 30 g asarum herb.

Directions: Grind the ingredients into a fine powder. Mix the powder with green tea (or take the medicine with tea) and take 6 g two or three times a day. It can also be decocted in water for oral administration. Available commercially in pills or powders.

Actions, Indications, and Clinical Applications: Dispels pathogenic Wind and relieves pain. This recipe is effective against many types of headaches, such as migraines, sinus headaches, and pain in the top part of the head, as well as those associated with symptoms such as a stuffy nose, chronic rhinitis, fever, pain in the limbs, and dizziness. This recipe induces diaphoresis, reduces fever, relieves headaches, and tranquilizes the mind.

Precautions: This recipe is not for people with headaches due to deficiency.

R-50 CHAI HU SHU GAN TANG *(BUPLEURUM AND CYPERUS LIVER-SOOTHING FORMULA)*

Source: *Zhong Yao Fang Ji Yen Jiu Yu Yingyung Da Quan* [Encyclopedia of Chinese Medicine Formulas, Studies and Applications] by Bai, Gang and Xiao, Hongben, 1994.

Ingredients: This recipe contains 6 g each of tangerine peel and bupleurum, 4.5 g each of cnidium, cyperus tuber, bitter orange, and white peony, and 1.5 g licorice root.

Directions: The ingredients are decocted in water for oral administration. Divide the decoction into two doses and take before meals.

Actions, Indications, and Clinical Applications: Invigorates *Qi,* relieves stagnation of Liver-*Qi,* regulates blood, and relieves pain. This recipe relieves pain over the costal regions related to menopausal syndrome, stomach distension, and a feeling of fullness and pain. This recipe may also relieve menopausal syndrome, intestinal pain, and pain after surgery due to adhesion.

Precautions: Avoid hot/acrid food and anger while taking this recipe.

R-51 XIAO HUO LUO DAN
(ARISAEMA AND ACONITE QI-*ACTIVATING FORMULA)*

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies] by Chen, Shiwen, A.D. 1151.

Ingredients: This recipe contains 180 g each of processed Sichuan aconite, processed wild aconite, earthworms, and processed arisaema, 66 g each of mastic and myrrh.

Directions: Grind the ingredients to a fine powder and make small water-honey boluses, with each pill weighing 3 g. Take one bolus twice a day with warm water or wine before meals. Available commercially in pills.

Actions, Indications, and Clinical Applications: Stimulates the meridians, dispels pathogenic Wind-Dampness, and invigorates blood circulation. This recipe is used for chronic pain and numbness of hands, feet, muscles, and bones. It is also used to treat lumbago, stiff neck, frozen shoulder, periarthritis of the shoulder, chronic rheumatic and rheumatoid arthritis with pain, and difficult joint movement.

Precautions: This recipe is contraindicated for people with fever caused by deficiency of yin and during pregnancy.

R-52 SHU GAN WAN
(WHITE PEONY AND MELIA LIVER-SOOTHING FORMULA)

Source: *Chinese Pharmacopoeia,* 1995.

Ingredients: This recipe contains 15 g melia (Sichuan chinaberry), 12 g white peony, 10 g each of hoelen, aquilaria, myristica, corydalis tuber, curcuma rhizome, amomum fruit, and bitter orange, 8 g each of aucklandia and orange peel, and 6 g magnolia bark.

Directions: This is a popular patented medicine, available commercially in pill form. Take six to eight pills three times a day before meals.

Actions, Indications, and Clinical Applications: Regulates the Liver-*Qi,* normalizes the functions of the stomach, and relieves gastric pain. This recipe treats a feeling of depression due to stagnant Liver-*Qi,* frequent belching, acid regurgitation, gastrointestinal pain, feelings of fullness over the epigastric regions, and poor appetite. It also effectively relieves pain in the costal region and distending pain in the hypochondriac region.

Precautions: Avoid anger and excessive worry while taking this medication.

R-53 XIAO CHAI HU TANG
(MINOR BUPLEURUM MEDIATION FORMULA)

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 12 g bupleurum root, 9 g each of scute root, fresh ginger, and processed pinellia tuber, 6 g ginseng, 5 g licorice root (processed), and four pieces Chinese dates.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Relieves the symptoms of *Shao Yang* diseases, which are characterized by alternating chills and fever, fullness and tightness in the chest and costal regions, fidgeting, nausea, dryness in the throat, bitterness in the mouth, and a taut and rapid pulse.

This recipe helps to strengthen the body's resistance and improve the immune system. It is also used for liver detoxification, and treating ailments of hepatitis and cholecystitis.

This recipe with minor modification may also help liver disorders, such as hepatitis, infections of the biliary tract, pleuritis, gastritis, indigestion, cystic mastopathy, intercostal neuralgia, neurosis, and AIDS (see Chapter 9).

Precautions: This recipe is contraindicated for people with cold limbs not due to stagnation of *Qi*.

R-54 FU ZI LI ZHONG TANG
(ACONITE AND GINGER STOMACHACHE FORMULA)

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies] by Chen, Shiwen, A.D. 1151.

Ingredients: This recipe contains 200 g ginseng (or codonopsis root), 150 g white atractylodes, 100 g each of processed aconite, dry ginger, and licorice root.

Directions: This is a popular patented medicine, in pill or capsule form. Take six to eight pills three times a day.

Actions, Indications, and Clinical Applications: Warms the Middle-*Jiao,* invigorates the spleen, relieves abdominal pain, and stops diarrhea. This recipe is for Coldness in the abdomen, manifested as abdominal aches and pain, nausea and vomiting, diarrhea, and cold limbs with a weak and thready pulse.

Precautions: Avoid cold foods while taking this medication.

R-55 TIAN MA WAN
(GASTRODIA AND EUCOMMIA PAIN FORMULA)

Source: *Jing Yue Quan Shu* [Jing-Yue's Complete Works] by Zhang, Jiebin, A.D. 1624.

Ingredients: This recipe contains 17 g eucommia bark, 16 g dry rehmannia, 10 g each of notopterygium and Chinese angelica, 6 g each of gastrodia, achyranthes, scrophularia, and tokoro, 5 g pubescent angelica root, and 1 g prepared aconite root.

Directions: This is a popular patented medicine, available commercially in pill form. Take six to eight pills three times a day before meals.

Actions, Indications, and Clinical Applications: Expels pathogenic Wind, dispels Cold, and relieves rigidity of muscles and pain. This recipe is useful for tension headaches, vertigo, symptoms after apoplexy, limb spasms, numbness of hands and feet, lassitude, pain in loins and knees, rheumatic arthralgia, facial paralysis, hemiplegia, and tetraplegia.

The recipe is also used to treat migraine headaches, rheumatic arthritis, rheumatoid arthritis, hemiplegia and paralysis after a stroke, and infantile convulsions.

Precautions: This recipe is contraindicated during pregnancy.

R-56 YUAN HU ZHI TONG WAN *(CORYDALIS AND ANGELICA PAIN FORMULA)*

Source: *Chinese Pharmacopoeia,* 1995.

Ingredients: This recipe contains 445 g corydalis tuber (vinegar-processed) and 223 g angelica root.

Directions: This is a popular patented medicine. Available commercially in pill form. Take four to six pills two or three times a day.

Actions, Indications, and Clinical Applications: Promotes blood circulation, regulates the flow of *Qi,* and relieves pain. This is a classical recipe used to arrest pain. It relieves gastric, menstrual, costal region, liver, and chest pain, as well as angina pectoris, neurovascular headache, migraines, trigeminal neuralgia, and other types of pain such as stomach, costal and menstrual pain resulting from stagnation of *Qi* and blood.

Precautions: People with excessive yin deficiency should avoid this recipe.

R-57 QIANG HUO SHENG SHI TANG *(NOTOPTERYGIUM AND PUBESCENT ANGELICA PAIN FORMULA)*

Source: *Nie Wai Shang Bian Huo Lun* [Differentiation of Endogenous and Exogenous Diseases], author and date unknown.

Ingredients: This recipe contains 6 g each of notopterygium root *(qiang huo)* and pubescent angelica *(du huo),* 3 g each of ligustrum fruit, siler root, licorice root, and cnidium, and 2 g vitex fruit.

Directions: This is a popular patented medicine, in pill form. Take six to eight pills three times a day before meals.

Actions, Indications, and Clinical Applications: Dispels Wind-Cold-Dampness pathogens and arrests pain. This recipe treats Exterior syndromes of pain and headaches, general aching of the entire body, difficulty in motion (especially when walking), and chronic arthralgia.

Precautions: People with yin deficiency and insufficient body fluid should use this herb with caution or not at all.

R-58 DU HUO JI SHENG TANG
(PUBESCENT ANGELICA AND LORANTHUS PAIN FORMULA)

Source: *Bei Ji Qian Jin Yao Fang* [Prescriptions for Emergencies Worth a Thousand Golden Dollars] by Sun, Simiao, A.D. 652.

Ingredients: This recipe contains 9 g pubescent angelica *(du huo),* 6 g each of loranthus, Chinese angelica, cnidium rhizome, asarum, large-leaf gentian root *(qin jiu),* siler, eucommia bark, white peony, processed rehmannia, poria, codonopsis root, cinnamon twig, and licorice root.

Directions: This is a popular patented medicine, available commercially in pill form. Take six to eight pills three times a day before meals.

Actions, Indications, and Clinical Applications: Dispels Wind-Dampness *Bi* Syndrome, benefits the liver and kidneys, nourishes the *Qi* and blood, and relieves pain. This recipe treats arthralgia, chronic rheumatic disorders (Wind-Cold-Damp *Bi* syndrome). It is equally effective in treating general pain, rheumatic and rheumatoid arthritis, lower back pain, sciatica, strained muscles, numbness, and pain in lower limbs.

Precautions: The recipe is contraindicated during pregnancy.

R-59 PING WEI SAN
(MAGNOLIA AND GINGER PEPTIC FORMULA)

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of Peoples Welfare Pharmacies], Volume 3 by Chen, Shiwen, A.D. 1151 (Song dynasty); *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe contains 15 g atractylodes rhizome, 9 g magnolia, 9 g orange peel, and 4 g licorice.

Directions: Grind the ingredients to a fine powder and take 3 to 5 g each time with fresh ginger juice, or cook the ingredients in water for a decoction, which is divided into three doses. Available commercially in pills or tablets.

Actions, Indications, and Clinical Applications: Strengthens the spleen, removes Dampness, promotes the circulation of *Qi,* and invigorates the functions of the stomach. This recipe is mainly used as a stomachic to relieve the feeling of fullness, anorexia, loss of taste, vomiting, and acid regurgitation. It is also used for abdominal distension, lassitude, drowsiness, frequent diarrhea, leukorrhea, and amenorrhea due to stagnation and accumulation of fluids in the body.

Precautions: People with symptoms of *Xu* (deficiency) or Heat and those who are pregnant should avoid this recipe.

R-60 XIAO JIAN ZHONG TANG
*(CINNAMON AND PEONY MIDDLE-*JIAO *TONIC)*

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 30 g malt extract, 18 g peony root, 10 g fresh ginger, 9 g cinnamon twig, 6 g licorice root, and four pieces jujube.

Directions: The ingredients are decocted in water for oral administration. Take in three daily doses on an empty stomach. Available commercially in pills or capsules.

Actions, Indications, and Clinical Applications: Expels Coldness, warms up the Middle-*Jiao,* promotes circulation, and relieves abdominal pain. This recipe is mainly used to relieve gastrointestinal spasms, pain due to coldness and deficiency, and imbalance of the spleen and liver.

Precautions: This recipe is contraindicated for people with hyperactivity of pathogenic Fire due to yin deficiency.

R-61 SI NI SAN
(BUPLEURUM AND PEONY LIVER-SOOTHING FORMULA)

Source: *Shang Han Lun* (Treatise on Febrile Disease) by Zhang, Zhong-jing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 15 g white peony, 6 g each bupleurum root, immature bitter orange, and processed licorice root.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Soothes the Liver-*Qi* and Spleen-*Qi,* and alleviates mental depression. This recipe effectively treats abdominal distension, distress, cold limbs, diarrhea, and abdominal pain due to stagnation of Liver-*Qi* and Spleen-*Qi*. This recipe also helps tranquilize the mind, relieve spasms and pain, allay fever, and relieve hepatic disorders.

Precautions: People with liver-blood deficiency and yang deficiency should avoid this recipe.

R-62 MU XIANG BING LANG WAN
(AUCKLANDIA AND ARECA SEED CARMINATIVE FORMULA)

Source: *Wei Sheng Bao Jian* [The Precious Mirror of Hygiene], author and date unknown.

Ingredients: This recipe contains 200 g pharbitis processed, 150 g each of rhubarb, cyperus, and phellodendron bark, 50 g each of aucklandia root, areca seeds, orange peel, cyperus tuber, bitter orange, blue citrus, zedoaria, and coptis root.

Directions:

This is a popular patented medicine, available commercially in pill form. Take six to eight pills three times a day before meals.

Actions, Indications, and Clinical Applications: Regulates *Qi,* relieves stagnation, and promotes elimination of metabolic wastes. This medicine relieves stagnancy of food and gas in the abdomen, a stuffy feeling in the chest, abdominal pain, chronic gastritis, poor appetite, dyspepsia, indigestion with flatulence, and difficulty in urination and defecation. This recipe is also effective against dysentery.

Precautions: This recipe is contraindicated for the elderly, yin deficient, and pregnant women.

R-63 XIAO QING LONG TANG
(EPHEDRA AND PINELLIA COUGH ASTHMA FORMULA)

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 9 g each of ephedra, white peony root, and processed pinellia, 6 g each of cinnamon twig and processed licorice root, 3 g each of asarum, dry ginger, and schisandra fruit.

Directions: The ingredients are decocted in water for oral administration. Take three to four times daily on an empty stomach. Available commercially in pill form.

Actions, Indications, and Clinical Applications: Expels exogenous Wind and induces diaphoresis, relieves superficial syndrome, and arrests coughs. This recipe is an antitussive and a diaphoretic remedy for dispelling colds, removing excessive phlegm from the lungs, and treating bronchitis and bronchial asthma.

Precautions: This recipe is contraindicated in people with a dry cough, and dry mouth and throat, accompanied with yellow thick sputum.

R-64 TIAN MA GOU TENG YIN
(GASTRODIA AND GAMBIR LIVER-CALMING FORMULA)

Source: *Za Bing Zheng Zhi Xin Yi* [New Standard for Diagnosis and Treatment of Miscellaneous Diseases], author and date unknown.

Ingredients: This recipe contains 18 g haliotis, 12 g each of gambir and cyathula root, and 9 g each of gastrodia, gardenia, scute root, leonurus, poria sliced, polygonum stem, eucommia bark, and loranthus.

Directions: The ingredients are decocted in water for oral administration. The haliotis should be cooked first, then add the other ingredients. Available commercially in pills.

Actions, Indications, and Clinical Applications: Subdues endogenous Wind, reduces hyperactivity of the liver, removes pathogenic Heat, promotes blood circulation, and nourishes the liver and kidneys. This recipe treats hypertension, headaches, vertigo, tinnitus, a red tongue and a taut pulse, a bitter taste in the mouth, irritability, difficulty in sleeping, dizziness, and hemiplegia due to hyperactivity of liver yang.

Precautions: Avoid anger and oily, greasy foods while taking this medication.

R-65 FANG FENG TONG SHENG SAN
(SILER AND PLATYCODON BALANCING FORMULA)

Sources: *Chinese Pharmacopeia,* 1995.

Ingredients: This recipe contains 100 g licorice root, 50 g each of scute root and platycodon root, 30 g gypsum, 25 g each of siler, *chuan xiong,* Chinese angelica, white peony, ephedra, forsythia fruit, white atractylodes, peppermint, cinnamon twig, orange peel, rhubarb, and *mang xiao* (sodium sulfates), and 12 g schizonepeta.

Directions: Grind the ingredients, except *mang xiao,* to a fine powder, mix with a *mang xiao* aqueous solution to make water pills, and take 6 to 9 g each time or boil the ingredients into a decoction for oral administration.

Actions, Indications, and Clinical Applications: Removes external pathogenic Wind and relieves exterior syndrome, removes internal Heat, and relieves constipation. This recipe effectively treats exogenous diseases of the common cold, flu, and dry throat, skin diseases of boils, eczema, itching, and urticaria, neurovascular headaches, trigeminal neuralgia, bronchial asthma, and helps with fluid and food elimination, thereby relieving constipation. This recipe improves fat metabolism, reduces fluid retention, and helps with weight reduction.

Precautions: People without Excessiveness syndrome or diarrhea should avoid this recipe. Avoid cold, oily, greasy foods while taking this medication.

R-66 FANG JI HUANG QI TANG *(STEPHANIA AND ASTRAGALUS METABOLISM FORMULA)*

Source: *Jin Gui Yao Lue* [Synopsis of Prescriptions of the Golden Chamber] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 15 g astragalus, 12 g stephania, 9 g white atractylodes, 6 g licorice root, 3 g fresh ginger root, and three pieces jujube.

Directions: The ingredients are decocted in water for oral administration, divided into three doses and taken before meals. Available commercially in pills.

Actions, Indications, and Clinical Applications: Strengthens the spleen and relieves fluid and Dampness, invigorates *Qi,* and improves water metabolism. This recipe induces diuresis, alleviates edema, and treats fluid retention, a heavy sensation of the limbs, oliguria, lingering edema, a pale tongue with white coating, and floating pulse. It is also combined with *Fang Feng Tong Sheng San* (R-65) to invigorate metabolism and for weight loss.

Precautions: This recipe is contraindicated for edema due to *Qi* deficiency and it is not for edema of the Excess type.

R-67 YIN CHEN HAO TANG
(CAPILLARIS AND GARDENIA JAUNDICE FORMULA)

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 30 g capillaris, 15 g gardenia, and 9 g rhubarb.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Relieves internal pathogenic Heat and eliminates Dampness in the liver. This recipe is mainly used to treat acute jaundice, disturbances in urination, and yellow discoloration of the eyes, tongue, and skin.

Precautions: This recipe is contraindicated in people with jaundice of the yin type.

R-68 WU LING SAN
(HOELEN AND ALISMA DIURETIC FORMULA)

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 15 g alisma, 9 g each of hoelen, polyporus, and white atractylodes, and 6 g cinnamon twig.

Directions: Grind the ingredients to a fine powder and take 3 to 6 g twice a day, or the ingredients are decocted for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Invigorates the Spleen-*Qi* and Kidney-*Qi,* helps promote diuresis, and removes Dampness. The recipe is often used to treat symptoms caused by fluid retention within the body, accompanied by symptoms of dizziness, edema, diarrhea, a feeling of throbbing in the abdomen, urination difficulties, headache, fever, thirst, and vomiting after drinking water.

Precautions: People with yin deficiency should avoid this recipe.

R-69 MAI MEN DONG TANG
(OPHIOPOGON AND PINELLIA TUBER LUNG FORMULA)

Source: *Jin Gui Yao Lue* (Synopsis of Prescriptions of the Golden Chamber) by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 60 g ophiopogon root, 9 g pinellia tuber, 6 g ginseng, 6 g glutinous rice, 4 g licorice root, and three pieces jujube.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Replenishes lung yin and stomach yin, and moistens and nourishes the lungs. The recipe treats consumptive lung disease, marked by coughing, whitish frothy sputum, shortness of breath, thirst, and dryness of the mouth, throat, pharynx, and tongue. This recipe also nourishes and moistens the respiratory system, relieves coughs, and eliminates sputum.

Precautions: This recipe is contraindicated in people with consumptive lung disease of Cold and Deficiency.

R-70 XI JIAO DI HUANG WAN
(RHINOCEROS HORN AND REHMANNIA DETOXIFICATION FORMULA)

Source: *Bei Ji Qian Jin Yao Fang* [Prescriptions for Emergencies Worth a Thousand Golden Dollars] by Sun, Simiao, A.D. 652.

Ingredients: This recipe contains 30 g dried rehmannia, 12 g peony, 9 g moutan bark, and 3 g rhinoceros horn (last ingredient in powder form, taken separately).

Directions: The ingredients are decocted in water for oral administration, with the exception of the rhinoceros horn, which should be ground into a fine powder and taken along with the decoction. Divide into three doses.

Actions, Indications, and Clinical Applications: Dissipates pathogenic Heat in the blood, and cools the blood, removes blood stasis, and detoxifies. This recipe arrests bleeding and treats hematemesis, epistaxis, hematuria, and hemafecia due to pathogenic Heat in the blood system.

Precautions: It is contraindicated in patients with bleeding caused by deficiency of *Qi* or with weakness of the spleen and stomach.

R-71 WU ZHU YU TANG
(EVODIA AND GINGER ANTIEMETIC FORMULA)

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 18 g fresh ginger, 6 g ginseng, 4 pieces of jujube, and 3 g evodia fruit.

Directions: The ingredients are decocted in water for oral administration and taken in three doses while warm on an empty stomach. Avoid cold foods or drinks during treatment. Available commercially in pills.

Actions, Indications, and Clinical Applications: Warms the Middle-*Jiao,* regulates *Qi,* and arrests vomiting. This recipe treats vomiting after meals, fullness and stuffiness in the chest, epigastralgia, gastric discomfort, and acid regurgitation. This recipe promotes blood circulation in the digestive tract and reduces the tension of the smooth muscles, helps decrease peristalsis, relieves spasm, prevents vomiting, improves digestion, and strengthens the functions of the entire body.

Precautions: This recipe is contraindicated in people with stomachache or vomiting of bitter fluid due to Heat stagnation and acid regurgitation.

R-72 HUANG LIAN JIE DU TANG
(COPTIS AND SCUTE DETOXIFICATION FORMULA)

Source: *Wai Tai Mi Yao* [Medical Secrets Compiled by Wang Tao] by Wang, Tao, A.D. 752.

Ingredients: This recipe contains 9 g each of coptis root and gardenia fruit, and 6 g each of scute root and phellodendron.

Directions: The ingredients are decocted in water for oral administration. Divide into three doses and drink on an empty stomach. Available commercially in powder form.

Actions, Indications, and Clinical Applications: Relieves pathogenic Heat and detoxifies. This recipe treats intense Heat in the San-*Jiao* which produces symptoms of fidgetiness, dry mouth and lips, constipation, delirium, insomnia, hematemesis, and jaundice, accompanied with deeply colored urine, a red tongue with yellow coating, and a rapid and forceful pulse.

This recipe effectively relieves inflammation, allays fever, tranquilizes the mind, arrests bleeding, protects the gallbladder, promotes diuresis, and reduces blood pressure. It is also antimicrobial.

Precautions: This recipe is contraindicated for people not suffering from Heat toxin in the San-*Jiao*.

R-73 DA CHENG QI TANG
(MAJOR RHUBARB CLEANSING FORMULA)

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 15 g magnolia bark, 12 g each of rhubarb and immature bitter orange, and 9 g mirabilitum (sodium sulfate).

Directions: The ingredients, with the exception of mirabite, are decocted in water, and the mirabite is then dissolved in the decoction. Divide into two or three doses. Available commercially in pills.

Actions, Indications, and Clinical Applications: Expels pathogenic interior Heat, relieves constipation, promotes circulation of *Qi,* and purges accumulation in the bowels. The recipe is mainly used for constipation, frequent gas, a feeling of fullness in the abdomen, abdominal pain with tenderness, tidal fever, delirium, sweating of the hands and feet, a tongue with yellow or black coating with fissures, and a deep and forceful pulse. It is also used for cold limbs, convulsions, mania, abdominal distension and pain, and dry mouth and tongue.

Precautions: This recipe is contraindicated for pregnant women.

R-74 LING GUI ZHU GAN TANG *(HOELEN AND ATRACTYLODES SPLEEN TONIC FORMULA)*

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 12 g hoelen, 9 g cinnamon twig, 6 g white atractylodes, and 6 g processed licorice root.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Invigorates the spleen yang, excretes Dampness, warms and resolves phlegm, and fights fluid retention. This recipe is mainly used to treat retention of phlegm and fluids, distention and a feeling of fullness in the chest and hypochondriac region, palpitations, dizziness, cough with thin and clear phlegm, a tongue with white moist coating, and a taut and slippery pulse.

Precautions: This recipe is contraindicated for people with yin deficiency and insufficient body fluid.

R-75 ZHEN WU TANG *(HOELEN AND GINGER DIURETIC FORMULA)*

Source: *Shang Han Lun* [Treatise on Febrile Diseases] by Zhang, Zhongjing, A.D. 219 (Han dynasty).

Ingredients: This recipe contains 9 g each of hoelen, white peony, fresh ginger, and processed aconite root (roasted and peeled), and 6 g atractylodes rhizome.

Directions: The ingredients are decocted in water for oral administration. Available commercially in pills.

Actions, Indications, and Clinical Applications: Invigorates spleen yang and kidney yang and induces diuresis. This recipe is commonly used for fluid retention, oliguria, a heavy sensation and pain in the limbs, edema, and diarrhea due to a deficiency of kidney yang and spleen yang.

Precautions: This recipe is contraindicated for people with edema not due to kidney-yang deficiency.

Chapter 22

Herbal Recipes for Fasting, Cleansing, and Detoxification

Hippocrates, Galen, Paracelsus, and many other ancient healers prescribed fasting and cleansing. In Europe, many scientific studies have been undertaken in the past thirty years to determine the precise health benefits, and the prophylactic and therapeutic effects of fasting, cleansing, and detoxification on the human body.

Fasting, a popular traditional medical practice, has long been regarded as one of the safest and most dependable natural curative methods. Together with cleansing, this complementary curative and detoxification technique exerts a normalizing and rejuvenating effect on all the vital physiological, nervous, and hormonal functions. The nervous system is rejuvenated, mental power is improved, glandular chemistry and hormonal secretions are stimulated, the biochemical balance of the tissues is normalized, and the entire body is rejuvenated.

Because of improper diets and unhealthy lifestyles (such as eating excessive sweets, chemically rich foods, polluted water and meat, the extravagant drinking of alcohol, smoking tobacco, and taking drugs), most people's digestive systems have become sluggish. Metabolic wastes and toxins are deposited in the tissues and can cause the body to slowly become intoxicated. Long-term sluggishness leads to a generally rundown condition. This is the main source of many health problems for a great number of men and women living in industrialized countries. One of the most notable problems is obesity and its related diseases. A sluggish and slothful body can make an individual feel tired all the time, and experience pain and emotional distress. Such an individual is prone to premature aging, degenerative changes, unexpected sickness, cancer, and even sudden death.

For these reasons, the practice of periodic fasting, cleansing, and detoxification is extremely beneficial. Although the old, classic form of fasting used pure water, all the leading authorities agree today that fruit juice or herbal-tea fasting is far superior to water fasting. Fasting on fresh juice plus herbal tea is much more effective than traditional water fasting and results in a much faster recovery from disease.

During fasting, a person can live his or her normal life, performing all usual activities. No medication or food should be taken, not even vitamin pills. During herbal-tea fasting, the cleansing capacity of the liver, lungs, kidneys, spleen, gastrointestinal tract, and even of the skin, is greatly increased. Masses of accumulated metabolic wastes and toxins are quickly expelled and the amount of toxins in the urine can be ten to twenty times higher than normal.

Who needs to practice herbal-tea fasting? Anyone whose health has been run down, who has been taking a great number of drugs, or who has been drinking alcohol, smoking, or using chemicals for a long period of time. Who should not practice herbal-tea fasting? Those who have serious heart or diabetic problems, pregnant women, and persons convalescing from an illness.

The three recipes listed in this section are selected for fasting, cleansing, and detoxification of the bowels (R-76), the kidneys (R-77), and the liver (R-78). *Note:* Cleansing, fasting, and detoxification is general health maintenance. It is safe and beneficial but discuss it with a qualified health care practitioner before beginning.

R-76 ZHI SHI DAO ZHI WAN
(ALISMA AND PORIA BOWEL-CLEANSING FORMULA)

Source: *Nei Wai Shang Bian Huo Lun* [Treatise of Differentiation of Internal and External Diseases], author and date unknown.

Ingredients: This recipe contains 30 g rhubarb, 15 g each of immature bitter orange and medicated leaven, 9 g each of scute root, coptis root, poria, and white atractylodes, and 6 g alisma.

Directions: The ingredients are decocted in water, which is diluted with pure water or juice for fasting and cleansing of the bowels. Available commercially in pills or as a powders.

Actions, Indications, and Clinical Applications: Promotes digestion, removes stagnated food, and eliminates Heat-Dampness in the spleen and stomach. It can be used periodically to correct chronic constipation and sluggishness of the digestive tract, and to promote healthy metabolism. This recipe is used for gastroenteritis, acute indigestion, and bacterial dysentery caused by consuming excessive or spoiled foods.

This recipe promotes normal peristalsis of the stomach and intestines, induces diuresis, relieves inflammation, helps the body resist bacterial infections, and effectively eliminates metabolic wastes and toxins from the bowels.

Precautions: Avoid cold, uncooked food while taking this medication.

R-77 YI SHEN TANG
(LONICERA FLOWER KIDNEY BENEFITING FORMULA)

Source: *Zhong Yao Fang Ji Yen Jiu Yu Yingyung Da Quan* [Encyclopedia of Chinese Medicine Formulas, Studies and Applications] by Bai, Gang and Xiao, Hongben, 1994.

Ingredients: This recipe contains 30 g each of lonicera flower, leonurus, isatis root, and imperata, 9 g each of Chinese angelica, red peony, cnidium, salvia root, peach kernel, carthamus, and viola.

Directions: The ingredients are decocted in water. The decoction can be diluted with pure water or juice and made into tea for fasting, cleansing, and detoxification of the kidneys.

Actions, Indications, and Clinical Applications: Induces diuresis, eliminates pathogenic Heat, improves blood circulation, and detoxifies. This recipe treats and prevents nephritis and chronic inflammation of the kidneys, and improves kidney function.

R-78 LONG DAN XIE GAN TANG
(GENTIANA LIVER-CLEANSING FORMULA)

Source: *Yi Fan Ji Jie* [Collection of Prescriptions with Notes] by Wang, Ang, A.D. 1682.

Ingredients: This recipe contains 12 g each of bupleurum root, licorice, alisma, and gentiana root, 9 g each of scute root, gardenia fruit, dried rehmannia, plantain seed, and akebia trifolium, and 3 g Chinese angelica.

Directions: The ingredients are decocted in water. Divide it into three doses and drink on an empty stomach. The decoction can be made into a tea by di-

lution with water or juice for fasting, cleansing, and detoxification of the liver and gallbladder.

Actions, Indications, and Clinical Applications: Reduces Heat and inflammation of the liver and gallbladder, and eliminates Heat and Dampness in the Lower-*Jiao*. This recipe treats redness of the eyes, conjunctival congestion, vertigo, headaches, acute hepatitis, acute cholecystitis, infections of the urinary tract, prostatitis, shingles pain, pain in the hypochondriac region, pain and swelling in the ears, hypertension, severe itching and swelling of the vulva with thick and yellow leukorrhagia, a red tongue with yellow coating, and a taut and rapid pulse.

Precautions: People with stomach and spleen deficiency, and pregnant women should avoid this recipe.

Chapter 23

Selections of Imperial Palace Recipes for Health and Longevity from the Qing Dynasty

Collections of Imperial Palace Medical Recipes of Ci Xi-Guang Xu contains a large number of formerly secret medical records and approximately 400 recipes that were prepared for the late Dragon Lady, the Empress Dowager Ci Xi, as well as for the late Emperor Guang Xu and other members of the palace, including ministers, directors, secretaries, consorts, eunuchs, concubines, and their servants. These hard-to-obtain herbal recipes and records are invaluable information for understanding how health care was provided within the imperial palace of the Qing dynasty.

Precautions: None of the recipes for longevity are indicated for those who have Cold and stomach or spleen deficiency.

R-79 YAN LING YI SHOU DAN *(CHINESE ANGELICA AND ASTRAGALUS LONGEVITY AND LIFE-BENEFITING FORMULA)*

Source: *Ji Sheng Fang* [Yan Prescriptions for Saving Lives] by Yan, Yonghe, A.D. 1253.

Ingredients: This recipe contains 15 g each of poria slices, hoelen, and Chinese angelica, 12 g each of white peony, codonopsis, atractylodes, orange peel, cyperus tuber, processed aucklandia root, and wild jujube seed, 9 g each of polygala root, astragalus, longon aril, and acorus, and 6 g licorice root.

Directions: Grind the ingredients to a fine powder, pour through a sieve, and mix well. Combine the powder with a suitable amount of honey and form the mixture into small honey pills. Each pill should weigh 0.2 to 0.3 g. Coat the pills with cinnabar and dry. Take 6 to 8 g daily. *Note:* Cinnabar, which is brilliant red in color, contains mercury sulfide which is prohibited

for use in the United States. Use uncoated pills or decoct the powder form in water.

Actions, Indications, and Clinical Applications: Replenishes *Qi,* invigorates the blood and the spleen, normalizes the heart, and preserves body-mind balance. This recipe is primarily for palpitations, amnesia, insomnia, night sweats, anorexia, general debility, lassitude of limbs, a sallow complexion, a pale tongue with a thin coating, and a thready pulse.

This recipe is also used for hemafecia, metrorrhagia, metrostaxis, excessive menstrual bleeding (continuous dripping), leukorrhagia, vegetative nerve disturbance, menopausal syndromes, cardiac neurosis, chronic gastroenteritis, nervous gastroenteritis, nervous gastritis, uterine functional bleeding, and loose stools, as well as for tranquilizing the mind and relieving restlessness.

This recipe effectively promotes digestion and absorption, strengthens metabolism, nourishes and regulates the cerebrum, promotes gastrointestinal peristalsis, and corrects loose stools and chronic diarrhea. It is good for the elderly, for improving general health, and for prolonging life.

Note: This recipe, prescribed by the palace physicians Dr. Li Techang, is based on the famous ancient recipes of *Gui Pi Wan* and *Ji Cheng Fang* of the Song dynasty and was constantly used by Empress Dowager Ci Xi for her aches, general body pain, and depression.

R-80 SHI QUAN DA BU WAN
(GINSENG AND CHINESE ANGELICA TEN TONIC COMBINATION)

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies] by Chen, Shiwen, A.D. 1151 (Song dynasty).

Ingredients: This recipe contains 30 g each of astragalus root, hoelen, poria, cinnamon bark, and processed rehmannia root, 15 g each of atractylodes, *dang gui,* cnidium, and white peony, 7.5 g each of ginseng and licorice root.

Directions: This is the same as *Yan Ling Yi Shou Dan* (R-79) except the recipe is made into large water pills, each weighing about 4 to 6 g. Take one or two pills two or three times daily on an empty stomach. Available commercially in pills.

Actions, Indications, and Clinical Applications: Nourishes both *Qi* and blood, replenishes the spleen, stimulates the kidneys, and invigorates the original Vital Energy *(Yuan Qi)*. This recipe is primarily for shortness of breath, general debility, vertigo, palpitations, sallow complexion, weak limbs, mental fatigue, lassitude due to deficiency of blood, different menstrual disorders (such as advanced or retarded menstruation), abnormal menstruation, menorrhagia, scanty menstruation, dysmenorrhea, profuse menstruation, uterine bleeding, frequent spontaneous sweating, frequent colds, lassitude, weakened immunity, suppurative infections on the body surface, and carbuncles and ulcers that do not heal.

Note: This recipe was derived from the traditional formulas of *Si Wu Tang, Si Jun Zi Tang,* and *Huang Qi Jian Zhong Tang*. This recipe, prescribed by palace physicians Dr. Yang Teqing, was used by Empress Dowager Ci Xi for her debilitating physical conditions.

Precautions: This recipe is not for people with *Shi* (excess) and internal Heat symptoms.

R-81 JIAO GAN WAN *(CYPERUS TUBER AND HOELEN ANTIDEPRESSION COMBINATION)*

Source: *Zheng Zhi Zhun Sheng* [Standards of Diagnosis and Treatments] by Wang, Kentang, A.D. 1602.

Ingredients: This recipe contains 120 g hoelen, 30 g cyperus tuber, and 15 g amber *(succinum).*

Directions: Grind the herbs into a fine powder. Mix with honey and form into large honey boluses. Each bolus should weigh 9 g. Take one pill with water, twice a day.

Actions, Indications, and Clinical Applications: Tranquilizes the mind and relieves the stagnancy of Liver-*Qi*. This recipe is also used to treat depression and sadness, insomnia, amnesia, anorexia, a full feeling in the chest, and anxiety.

Note: This recipe was prescribed by palace physician Dr. Li Techang for Empress Dowager Ci Xi as an antidepressant.

R-82 YI QI LI PI ZHI ZHU WAN *(CODONOPSIS AND ORANGE PEEL QI-NOURISHING SPLEEN TONIC FORMULA)*

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies] by Chen, Shiwen, A.D. 1151 (Song dynasty).

Ingredients: This recipe contains 45 g amomum fruit, 30 g malt, 18 g each of hawthorn and hoelen, 15 g each of coix seed, curcuma, white hyacinth bean *(bai bian dou),* raphanus, and dendrobium, 12 g codonopsis root, 9 g each of white atractylodes, orange peel, areca seed, peony, and bitter orange, and 4.5 g licorice root.

Directions: Grind the herbs into a fine powder and mix with honey to make small honey boluses, the size of a mung bean. Take nine boluses each time with water, three times a day, on an empty stomach.

Actions, Indications, and Clinical Applications: Nourishes *Qi,* strengthens the spleen, regulates the stomach, and eliminates Dampness and phlegm. This recipe is an excellent stomachic. It improves Spleen- and Lung-*Qi* deficiency, stagnation of Dampness, general debility, dyspepsia, chronic diarrhea, epigastric distension, a feeling of fullness, lack of appetite, and sallow complexion.

Note: This recipe, based on the traditional prescription *Shen Ling Bai Zhu San,* was used as a stomach tonic remedy for invigorating the spleen and stomach. The recipe was prescribed by palace physician Dr. Zhang Zhongyuan for Empress Dowager Ci Xi.

R-83 JIA WEI LONG DAN XIE GAN WAN *(COMPOUND GENTIANA LIVER-HEAT PURGING FORMULA)*

Source: *Yi Fang Ji Jie* [Collections of Prescriptions with Notes] by Wang, Ang, A.D. 1682.

Ingredients: This recipe contains 12 g cyperus tuber; 9 g each of gentiana root, Chinese angelica, dried rehmannia, bupleurum root (prepared with vinegar), platycodon, gardenia, morus branch, and curcuma, 6 g plantain seed, 4.5 g each of akebia trifolium and alisma, and 3 g licorice root.

Directions: Grind the ingredients to very fine powder, put through a sieve, mix well with a suitable amount of honey, and form honey boluses weighing 5 to 6 g each. Take one bolus three times a day.

Actions, Indications, and Clinical Applications: Clears away pathogenic Heat in the liver and gallbladder, and eliminates Dampness and Heat from the liver. This recipe treats symptoms of dark urine, difficult and painful urination, itching in the perineum (groin area), and yellow and thick leukorrhea due to excess Heat and Dampness in the liver.

Note: This recipe was developed based on the original *Long Dan Xie Gan Wan* for purging excessive Fire from the liver and gallbladder, and eliminating Damp-Heat from the Lower-*Jiao.* It was prescribed by palace physician Dr. Yang Jihe for Empress Dowager Ci Xi.

R-84 HEAD WASHING FORMULA FOR HEADACHE NO. 1 (GASTRODIA AND SILER HEADACHE FORMULA)

Source: *Collections of Ci Xi-Guang Xu Imperial Palace Medical Prescriptions,* Second Edition, by Chen, Keji, 1982.

Ingredients: This recipe contains 4.5 g each of gastrodia, siler, and angelica root, 3 g each of mulberry leaves, notopterygium root, and lonicera flower, 2.4 g mentha, and 1.2 g Sichuan pepper.

Directions: Cook the ingredients in water and make into a decoction. Wash the entire top of the head with the decoction three or four times a day.

Actions, Indications, and Clinical Applications: Head washing is an alterative external therapy for headaches. This recipe is effective for treating headaches of Wind-Cold-type exterior syndromes.

Note: This recipe was used to treat headaches due to liver deficiency and exterior pathogenic Wind. This is one of eleven recorded recipes prescribed for the young emperor, Guang Xu, who suffered from headaches, dizziness, and a stuffy nose most of the time.

R-85 TIAO JING WAN
(CHINESE ANGELICA AND CYPERUS TUBER MENSTRUAL REGULATION FORMULA)

Source: *Collections of Ci Xi-Guang Xu Imperial Palace Medical Prescriptions,* Second Edition by Chen, Keji, 1982.

Ingredients: This recipe contains 36 g each of cyperus tuber, atractylodes, hoelen, and *ho shou wu,* 30 g each of moutan and Chinese angelica, 10 g each of phellodendron and cnidium.

Directions: Grind the herbs into a very fine powder, pour through a sieve, mix well with a suitable amount of water and binding substances, and form into very small water pills the size of a mung bean. Take 6 g with water three times daily before meals.

Actions, Indications, and Clinical Applications: Dissipates stagnation of *Qi* and blood, nourishes the blood, and relieves cramps and pain. This recipe is primarily used to treat menstrual disorders and pain.

Note: This recipe was specifically prescribed for Empress Dowager Ci Xi. During her early years in the palace, she suffered from irregular menstruation and pain with leukorrhea. This recipe was used to normalize her menstrual disorders.

R-86 YANG XIN JIAN PI WAN
(JUJUBE AND AMOMUM FRUIT MIND-NOURISHING AND SPLEEN-STRENGTHENING FORMULA)

Source: *Collections of Ci Xi-Guang Xu Imperial Palace Medical Prescriptions,* Second Edition, by Chen, Keji, 1982.

Ingredients: This recipe contains 15 g each of coix seed and poria slices, 12 g each of jujube seed, processed Chinese yams, lotus seed, Chinese angelica, and stir-fried eucommia, 9 g each of codonopsis, atractylodes, tribulus, and white peony, 6 g each of orange peel and germinated rice, 4.5 g each of processed amomum fruit and processed licorice root, and 3 g polygala root.

Directions: Grind the ingredients into a very fine powder, pour through a sieve, and mix well. Combine with a suitable amount of aqueous juice of the

Chinese date and *shen-qu (Massa Medica Fermentata)* paste, shape into small water pills the size of mung beans, and dry. Take 9 g with water three times daily.

Actions, Indications, and Clinical Applications: Nourishes the heart and invigorates the spleen. This recipe treats heart meridian ailments caused by weakness of the heart and spleen, as manifested by palpitations, amnesia, insomnia, night sweating, anorexia, general debility, and a sallow complexion. It is also useful for metrorrhagia, metrostaxis, advanced menstruation, excessive bleeding with light color, uterine bleeding and dripping, morbid leukorrhea. With minor modifications it can be used to treat menopausal syndrome, disturbance of vegetative nerves, chronic gastroenteritis, nervous gastritis, urine functional bleeding, and uterine functional bleeding.

Note: This recipe was derived from a combination of *Gui Pi Tang* and *Shen Ling Bai Zhu Tang,* and prescribed for the Emperor Guang Xu to treat his lifelong weakness, distress, poor digestion, and poor health, and to tranquilize his mind, particularly in his later years.

R-87 YANG XIN YAN LING YI SHOU DAN *(BIOTA MIND-NOURISHING, LIFE-BENEFITING, AND LONGEVITY FORMULA)*

Source: *Collections of Ci Xi-Guang Xu Imperial Palace Medical Prescriptions,* Second Edition, by Chen, Keji, 1982.

Ingredients: This recipe contains 15 g each of poria slices and *dang gui,* 12 g each of dried rehmannia, biota seed, salvia root, cyperus tuber, white peony, moutan, bitter orange, and zizyphus (wild jujube), 9 g each of bupleurum, gardenia, scute root, and orange peel, and 6 g white atractylodes.

Directions: Grind the herbs into a very fine powder, pour through a sieve, mix well, combine with a suitable amount of honey, and form into small pills resembling mung beans. Take 9 g with water three times a day.

Actions, Indications, and Clinical Applications: Nourishes the heart and the kidneys, tranquilizes the mind, and regulates the spleen and the liver. This recipe is used mainly to relax, tranquilize the mind, and promote general health.

Note: This recipe nourishes the heart, tranquilizes the mind, and prolongs life. Both Emperor Gang Xu and his mother, Empress Dowager Ci Xi, used it to maintain health and for longevity.

R-88 HUO XUE SHU JING ZHI TONG FANG *(CARTHAMUS AND MASTIC PAIN FORMULA)*

Source: *Collections of Ci Xi-Guang Xu Imperial Palace Medical Prescriptions,* Second Edition, by Chen, Keji, 1982.

Ingredients: This recipe contains 9 g each of Chinese angelica and prunella spike, 6 g each of red peony and moutan, 3 g each of myrrh, aucklandia root, mastic, and safflower (carthamus).

Directions: Make into a decoction with water, simmer until it is concentrated into a thick paste, and apply externally while it is hot to affected joints or painful areas.

Actions, Indications, and Clinical Applications: Nourishes the blood, eliminates blood stasis, and relieves pain. This recipe activates and improves blood circulation, nourishes the blood, and eliminates stagnation of blood and pain.

Note: This recipe, prescribed for Emperor Gang Xu, was used externally as a blood-activating, muscle-tendon-relaxing, and pain-relieving remedy.

Chapter 24

Herbal Recipes for Prevention and Self-Care

R-89 TIAO SHEN TANG
(ZIZYPHUS AND POLYGALA STRESS-REDUCTION FORMULA)

Source: *Collections of Chinese TCM Secret Formulas,* Volume 1 by Hu, Ximing, 1989 (Recipe by Song Zhiwen).

Ingredients: This recipe contains 10 g each of white atractylodes, poria, zizyphus (wild jujube seed), astragalus root, longan aril, and American ginseng, 5 g each of polygala, licorice root, aucklandia root, and Chinese angelica.

Directions: The ingredients are decocted in water and divided into three doses. This formula can be used continuously for twenty to thirty days or until the symptoms are under control.

Actions, Indications, and Clinical Applications: Nourishes and regulates the heart and spleen. This recipe soothes the nerves, tranquilizes the mind, subdues pathogenic Heat, and relieves restlessness, anxiety, and depression.

R-90 GENG NIAN LOU TANG
(CORNUS FRUIT AND REHMANNIA MENOPAUSE RELIEF FORMULA)

Source: *Practical Clinical Application of Chinese Herbal Patent Medicines* by Fang, Dingya and Shen Guonan, 1994.

Ingredients: This recipe contains 12 g each of Chinese yam, polygonum, dry rehmannia root, curculigo, processed rehmannia root, hoelen, ligustrum fruit, and cornus fruit, 9 g alisma, and 6 g moutan bark.

Directions: The ingredients are decocted in water and divided into three doses. It may be used continuously for several weeks or until the syndrome is under control.

Actions, Indications, and Clinical Applications: Nourishes the liver and kidneys, soothes the heart, and tranquilizes the mind. This recipe effectively treats and prevents female menopausal syndromes, as manifested by tinnitus, vertigo, weakness and soreness or pain in the waist and knees, night sweating, insomnia, cold and hot flashes, a feverish sensation in the palms of the hands and soles of the feet, cold limbs, mental depression, heart palpitations, headaches, vaginal dryness, loss of sexual drive, lack of desire for water even with dry mouth and throat, a red tongue with thin coating, and a thready and rapid pulse. This recipe is equally beneficial for the male menopausal syndrome (andropause). It can be used for prevention of these conditions or as an alternative treatment for conventional menopausal hormone therapy.

Precautions: This recipe is not indicated for those who are spleen- and kidney-yang deficient.

R-91 PIAN TAO TONG TANG
(GASTRODIA AND CNIDIUM MIGRAINE FORMULA)

Source: *Collections of Chinese TCM Secret Formulas,* Volume 1 by Hu, Ximing, 1989 (Recipe by Xu Qigang of Gansu Province Hospital).

Ingredients: This recipe contains 15 g each of cnidium, red peony, and angelica root, 12 g notopterygium root, 10 g each of corydalis and chrysanthemum, 6 g each of notoginseng and uncaria, and 3 g gastrodia tuber.

Directions: The ingredients are decocted in water for oral administration. The decoction is taken three times a day for three to five days. Repeat until the migraine headache is under control.

Actions, Indications, and Clinical Applications: Eliminates pathogenic Wind, promotes circulation, eliminates stagnation of Liver-*Qi,* and relieves migraines. This recipe effectively treats and prevents migraines, as well as neurovascular headaches.

R-92 JIANG TANG WAN
(ASTRAGALUS AND TRICHOSANTHES ROOT DIABETES FORMULA)

Source: *Collections of Chinese TCM Secret Formulas,* Volume 2 by Hu, Ximing, 1989 (Recipe by Zhang Hongen of Beijing TCM Guang An Men Hospital).

Ingredients: This recipe contains 9 g each of astragalus root, polygonatum root, pseudostellaria root, and dried rehmannia, and 6 g trichosanthes root.

Directions: Grind the ingredients into a fine powder and mix with water to make water pills, or cook the herbs in water for a decoction. The decoction can be prepared daily and taken for two to three months or until the condition is under control.

Actions, Indications, and Clinical Applications: Replenishes *Qi,* nourishes the yin, promotes the production of body fluid, relieves thirst, clears away Heat, and arrests irritability. This recipe is effective for *Xiao Ke* (diabetes) syndrome and is also useful for reducing blood lipids.

Precautions: Avoid oily and greasy foods, and sugar contained in starchy foods while taking this medication.

R-93 BAI DU SAN TANG
(BUPLEURUM AND GINGER COLD FORMULA)

Source: *Xiao Er Yao Zheng Zhi Je* [Key to the Therapeutics of Children's Diseases] by Qian Yi and reedited by Yan, Jizhong, A.D. 1119.

Ingredients: This recipe contains 30 g each American ginseng, bupleurum root, cnidium rhizome, hoelen, and platycodon root, 15 g licorice root, and 5 g each mentha and fresh ginger.

Directions: These ingredients can be used in a decoction or tea, or they can be ground into a powder to make tablets or capsules. Take 6 g of the powder two or three times a day for five to seven days.

Actions, Indications, and Clinical Applications: Replenishes *Qi* and dispels pathogenic Wind, Cold, and Dampness. This recipe is for treating or preventing colds, flu, and exterior syndromes.

Precautions: This recipe is not suitable for people whose ailment is due to exopathogenic Damp-Heat.

R-94 PAI SHI TANG
(ALISMA AND LYSIMACHIA URINARY TRACT STONE RELIEF FORMULA)

Source: This recipe is supplied by Beijing Guang An Men TCM Hospital.

Ingredients: This recipe contains 30 g glechoma (lysimachia), 15 g coix seed, and 9 g each prunella spike, alisma, talc, atractylodes, angelica root, and lycopodium spores (cook lycopodium spores separately and wrap in cheesecloth).

Directions: This recipe can be made into a decoction or tea to be taken with a large amount of water daily and mild exercise to treat urinary tract stones.

Actions, Indications, and Clinical Applications: Induces diuresis, and softens and resolves stones in the urinary tract. Urinary tract stones disorders are marked by paroxysmal lumbago or pain in one side of the abdomen often radiating to the groin area and accompanied by fever, hematuria, dysuria, and strangury.

Precautions: This recipe is contraindicated for pregnant women.

R-95 LI DAN PAI SHI PIAN
(LYSIMACHIA AND RHUBARB GALLSTONE RELIEF FORMULA)

Source: *Zhong Yao Fang Ji Yen Jiu Yu Yingyung Da Quan* [Encyclopedia of Chinese Medicine Formulas, Studies and Applications] by Bai, Gang and Xiao, Hongben, 1994.

Ingredients: This recipe contains 250 g each lysimachia and capillaris (oriental wormwood), 125 g each rhubarb and areca seed, 75 g each curcuma

tuber, aucklandia root, and scute, and 50 g each blue citrus and magnolia bark, with 6 g Epsom salts taken separately.

Directions: These ingredients can be made into a powder and formed into tablets, pills, or capsules. Take six to ten pills, twice a day, to treat or prevent gallstones. Six grams of Epsom salts can be taken after this remedy for a synergistic effect.

Actions, Indications, and Clinical Applications: Soothes the liver, regulates the circulation of *Qi,* invigorates the functions of the gallbladder, and expels gallstones. This recipe increases the secretion of bile, regulates the functions of the gallbladder and liver cells, treats cholecystitis and gallbladder infections, and expels gallstones.

Precautions: Avoid spicy, greasy foods while taking this medication. This recipe is contraindicated for pregnant women and those who have liver function disorders.

R-96 LONG BI XIAO TANG *(CODONOPSIS AND VACCARIA SEED PROSTATE FORMULA)*

Source: *Collections of Chinese TCM Secret Formulas,* Volume 2 by Hu, Ximing, 1989 (Recipe by Zhou Zhiiheng).

Ingredients: This recipe contains 30 g astragalus root, 24 g codonopsis, 18 g lotus seeds, 15 g plantain seed, 12 g each of vaccaria seed, tokoro, and hoelen, 9 g each of licorice root and ginkgo biloba seed, 6 g cinnamon bark, and 5 g evodia.

Directions: This recipe can be used in a decoction or tea for thirty to sixty days or used continuously until the condition is corrected.

Actions, Indications, and Clinical Applications: Reduces Heat in the Lower-*Jiao,* invigorates circulation of *Qi,* blood, and kidney yang, and relieves symptoms of prostate gland enlargement. This recipe prevents and treats prostate gland disorders and associated urinary tract disorders.

R-97 JIA KANG FANG
(ASTRAGALUS AND PRUNELLA HYPERTHYROIDISM FORMULA)

Source: *Collections of Chinese TCM Secret Formulas,* Volume 1, by Hu, Ximing, 1989 (Recipe by Xia Shaonong of Shanghai TCM University).

Ingredients: This recipe contains 35 g astragalus root, 30 g prunella spike, 20 g *he shou wu,* 15 g dry rehmannia, 12 g cyperus tuber, and 12 g white peony.

Directions: This recipe can be taken as a pill, decoction, or tea to treat symptoms of hyperthyroidism. Available commercially in pills.

Actions, Indications, and Clinical Applications: Replenishes the vital energy and nourishes the yin. This recipe is used to treat and prevent hyperthyroidism with symptoms of insatiable hunger, emaciation, oversensitivity to heat, profuse perspiration, palpitations, irritability, and increased basal metabolic rate (BMR) due to kidney-yin deficiency.

R-98 SU ZI JIANG QI TANG
(PERILLA SEED AND PINELLIA ASTHMA FORMULA)

Source: *Tai Ping Hui Min He Ji Ju Fang* [Formularies of the Bureau of People's Welfare Pharmacies] by Chen, Shiwen, A.D. 1151 (Song dynasty).

Ingredients: This recipe contains 9 g each of perilla seed and pinellia tuber, 6 g each of magnolia bark, peucedanum, licorice, and Chinese angelica, 3 g each of fresh ginger and cinnamon bark, 2 g perilla leaf, and three Chinese dates.

Directions: The ingredients are decocted for oral administration. Available commercially in pills or capsules.

Actions, Indications, and Clinical Applications: Reduces the abnormally ascending *Qi,* relieves asthma, expels phlegm, and stops a cough. This recipe is used to treat coughs with dyspnea, shortness of breath, and asthma. It also treats feelings of fullness in the chest and hypochondriac region caused by excess phlegm, chest pain, limb fatigue, lumbago, weakness or swelling of the feet, and a white and smooth tongue with a white, greasy coating.

Precautions: People with lung and kidney deficiency should avoid this recipe.

R-99 LAO NIAN CHI DAI ZHENG TANG *(SALVIA AND RED PEONY MEMORY FORMULA)*

Source: *Zhong Yi Kang Shuai Lao Mi Yao* [Secret Essentials of Chinese Medicine for Antiaging] by Yan, Dexin, 1993.

Ingredients: This recipe contains 15 g each salvia and astragalus, 9 g each cnidium, carthamus (safflower), curcuma root (turmeric), pinellia tuber, and peach kernel, 6 g each orange peel, blue citrus, bupleurum, and cyperus tuber, and 3 g leech (powder form).

Directions: These ingredients are consumed as a decoction or tea for two to three months. It is suggested that this recipe be taken along with ginkgo biloba leaves extract (in capsules or tablets).

Actions, Indications, and Clinical Applications: Invigorates circulation of *Qi* and blood, and relieves blood stasis. TCM considers memory loss and Alzheimer's disease to be caused possibly by decreased activity due to stagnation of *Qi* and blood, and brain-cell intoxication or damage from various drugs, chemicals, and other toxic agents, which the body is unable to detoxify or eliminate due to poor circulation in old age. This recipe effectively treats and prevents memory loss, loss of concentration, and related symptoms.

Precautions: This recipe is contraindicated for pregnant women.

R-100 JIANG ZHI FANG *(NOTOGINSENG AND ALISMA CHOLESTEROL-LOWERING FORMULA)*

Source: *Collections of Chinese TCM Secret Formulas,* Volume 1 by Hu, Ximing, 1989 (Recipe by Huang Zhendong of Guang Dong Cardiovascular Institute).

Ingredients: This recipe contains 15 g each cassia seed and hawthorn, 10 g each *ho shou wu* and polygonatum root, 9 g each salvia, alisma, and Chinese angelica, 6 g cnidium, 5 g American ginseng, and 1.5 g notoginseng.

Directions: The ingredients are decocted in water. Take three to four times a day for two to three months or until the desired normal cholesterol and triglyceride levels are reached. Available commercially in tablets.

Actions, Indications, and Clinical Applications: Invigorates circulation of *Qi,* nourishes the kidneys and the liver, and activates the spleen functions. This recipe is used to reduce blood cholesterol levels, lower triglyceride levels, treat hyperlipemia, and prevent arteriosclerosis.

Precautions: This recipe is contraindicated for pregnant women.

R-101 QING SHEN JIAN FEI FANG
(ALISMA AND PLANTAIN SEED WEIGHT LOSS FORMULA)

Source: *Collections of Chinese TCM Secret Formulas,* Volume 1 by Hu, Ximing, 1989 (Recipe by Chen Reying of Tian Jin City Hospital).

Ingredients: This recipe contains 10 g each of white atractylodes, polyporus, alisma, stephania, hoelen, Chinese green tea, and plantain seed.

Directions: The ingredients are decocted in water for oral administration. Add 6 g each of rhubarb, immature bitter orange, white atractylodes, and licorice root to this recipe for obesity caused by food stagnation. The decoction can be taken for some time to normalize metabolism and reduce weight.

Actions, Indications, and Clinical Applications: Invigorates functions of the spleen, relieves internal Dampness and pathogenic phlegm, induces urination, and relieves fluid retention. This recipe is helpful in the treatment and prevention of weight gain, obesity, and stagnation of food and fluid.

Precautions: Avoid oily, greasy foods while taking this medication.

Appendix A

Useful Addresses

NATIONAL ORIENTAL MEDICINE ASSOCIATIONS

American Association of Oriental Medicine
433 Front Street
Catasauqua, PA 18032
(610) 266-1433
Fax: (610) 264-2768
E-mail: AAOM@aol.com

California Association of Acupuncture and Oriental Medicine
1231 State Street, Suite 208A
Santa Barbara, CA 93101
(805) 957-4384
Fax: (805) 957-4389
E-mail: caaom@sb.net

Florida State Oriental Medical Association
Box 690361
Vero Beach, FL 32969-0361
(800) 578-4865
Fax: (772) 569-4541
<www.fsoma.com>

National Acupuncture and Oriental Medicine Alliance
6405 43rd Avenue Court, Suite B
Gig Harbor, WA 98335
(253) 851-6896
Fax: (253) 851-6883

Each state has an oriental medicine or acupuncture association. The registered names of practitioners can be obtained from the associations.

HERB ORGANIZATIONS

American Botanical Council
Box 14435
Austin, TX 78714-4345
(512) 926-4900
Fax: (512) 926-2345
<www.herbalgram.org>

American Herb Association
Box 1673
Nevada City, CA 96510
(530) 265-9552
<www.ahaherb.com>

The American Herbalists Guild
1931 Gaddis Road
Canton, GA 30115
(770) 751-6021
Fax: (770) 751-7472
E-mail: ahgoffice@earthlink.net
<www.americanherbalistsguild.com>

Herb Research Foundation
1007 Pearl Street, Suite 200
Boulder, CO 80302
(800) 748-2617
<www.herbs.org>

DIRECTORY OF TCM/ACUPUNCTURE SCHOOLS

There are about forty schools of oriental medicine, or schools of TCM, or acupuncture, located in the United States. Schools that are accredited, or have The Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM) accreditation are indicated with a star, others are in the process of accreditation.

Academy of Chinese Culture and Health Sciences
1601 Clay Street
Oakland, CA 94612
(510) 763-7787

Fax: (510) 834-6846
E-mail: acchs@best.com

***Academy for Five Element Acupuncture, Inc.**
1170-A Hallandale Beach Boulevard
Hallandale, FL 33009
(954) 456-6336
Fax: (954) 456-3944
E-mail: AFEA@compuserve.com
<www.acupuncturist.com>

***Academy of Oriental Medicine at Austin**
2700 West Anderson Lane, Suite 204
Austin, TX 78757
(800) 824-9987
Fax: (512) 454-7001
E-mail: info@aoma.edu
<www.aoma.edu>

***American Academy of Acupuncture and Oriental Medicine**
1925 West County Road, Suite B2
Roseville, MN 55113
(651) 631-0204
Fax: (651) 631-0361

American College of Acupuncture and Oriental Medicine
9100 Park West Drive
Houston, TX 77063
(713) 780-9777
Fax: (713) 781-5781
E-mail: acaom@compuserve.com

***American College of TCM**
455 Arkansas Street
San Francisco, CA 94107
(415) 282-7600
Fax: (415) 282-0856
E-mail: admission@actcm.edu
<www.actcm.edu>

Asian Institute of Medical Studies
3131 N. Country Club Rd., Ste 100
Tuscon, AZ 85716
(520) 322-6330
Fax: (520) 322-5661
E-mail: info@asianinstitute.edu
<www.asianinstitute.edu>

***Atlantic Institute of Oriental Medicine**
100 E. Froward Boulevard, Suite 100
Ft. Lauderdale, FL 33301
(954) 463-3888
Fax: (954) 463-3878
E-mail: atom@atom.edu
<www.atom.edu>

***Bastyr University**
14500 Juanita Drive, NE
Kenmore, WA 98028-4966
(425) 602-3330
Fax: (425) 602-3090
E-mail: admiss@bastyr.edu
<www.bastyr.edu>

Colorado School of Traditional Chinese Medicine
1441 York Street, Suite 202
Denver, CO 80206
(303) 329-6355
Fax: (303) 388-8165
<www.traditionalhealing.net/cstcm>

Dallas College of Oriental Medicine
2650 Electronic Lane
Dallas, TX 75220
(214) 366-2272
Fax: (214) 366-2238
E-mail: DIAOM@flash.net

***Dongguk Royal University**
440 Shatto Place
Los Angeles, CA 91505

(213) 487-0110
Fax: (213) 487-0527

***East West College of Natural Medicine**
513 S. Orange Avenue
Sarasota, FL 34236
(941) 955-4456
Fax: (941) 350-1951
E-mail: ewc.registrar@verizon.net
<www.acha.net>

Eastern School of Acupuncture and Traditional Medicine
215 Glenridge Avenue
Montclair, NJ 07042
(973) 746-8717
E-mail: easternschoolacup@earthlink.net

Five Branches Institute College of TCM
200 Seventh Avenue, Suite 115
Santa Cruz, CA 95062
(831) 476-9424
Fax: (831) 476-89218

Florida College of Integrative Medicine
7100 Lake Ellenor Drive
Orlando, FL 32809
(407) 888-8689
Fax: (407) 888-8211
E-mail: info@acupunctureschool.com

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Fax: 31-(020) 623-3636

Hong Kong

Wing Chun Chinese Medicine Co.
Third Floor, Flat B,
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Wing Sing Hing Boulevard
Hong Kong, 1
5-406065 and 5-473829

China

Beijing Tong Ren Tang
130 Xi Zhiman Nei Street
Beijing, China 100035
86-10-6601-2860

Appendix B

Table of Commonly Used Chinese Medicinal Herbs: Cross-Reference of Names

Common Name	**Pharmaceutical Name**	***Pin-Yin***	**Chinese**
Abutilon seed	*Malva verticillata,* Sm	*Dong Kue Zi*	冬葵子
Acanthopanax bark	*Acanthopanax gracilistylus,* Cx	*Wu Jia Pi*	五加皮
Achyranthes root	*Achyranthes bidentata,* Rx	*Huai Niu Xi*	怀牛膝
Aconite, processed	*Aconitum carmichaeli praeparata,* Rx	*Fu Zi*	附子
Acorus	*Acorus tatarinowii,* Rh	*Shi Chang Pu (Chang Pu)*	石菖蒲
Acronychia (dalbergia wood)	*Dalbergia odorifera,* Lg	*Jiang Xiang*	降香
Agastache (pogostemonis)	*Agastache rugosus,* Hb	*Huo Xiang*	藿香
Agrimony	*Agrimonia pilosa,* Hb	*Xian He Cao*	仙鹤草
Akebia quinata fruit	*Akebia quinata,* Fr	*Ba Yue Zha*	八月扎
Akebia caulis	*Akebia trifoliata,* Ca	*San Ye Mu Tong*	三叶木通
Albizzia flower	*Albizzia julibrissin,* Fl	*He Huan Hua*	合欢花
Albizzia bark	*Albizzia julibrissin,* Cx	*He Huan Pi*	合欢皮
Alisma (water plantain)	*Alisma orientalis,* Rh	*Ze Xie*	泽泻
Allium	*Allium fistulosum,* Bb	*Cong Bai*	葱白
Aloe	*Aloe vera,* Hb Rs	*Lu Hui*	芦荟
Alpinia fruit	*Alpinia oxyphylla,* Fr	*Yi Zhi Ren*	益智仁
Amber	*Pinus succinifera,* Rs	*Hu Po*	琥珀
American ginseng	*Panax quinquefolius,* Rx	*Xi Yang Shen (Hua Qi Shen)*	西洋参

Common Name	Pharmaceutical Name	*Pin-Yin*	Chinese
Amomum (cardamon) fruit	*Amomum villosum,* Fr	*Sha Ren*	砂仁
Anemarrhena	*Anemarrhena asphodeloides,* Rh	*Zhi Mu*	知母
Dahurian angelica or angelica root	*Angelica dahurica,* Rx	*Bai Zhi*	白芷
Apocynum (dogbane leaf)	*Apocynum venetum,* Hb	*Luo Bu Ma*	罗布麻
Apricot kernel, bitter	*Prunus armeniaca,* Sm	*Ku Xing Ren*	苦杏仁
Aquilaria	*Aquilaria agallocha,* Lg	*Chen Xiang*	沉香
Arctium (burdock) fruit	*Arctium lappa,* Fr	*Niu Bang Zi*	牛蒡子
Areca seed	*Areca catechu,* Sm	*Bing Lang Zi (Bing Lang)*	槟榔子
Areca peel	*Areca catechu*, Pc	*Da Fu Pi*	大腹皮
Arisaema	*Arisaema consanguineum,* Rh	*Tian Nan Xing*	天南星
Aristolochia (birthwort fruit)	*Aristolochia contorta,* Fr	*Ma Dou Ling*	马兜铃
Artemisia leaf	*Artemisia argyi,* Fm	*Ai Ye*	艾叶
Asarum herb	*Asarum sieboldii,* Hb	*Xi Xin*	细辛
Asparagus	*Asparagus cochinchinensis,* Rx	*Tian Men Dong*	天门冬
Astragalus root	*Astragalus membranaceus,* Rx	*Huang Qi*	黄芪
Atractylodes	*Atractylodes lancea,* Rh	*Cang Zhu*	苍术
Atractylodes, white	*Atractylodes macrocephalae,* Rh	*Bai Zhu*	白术
Aucklandia root (saussurea)	*Aucklandia saussurea lappa,* Rx	*Mu Xiang*	木香
Bakeri (macrostem onion)	*Allium chinense,* Bb	*Xie Bai*	薤白
Bamboo silicae	*Bambusa textilis,* Rs	*Tian Zhu Huang*	天竺黄
Baphicacanthis (Isatis leaf)	*Baphicacanthus cusia,* Fm *(Isatis tinctoria)*	*Da Qing Ye*	大青叶

Common Name	**Pharmaceutical Name**	***Pin-Yin***	**Chinese**
Baphicacanthis root (Isatis root)	*Isatis indigotica,* Rx	*Ban Lan Gen*	板蓝根
Barbat skullcap	*Scutellaria barbata,* Hb	*Ban Zhi Lian*	半枝莲
Belamcanda	*Belamcanda chinensis,* Rh	*She Gan*	射干
Biota seed	*Platycladus orientalis,* Sm	*Bai Zi Ren*	柏子仁
Biota tops	*Platycladus Thuja orientalis,* Fm	*Ce Bo Ye*	侧柏叶
Bistorta (paris) root	*Bistortae,* Rx	*Cao He Che*	草河车
Bitter apricot kernel	*Prunus armeniaca,* Sm	*Ku Xing Ren*	苦杏仁
Bitter (black) cardamon	*Alpinia oxyphylla,* Fr	*Yi Zhi Ren*	益智仁
Bitter orange	*Citrus aurantium,* Fr	*Zhi Qiao (Ke)*	枳壳
Bitter orange, immature	*Citrus aurantium, immaturus,* Fr	*Zhi Shi*	枳实
Black nightshade	*Solanum nigrum,* Hb et Sm	*Long Kui*	龙葵
Bletilla tuber	*Bletilla striata,* Tuber	*Bai Ji*	白芨
Blue citrus (green tangerine)	*Citrus immaturum pericarpium*	*Qing Pi*	青皮
Borneol	*Borneol*	*Bing Pian*	冰片
Brassica (white mustard seed) (sinapsis)	*Brassica alba,* Sm (*Sinapis alba,* Sm)	*Bai Jie Zi*	白芥子
Bupleurum root (thorowax)	*Bupleurum chinense,* Rx	*Chai Hu*	柴胡
Burdock (arctium) fruit	*Arctium lappa,* Fr	*Niu Bang Zi*	牛蒡子
Capillaris	*Artemisia capillaris,* Hb	*Yin Chen Hao*	茵陈蒿
Carthamus (safflower)	*Carthamus tinctorius,* Fl	*Hong Hua*	红花
Cassia seed	*Cassiae tora,* Sm	*Jue Ming Zi (Cao Jue Ming)*	决明子 (草决明)

Common Name	Pharmaceutical Name	*Pin-Yin*	Chinese
Centipeda	*Centipeda minima,* Hb	*E Bu Shi Cao*	鹅不食草
Chaenomeles	*Chaenomeles speciosa,* Fr	*Mu Gua*	木瓜
Chinese angelica (Tang kuei) root	*Angelica sinensis,* Rx	*Dang Gui*	当归
Chinese star jasmine stem	*Trachelospermum jasminoides*, Ca	*Luo Shi Teng*	络石藤
Chinese yam (dioscorea)	*Dioscorea opposita,* Rh	*Shan Yao*	山药
Chrysanthemum	*Chrysanthemum morifolium,* Fl	*Ju Hua*	菊花
Chrysanthemum, wild	*Chrysanthemum indicum,* Fl	*Ye Ju Hua*	野菊花
Cibotium	*Cibotium barometz,* Rh	*Gou Ji*	狗脊
Cimicifuga rhizome	*Cimicifuga foetida,* Rh	*Sheng Ma*	升麻
Cinnabar	*Cinnabaris*	*Zhu Sha*	朱砂
Cinnamon bark	*Cinnamomum cassia,* Cx	*Gui Pi (Rou Gui)*	桂皮（肉桂）
Cinnamon twig (cassia)	*Cinnamomum cassia,* Rh	*Gui Zhi*	桂枝
Cirsium (Japanese thistle)	*Cirsium japonicum,* Hb *Seu* Rx	*Da Ji*	大蓟
Cistanche	*Cistanche deserticola,* Hb	*Rou Cong Rong*	肉苁蓉
Clematis root	*Clematis chinensis,* Rx	*Wei Ling Xian*	威灵仙
Clove	*Eugenia caryophyllata,* Fl	*Ding Xiang*	丁香
Cnidium (ligasticum)	*Ligusticum chuanxiong,* Rh	*Chuan Xiong*	川芎
Cnidium fruit	*Cnidium monnieri,* Fr	*She Chuang Zi*	蛇床子
Codonopsis	*Codonopsis pilosula,* Rx	*Dang Shen*	党参
Coix seed	*Coix lachryma,* Sm	*Yi Yi Ren*	薏苡仁
Coptis root	*Coptis chinensis,* Rh	*Huang Lian*	黄连
Cordyceps	*Cordyceps sinensis,* Hb	*Dong Chong Xia Cao*	冬虫夏草
Cornus fruit	*Cornus officinalis,* Fr	*Shan Zhu Yu*	山茱萸

Common Name	**Pharmaceutical Name**	***Pin-Yin***	**Chinese**
Corydalis	*Corydalis yanhusuo,* Tuber	*Yan Hu Suo (Yuan Hu)*	延胡索（元胡）
Crotalaria herb	*Crotataria sessiliflora,* Hb	*Nong Ji Li*	农吉利
Curculigo rhizome	*Curculigo orchioides,* Rh	*Xian Mao*	仙茅
Curcuma root	*Curcuma kwangsiensis,* Rx	*Yu Jin*	郁金
Curcuma rhizome (tumeric)	*Curcuma longa,* Rh	*Jiang Huang*	姜黄
Cuscuta (dodder) seed	*Cuscuta chinensis,* Sm	*Tu Si Zi*	菟丝子
Cyathula root	*Cyathula officinalis,* Rx	*Chuan Niu Xi*	川牛膝
Cynanchum root (swallow-wort root)	*Cynanchum paniculatum,* Rx	*Xu Chang Qing (Liao Diao Zhu)*	徐长卿 (寮刁竹)
Cynomorium	*Cynomorium songaricum,* Hb	*Suo Yang*	锁阳
Cyperus tuber	*Cyperus rotundus,* Rh	*Xiang Fu*	香附
Dandelion	*Taraxacum mongolicum,* Hb	*Pu Gong Ying*	蒲公英
Dang kue (Chinese angelica root)	*Angelica sinensis,* Rx	*Dang Gui*	当归
Dendrobium	*Dendrobium nobile,* Hb (Ca)	*Shi Hu*	石斛
Dipsacus	*Dipsacus asper,* Rx	*Xu Duan*	续断
Dittany bark (dictamnus)	*Dictamnus dasycarpus,* Cx	*Bai Xian Pi*	白藓皮
Duchesnea	*Duchesnea indica,* Hb	*She Mei*	蛇莓
Ephedra	*Ephedra sinica,* Hb	*Ma Huang*	麻黄
Epimedium herb	*Epimedium brevicornum,* Hb	*Yin Yang Huo (Xian Ling Pi)*	淫羊藿 (仙灵脾)
Eucommia bark	*Eucommia ulmoides,* Cx	*Du Zhong*	杜仲
Euryale	*Euryales ferox,* Sm	*Qian Shi*	芡实
Evodia fruit	*Evodia rutaecarpa,* Fr	*Wu Zhu Yu*	吴茱萸

Common Name	Pharmaceutical Name	*Pin-Yin*	Chinese
Forsythia fruit	*Forsythia suspensa,* Fr	*Lian Qiao*	连翘
Frankincense (mastic)	*Boswellia carterii, olibanum,* Rs	*Ru Xiang*	乳香
Fraxinus bark	*Fraxinus rhynchophylla,* Cx	*Qin Pi*	秦皮
Fritillary bulb	*Fritillaria cirrhosa,* Bb	*Chuan Bei Mu*	川贝母
Gall (nutgalls)	*Rhus chinensis*	*Wu Bei Zi*	五倍子
Gambir (uncaria stem)	*Uncaria rhynchophylla*	*Gou Teng*	钩藤
Ganoderma (reishi mushroom)	*Ganoderma lucidum,* Hb	*Ling Zhi*	灵芝
Gardenia	*Gardenia jasminoides,* Fr	*Zhi Zi*	栀子
Garlic	*Allium sativum,* Bb	*Da Suan*	大蒜
Gastrodia tuber	*Gastrodia elata,* Rh	*Tian Ma*	天麻
Gelatin, donkey-hide	*Gelatinum asini,* Rs	*A Jiao*	阿胶
Gentiana root	*Gentiana scabra,* Rx	*Long Dan Cao*	龙胆草
Germinated barley	*Hordeum vulgare germinatus*	*Mai Ya*	麦芽
Ginger root, dried	*Zingiber officinale,* Rh	*Gan Jiang*	干姜
Ginger root, fresh	*Zingiber officinale,* Rh	*Sheng Jiang*	生姜
Ginkgo biloba leaf	*Ginkgo biloba,* Fm	*Yin Xing Ye*	银杏叶
Ginkgo seed	*Ginkgo biloba,* Sm	*Yin Xing Guo*	银杏果
Ginseng root	*Panax ginseng,* Rx	*Ren Shen*	人参
Glehnia root	*Glehnia littoralis,* Rx	*Bei Sha Shen*	北沙参
Green chiretta	*Andrographis paniculata,* Hb	*Chuan Xin Lian*	穿心莲
Gypsum	*Gypsum fibrosum*	*Shi Gao*	石膏
Haematite	*Haematitum*	*Dai Zhe Shi*	代赭石
Haliotis	*Haliotis concha*	*Shi Jue Ming*	石决明

Common Name	**Pharmaceutical Name**	***Pin-Yin***	**Chinese**
Hemp seed (cannabis)	*Cannabis sativa,* Fr	*Huo Ma Ren*	火麻仁
Hibiscus	*Hibiscus syriacus,* Cx	*Mu Jen Pi*	木槿皮
Hoelen (poria)	*Poria cocos*	*Fu Ling*	茯苓
Houttuynia	*Houttuynia cordata,* Hb	*Yu Xing Cao*	鱼腥草
Hawthorn (crataegus)	*Crataegus pinnatifida,* Fr	*Shan Zha*	山楂
Imperata (woolly grass)	*Imperata cylindrica*, Rh	*Bai Mao Gen*	白茅根
Inula flower	*Inula japonica,* Fl	*Xuan Fu Hua*	旋覆花
Isatis root (baphcacanthis root)	*Isatidis indigotica,* Rx	*Ban Lan Gen*	板蓝根
Isatis leaf	*Isatidis indigotica,* Fm	*Da Qing Ye*	大青叶
Jujube (Chinese date)	*Zizyphus jujuba,* Fr	*Da Zao*	大枣
Knotweed	*Polygonum cuspidatum,* Rh et Rx	*Hu Zhang*	虎杖
Laminaria	*Laminaria japonica,* Hb	*Hai Dai (Kun Bu)*	海带
Large-leaf gentian root	*Gentiana macrophylla,* Rx	*Qin Jiao*	秦艽
Leech	*Whitmania pigra (Hirudo)*	*Shui Zhi*	水蛭
Leonurus	*Leonurus heterophyllus,* Hb	*Yi Mu Cao (Kun Cao)*	益母草
Lepidium seed	*Lepidium apetalum,* Sm	*Ting Li Zi*	葶苈子
Licorice root	*Glycyrrhiza glabra,* Rx	*Gan Cao*	甘草
Ligusticum root	*Ligusticum sinense* Rx et Rh	*Gao Ben*	藁本
Ligustrum fruit	*Ligustrum lucidum,* Fr	*Nu Zhen Zi*	女贞子
Lily	*Lilium brownii* Bb	*Bai He*	百合
Lindera root	*Lindera strychnifolia,* Rx	*Wu Yao*	乌药
Lobelia	*Lobelia chinensis,* Hb	*Ban Bian Lian*	半边莲
Longan aril (fruit)	*Euphoria longan,* Fr	*Long Yan Rou*	龙眼肉

Common Name	Pharmaceutical Name	*Pin-Yin*	Chinese
Lonicera (honeysuckle)	*Lonicera japonica,* Fl	*Jin Yin Hua*	金银花
Lonicera stem	*Lonicera japonica,* Ca et Fm	*Ren Dong Teng*	忍冬藤
Lophatherum (bamboo leaf)	*Lophatherum gracile,* Fm	*Dan Zhu Ye*	淡竹叶
Loquat leaf	*Eriobotrya japonica,* Fm	*Pi Ba Ye*	枇杷叶
Loranthus (taxillus)	*Taxillus chinensis,* Rm et Rl	*Sang Ji Sheng*	桑寄生
Lotus seed	*Nelumbo nucifera,* Sm	*Lian Zi*	莲子
Lycium bark	*Lycium chinense,* Cx	*Di Gu Pi*	地骨皮
Lycium fruit (wolfberry)	*Lycium barbarum,* Fr	*Gou Qi Zi*	枸杞子
Lycopodium (buck grass)	*Lycopodium clavatum,* Hb	*Shen Jin Cao*	伸筋草
Lygodium spores	*Lygodium japonicum, spora*	*Hai Jin Sha*	海金沙
Lysimachia (glechoma)	*Lysimachia christinae,* Hb	*Jin Qian Cao*	金钱草
Ma huang (ephedra)	*Ephedra sinica,* Hb	*Ma Huang*	麻黄
Macrostem onion (bakeri)	*Allium macrostemon,* Bb	*Xie Bai*	薤白
Magnolia bark	*Magnolia officinalis,* Cx	*Hou Po*	厚扑
Magnolia flower	*Magnolia biondii,* Fl	*Xin Yi Hua (Xin Yi)*	辛夷花（辛夷）
Mantis egg-case	*Mantidis ootheca*	*Sang Piao Xiao*	桑螵蛸
Mastic	*Boswellia carterii,* Rs	*Ru Xiang*	乳香
Medicated leaven	*Massa medicata, fermentata*	*Shen Qu*	神曲
Melia (Sichuan chinaberry)	*Melia toosendan*, Fr	*Chuan Lian Zi*	川楝子
Mentha (peppermint)	*Mentha haplocalyx,* Hb	*Bo He*	薄荷

Common Name	**Pharmaceutical Name**	***Pin-Yin***	**Chinese**
Millettia (spatholobus stem)	*Spatholobus suberectus,* Ca *(Millettia)*	*Ji Xue Teng*	鸡血藤
Mirabilitum	*Mirabilitum depuratum*	*Mang Xiao*	芒硝
Morinda root	*Morinda officinalis,* Rx	*Ba Ji Tian*	巴戟天
Morus (mulberry) bark	*Morus alba,* Cx	*Sang Bai Pi*	桑白皮
Morus (mulberry) branch	*Morus alba,* Rl	*Sang Zhi*	桑枝
Morus (mulberry leaf)	*Morus alba,* Fm	*Sang Ye*	桑叶
Moutan bark	*Paeonia suffruticosa,* Cx	*Dan Pi (mu Dan pi)*	丹皮
Mugwort	*Artemisia anomala,* Hb	*Liu Ji Nu*	刘寄奴
Mylabris	*Mylabris phalerata pallas*	*Ban Mao*	斑蝥
Myristica (nutmeg)	*Myristica fragrans,* Sm	*Rou Dou Kou*	肉豆蔻
Myrrh	*Commiphora myrrha,* Rs	*Mo Yao*	没药
Natural indigo	*Istis indigotica,* Hb	*Qing Dai*	青黛
Notoginseng	*Panax notoginseng,* Rx	*San Qi (Tian Qi)*	三七（田七）
Notopterygium root	*Notopterygium incisum,* Rh	*Qiang Huo*	羌活
Oldenlandia (hedyotis)	*Hedyotis diffusa,* Hb	*Bai Hua She She Cao*	白花蛇
Ophiopogon root	*Ophiopogon japonicus,* Rx	*Mai Men Dong (Mai Dong)*	麦门冬
Orange peel	*Citrus reticulata,* Pc	*Chen Pi*	陈皮
Ox calculus	*Calculus bovis*	*Niu Huang*	牛黄
Oyster shell	*Concha ostreae*	*Mu Li*	牡蛎
Paris rhizome	*Paris chinensis,* Rh	*Chong Lou*	重楼
Patrinia (thlaspi) herb	*Patrinia villosa,* Hb	*Bai Jiang Cao*	败酱草
Peony root, red	*Paeonia lactiflora rubra,* Rx	*Chi Shao (Chi Shao Yao)*	赤芍

Common Name	Pharmaceutical Name	*Pin-Yin*	Chinese
Peony root, white	*Paeonia lactiflora, alba,* Rx	*Bai Shao*	白芍
Perilla leaf	*Perilla frutescens,* Fm	*Zi Su Ye*	紫苏叶
Perilla seed	*Perilla frutescens,* Fr	*Zi Su Zi*	紫苏子
Perilla stem	*Perilla frutescens,* Ca	*Zi Su Geng*	紫苏梗
Persica (Peach kernel)	*Prunus persica,* Sm	*Tao Ren*	桃仁
Peucedanum	*Peucedanum praeruptorum,* Rx	*Qian Hu*	前胡
Pharbitis (morning glory seed)	*Pharbitis nil,* Sm	*Qian Niu Zi*	牵牛子
Phaseolus (adsuki bean)	*Phaseolus angularis,* Sm	*Chi Xiao Dou*	赤小豆
Phellodendron bark	*Phellodendron amurense,* Cx	*Huang Bai*	黄柏
Phragmites	*Phragmites communis,* Rh	*Lu Gen*	芦根
Pilose antler (deer horn)	*Cervus nippon*	*Lu Rong*	鹿茸
Pinellia tuber	*Pinellia ternata,* Rh	*Ban Xia*	半夏
Placenta	*Hominis placenta*	*Zi He Che*	紫河车
Plantain (plantago) seed	*Plantago asiatica*, Sm	*Che Qian Zi*	车前子
Plantain herb	*Plantago asiatica,* Hb	*Che Qian Cao*	车前草
Platycodon root	*Platycodon grandiflorum,* Rx	*Jie Geng*	桔梗
Plum weed	*Prunus japonica,* Sm	*Yu Li Ren*	郁李仁
Polygala root	*Polygala tenuifolia,* Rx	*Yuan Zhi*	远志
Polygonatum rhizome	*Polygonatum odoratum,* Rh	*Yu Zhu*	玉竹
Polygonatum root, (yellow essence)	*Polygonatum sibiricum,* Rh	*Huang Jing*	黄精
Polygonum (fleeceflower root)	*Polygonum multiflorum,* Rx	*He Shou Wu (Shou Wu)*	何首乌

Common Name	**Pharmaceutical Name**	***Pin-Yin***	**Chinese**
Polygonum herb (knote weed)	*Polygonum aviculare,* Hb	*Bian Xu*	扁蓄(草)
Polygonum stem	*Polygoni multiflori*, Ca	*Ye Jiao Teng*	夜交藤
Polyporus	*Polyporus umbellatus,* Scrol	*Zhu Ling*	猪苓
Poppy capsule	*Papaver somniferum*	*Ying Su Ko*	罂粟壳
Poria (hoelen)	*Poria cocos*	*Fu Ling*	茯苓
Poria slices	*Poria cocos*	*Fu Shen Pian*	茯神片
Prunella spike	*Prunella vulgaris,* Hb	*Xia Ku Cao*	夏枯草
Pseudostellaria root	*Pseudostellaria heterophylla,* Rx	*Tai Zi Shen*	太子参
Psoralea fruit	*Psoralea corylifolia,* Fr	*Bu Gu Zhi*	补骨脂
Pubescent angelica root (angelica tuhuo)	*Angelica pubescens,* Rx	*Du Huo*	独活
Pubescent holly root (ilex pubescentis)	*Ilex pubescens,* Rx	*Mao Dong Qing*	毛冬青
Pueraria root (kudzu)	*Pueraria lobata,* Rx	*Ge Gen*	葛根
Pulsatilla (anemone) root	*Pulsatilla chinensis,* Rx	*Bai Tou Weng*	白头翁
Pyrite	*Pyritum*	*Zi Ran Tong*	自然铜
Quisqualis	*Quisqualis indica,* Fr	*Shi Jun Zi*	使君子
Rabdosia	*Rabdosiae rubescens,* Hb	*Dong Ling Cao*	冬凌草
Raphanus (radish) seed	*Raphanus sativus,* Sm	*Lai Fu zi*	莱菔子
Rehmannia, dried	*Rehmanniae glutinosa,* Rx	*Sheng Di Huang*	生地黄
Rehmannia root, processed	*Rehmannia glutinosa,* Rx *Preparati*	*Shu Di Huang (Shu Di)*	熟地黄
Reishi mushroom	*Ganoderma lucidum,* Hb	*Ling Zhi*	灵芝
Rhododendron	*Rhododendron dauricum,* Fm	*Man Shan Hong*	满山红
Rhubarb root	*Rheum officinale,* Rx	*Da Huang*	大黄

Common Name	Pharmaceutical Name	*Pin-Yin*	Chinese
Rosa cherokee	*Rosa laevigata,* Fr	*Jin Ying Zi*	金缨子
Rubus (raspberry fruit)	*Rubus chingii,* Fr	*Fu Pen Zi*	覆盆子
Safflower (carsamus)	*Carthamus tinctorius,* Fl	*Hong Hua*	红花
Salvia root	*Salvia miltiorrhiza,* Rx	*Dan Shen*	丹参
Sanguisorba root (burnet)	*Sanguisorba officinalis,* Rx	*Di Yu*	地榆
Santalum (sandalwood)	*Santalum album,* Lg	*Tan Xiang*	檀香
Sappan wood	*Caesalpinia sappan,* Lg	*Su Mu*	苏木
Sarcandra	*Sarcandra glabra,* Hb	*Jiu Jie Cha (Guan Jie Cha)*	九节茶
Sargassum (seaweed)	*Sargassum fusiforme,* Hb	*Hai Zao*	海藻
Saussurea (aucklandia root)	*Aucklandia lappa,* Rx	*Mu Xiang*	木香
Scandent hops	*Humulus scandens,* Hb	*Lu Cao*	律草（草）
Schefflera root	*Schefflera arboricola,* Rx	*Qi Ye Lian*	七叶连
Schisandra fruit	*Schisandra chinensis,* Fr	*Wu Wei Zi*	五味子
Schizonepeta	*Schizonepeta tenuifolia,* Hb	*Jing Jie Sui (Jing Jie)*	荆芥穗（荆芥）
Scirpus rhizome (burreed tuber)	*Sparganium stoloniferum,* Rh	*San Leng*	三棱
Scorpion	*Buthus martensi*	*Quan Xie*	全蝎
Scrophularia root	*Scrophularia ningpoensis,* Rx	*Xuan Shen*	玄参
Scute root	*Scutellaria baicalensis,* Rx	*Huang Qin*	黄芩
Scute barbata	*Scutellaria barbata,* Hb	*Ban Zhi Lian*	半枝莲
Semiaquilegia root	*Semiaquilegiae adoxoides,* Rx	*Tian Kui*	天葵
Senecio	*Senecio scandens,* Hb	*Qian Li Guang*	七里光
Senna leaf	*Cassia angustifolia,* Fm	*Fan Xie Ye*	番泻叶

Common Name	**Pharmaceutical Name**	***Pin-Yin***	**Chinese**
Sesame seed	*Sesamum indicum,* Sm	*Hu Ma*	胡麻
Siberian ginseng root	*Acanthopanax senticosus,* Rx *(Eleutherococcus senticosus)*	*Wu Jia Shen (Ci Wu Jia)*	五加参 (刺五加)
Siegesbeckia	*Siegesbeckia pubescens,* Hb	*Xi Xian Cao (Xi Xian)*	豨莶草
Siler	*Saposhnikovia divaricata,* Rx	*Fang Feng*	防风
Silkworm	*Bombyx batryticatus*	*Bai Jiang Can*	白僵蚕
Small thistle	*Cephalanoplos segetum,* Hb	*Xiao Ji*	小蓟
Smilax glabra	*Smilax glabrae,* Rh	*Tu Fu Ling*	土茯苓
Soya	*Soya praeparatum,* Sm	*Dan Do Chi*	淡豆豉
Sophora root	*Sophora flavescens,* Rx	*Ku Shen*	苦参
Sparganium (scirpus)	*Sparganium stoloniferum,* Rh	*San Leng*	三棱
Speranskia (impatiens)	*Speranskia tuberculata,* Hb	*Tou Gu Cao*	透骨草
Stemona root	*Stemona sessilifolia,* Rx	*Bai Bu*	百部
Stephania	*Stephania tetrandra,* Rx	*Han Fang Ji*	防己
Sterculia	*Sterculia scaphigera,* Sm	*Pang Da Hai*	胖大海
Styrax	*Liquidambar orientalis*	*Su He Xiang*	苏合香
Subprostrate sophora	*Sophora tonkinensis,* Rx	*Shan Dou Gan*	山豆根
Tangerine peel	*Citrus reticulata,* Pc	*Chen Pi*	陈皮
Tangerine seed	*Citri reticulota,* Sm	*Ju He*	桔核
Tetrapanax	*Tetrapanax papyrifera, Medulla*	*Tong Cao*	通草
Tokoro	*Dioscoreae hypoglauca,* Rh	*Bi Xian*	卑薢薢（草）
Torreya	*Torreya grandis,* Sm	*Fei Zi*	榧子
Tortoise shell	*Plastrum testudinis*	*Gui Ban*	龟板

Common Name	Pharmaceutical Name	*Pin-Yin*	Chinese
Tribulus	*Tribulus terrestris,* Fr	*Ji Li*	蒺藜
Trichosanthes (snakegourd) fruit	*Trichosanthes kirilowii,* Fr	*Gua Lou Shi*	栝楼实
Trichosanthes peel (rind)	*Trichosanthes kirilowii,* Pc	*Gua Lou Pi*	栝楼皮
Trichosanthes root	*Trichosanthes kirilowii,* Rx	*Tian Hua Fen (Gua Lou Gen)*	天花粉 (栝楼根)
Trichosanthes seed	*Trichosanthes kirilowii,* Sm	*Gua Lou Ren*	栝楼仁
Tripterygium	*Tripterygium wilfordii,* Rx	*Lei Gong Teng*	雷公藤
Tumeric (curcuma)	*Curcuma longa,* Rh	*Jiang Huang*	姜黄
Tussilago (coltsfoot) flower	*Tussilago farfara,* Fl	*Kuan Dong Hua*	款冬花
Typhonium	*Typhonium giganteum,* Sm	*Bai Fu Zi*	白附子
Uncaria stem (gambir)	*Uncariae rhynchophylla,* Rl	*Gou Teng*	钩藤
Vaccaria seed	*Vaccaria segetalis,* Sm	*Wang Bu Liu Xing*	王不留行
Verbena	*Verbena officinalis,* Hb	*Ma Bian Cao*	马鞭草
Viola	*Viola yedoensis,* Hb	*Zi Hua Di Ding*	紫花地丁
Vitex fruit	*Vitex trifolia,* Fr	*Man Jing Zi*	蔓荆子
Walnut	*Juglandis vegas,* Sm	*Hu Tao Ren*	胡桃仁
White atractylodes	*Atractylodes macrocephala,* Rh	*Bai Zhu*	白术
Xanthium fruit	*Xanthium sibiricum,* Fr	*Cang Er Zi*	苍耳子
Zedoaria	*Curcuma zedoaria,* Rh	*E Zhu*	莪术
Zizyphus (wild jujube seed)	*Zizyphus spinosa,* Sm.	*Suan Zao Ren*	酸枣仁

Explanation of Abbreviations of Herbs

Symbols	Latin	English
Bb	Bulbus	bulb type root
Ca	Caulis	bark
Cx	Cortex	outer bark or skin
Fl	Flos	whole flower
Fm	Folium	leaf
Fr	Fructus	fruit
Gl	Gelatina	gelatin
Hb	Herba	whole aboveground parts of an herb
Lg	Lignum	woody part
Pc	Pericardium	skin of the seed
Rh	Rhizoma	root stem
Rl	Ramulus	small branch
Rx	Radix	root
Rs	Resinae	resin
Sm	Semen	seed
Rx et Rh		root and root stem
RI et Rm		small branch and leaf

Examples

Ginseng root: *Panax ginseng,* Rx means Radix Panax ginseng
Hawthorn fruit: *Cratagus pinnatifida,* Fr means Fructus Crataegus pinnatifida
Lonicera flower: *Lonicera japonica,* Fl means Flos Lonicera Japonica
Licorice root: *Glycyrrhiza glabra,* Rx means Radix Glycyrrhiza glabra

Appendix C

Table of Popular Herbal Recipes and Patent Medicines

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
An Gong Niu Huang Wan		安宫牛黄丸
An Shen Bu Xin Wan	R-43	安神补心丸
An Shen Ding Zhi Wan		安神定志丸
An Shen Jian Nao Ling		安神健脑灵
Ba Xian Chang Shou Wan		八仙长寿丸
(Ba Wei Di Huang Wan)		（八味地黄丸）
Ba Zhen Wan	R-18	八珍丸
Ba Zheng San		八正散
Bai Bu Wan (Gao)		百部丸（膏）
Bai Du San Tang	R-93	败毒散（汤）
Bai Tou Weng Tang		白头翁汤
Bai Zi Ren Wan		柏子仁丸
Bai Zi Yang Xin Wan	R-44	柏子养心丸
Ban Xia Hou Po Tang	R-37	半夏厚扑汤
Ban Xia Xie Xin Tang		半夏泻心汤
Bao He Wan		保和丸
Bao Ji Wan		保济丸
Bao Yuan Tang		保元汤
Ban Xia Bai Zhu Tian Ma Tang		半夏白术天麻汤

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Bi Min Gan Wan		鼻敏感丸
Bu Gu Zhi Wan		补骨脂丸
Bu Huan Jin Zheng Qi Wan		不换金正气丸
Bu Wang San		不忘散
Bu Yang Huan Wu Tang	R-34	补阳还五汤
Bu Zhong Yi Qi Tang	R-9	补中益气汤
Cang Er Zi San		苍耳子散
Chai Ge Jie Ji Tang		柴葛解肌汤
Chai Hu Gui Zhi Tang		柴胡桂枝汤
Chai Hu Jia Long Gu Mu Li Tang		柴胡加龙骨牡蛎汤
Chai Hu Shu Gan Tang	R-50	柴胡疏肝汤
Che Qian Zi San		车前子散
Chuan Xiong Cha Tiao San	R-49	川芎茶调散
Da Bu Yin Wan		大补阴丸
Da Chai Hu Tang		大柴胡汤
Da Cheng Qi Tang	R-73	大承气汤
Da Huo Luo Dan		大活络丹
Da Qing Jiao Tang		大秦艽汤
Dan Dao Pai Shi Tang		胆道排石汤
Dan Shen Yin	R-31	丹参饮
Dan Zhi Xiao Yao Wan	R-42	丹栀逍遥丸
Dang Gui Liu Huang Tang		当归六黄汤
Dang Gui Shao Yao Wan	R-21	当归芍药丸

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Dang Gui Si Ni Tang		当归四逆汤
Dang Gui Wan	R-17	当归丸
Dao Chi San		导赤散
Ding Chuan Tang		定喘汤
Ding Xian Wan		定痫丸
Du Huo Ji Sheng Tang	R-58	独活寄生汤
Du Qi Wan		都气丸
Du Zhong Wan		杜仲丸
Er Chen Tang		二陈汤
Er Dong Tang (Gao)		二冬汤（膏）
Er Long Zuo Ci Wan		耳聋左慈丸
Er Mu San		二母散
Er Xian Tang	R-27	二仙汤
Fang Feng Tong Sheng San	R-65	防风通圣散
Fang Ji Fu Ling Tang		防己茯苓汤
Fang Ji Huang Qi Tang	R-66	防己黄芪汤
Fu Fang Dan Shen Pian	R-32	复方丹参片
Fu Fang San Qi Pian		复方三七片
Fu Fang Wu Wei Zi Wan		复方五味子丸
Fu Fang Qing Dai San		复方青黛散
Fu Ke Qian Jin Pian		妇科千金片
Fu Yuan Huo Xue Tang		复元活血汤

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Fu Zheng Gu Ben Fang		扶正固本方
Fu Zi Li Zhong Tang	R-54	附子理中汤
Ge Gen Qin Lian Tang		葛根芩连汤
Ge Gen Tang		葛根汤
Ge Hua Jie Xing Tang		葛花解醒汤
Geng Nian An	R-20	更年安
Geng Nian Luo Tang	R-90	更年乐汤
Gong Sun Ye Jing (Ginkgo Biloba Ye Extract)		公孙叶精
Gou Teng Yin (Tang)		钩藤饮（汤）
Gu Chong Tang		固冲汤
Gu Jing Wan		固精丸
Gua Lou Xie Bai Ban Xia Tang		栝楼薤白半夏汤
Guan Xin Bing II	R-33	冠心病II号
Gui Fu Li Zhong Tang		桂附理中汤
Gui Ling Ji		龟龄集
Gui Pi Tang	R-6	归脾汤
Gui Shao Liu Jun Zi Tang		桂芍六君子汤
Gui Zhi Fu Ling Wan		桂枝茯苓丸
Gui Zhi Tang		桂枝汤
He Shou Wu Wan (Shou Wu Wan)	R-29	何首乌丸
Head Washing Formula for Headache No.1	R-84	头痛洗头方1号
Hou Po Ma Huang Tang		厚朴麻黄汤
Hou Po San Wu Tang		厚朴三物汤

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Huang Lian Jie Du Tang	R-72	黄连解毒汤
Huang Qi Gui Zhi Wu Wu Tang		黄芪桂枝五物汤
Huang Qi Jian Zhong Tang		黄芪建中汤
Huang Qi Tang		黄芪汤
Huo Luo Xiao Ling Dan		活络效灵丹
Huo Xiang Zheng Qi Wan	R-48	藿香正气丸
Huo Xue Shu Jin Pian		活血舒筋片
Huo Xue Shu Jin Zhi Tong Fang	R-88	活血舒筋止痛方
Huo Xue Tong Mai Pian	R-39	活血通脉片
Ji Geng Tang		桔梗汤
Ji Ming San		鸡鸣散
Jia Kang Fang	R-97	甲亢方
Jia Wei Long Dan Xie Gan Wan	R-83	加味龙胆泻肝汤
Jiao Ai Tang		胶艾汤
Jian Bu Wan (Jian Bu Hu Qian Wan)		健步丸 （健步虎潜丸）
Jian Ling Tang		建瓴汤
Jian Nao Bu Shen Wan	R-35	健脑补神丸
Jiang Tang Wan	R-92	降糖丸
Jiang Zhi Fang	R-100	降脂方
Jiao Gan Wan	R-81	交感丸

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Jie Yu Dan		解郁丹
Jing Fang Bai Du San		荆防败毒散
Jiu Wei Qiang Huo Tang		九味羌活汤
Ju He Wan		橘核丸
Ju Hong Wan		橘红丸
Juan Bi Tang		蠲痹汤
Kang Ai Ling		抗癌灵
Lao Nian Chi Dai Zheng Tang	R-99	老年痴呆症汤
Li Dan Pai Shi Pian	R-95	利胆排石片
Li Zhong Tang	R-14	理中汤
Ling Gui Zhu Gan Tang	R-74	苓桂术甘汤
Ling Jiao Gou Teng Tang		羚角钩藤汤
Ling Qiao Jie Du Wan		羚翘解毒丸
Ling Zhi Bao Zi Fan Capsule		灵芝孢子粉胶囊
Liu Jun Zi Tang		六君子汤
Liu Shen Wan		六神丸
Liu Wei Di Huang Wan	R-22	六味地黄丸
Long Bi Xiao Tang	R-96	龙痹消汤
Long Dan Xie Gan Tang	R-78	龙胆泻肝汤
Luo Bu Ma Pian		罗布麻片
Ma Xing Shi Gan Tang		麻杏石甘汤
Mai Men Dong Tang	R-69	麦门冬汤

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Mai Wei Di Huang Wan	R-23	麦味地黄丸
Man Shan Hong Capsule		满山红胶囊
Ming Mu Di Huang Wan		明目地黄丸
Ming Mu Shang Qing Wan		明目上清
Mu Gua Wan		木瓜丸
Mu Xiang Bing Lang Wan	R-62	木香槟榔丸
Mu Xiang Shun Qi Wan		木香顺气丸（顺气丸）
Nan Bao	R-30	男宝
Niu Huang Jiang Ya Wan		牛黄降压丸
Niu Huang Jie Du Wan		牛黄解毒丸
Niu Huang Shang Qing Wan		牛黄上清丸
Niu Huang Qing Xin Wan		牛黄清心丸
Nu Bao		女宝
Nuan Gong Yun Zi Wan		暖宫孕子丸
Pai Shi Tang	R-94	排石汤
Pian Tao Tong Tang	R-91	偏头痛汤
Ping Wei San	R-59	平胃散（片）
Pu Ji Xiao Du Yin		普济消毒饮
Qi Bao Mei Ran Dan	R-26	七宝美髯丸
Qi Ju Di Huang Wan	R-25	杞菊地黄丸
Qi Li San		七厘散
Qi Shao Liu Jun Zi Tang		杞芍六君子汤

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Qian Le Xian Wan		前列腺丸
Qian Zheng San		牵正散
Qiang Huo Sheng Shi Tang	R-57	羌活胜湿汤
Qin Jiao San		秦艽散
Qing Fei Tang		清肺汤
Qing Qi Hua Tan Wan		清气化痰丸
Qing Shen Jian Fei Fang	R-101	轻身减肥方
Qing Wen Bai Du Yin		清瘟败毒饮
Quan Lu Wan		全鹿丸
Ren Shen Fang Wang Jiang	R-4	人参蜂王浆
Ren Shen Hu Tao Tang		人参胡桃汤
Ren Shen Lu Rong Wan		人参鹿茸丸
Ren Shen Yang Rong Tang	R-3	人参养荣汤
Run Chang Wan		润肠丸
San Miao San (Wan)		三妙散（丸）
Sang Ji Sheng Yin		桑寄生饮
Sang Ju Yin		桑菊饮
Sang Piao Xiao San		桑螵蛸散
Sang Xing Tang		桑杏汤
Shao Fu Zhu Yu Tang		少腹逐瘀汤
Shen Fu Tang	R-1	参附汤
Shen Ling Bai Zhu San	R-13	参苓白术散
Shen Qi Gao (Wan)	R-7	参芪膏

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Shen Qi Wan	R-24	肾气丸
(Jin Gui Shen Qi Wan)		（金匮肾气丸）
Sheng Mai San (Yin)	R-5	生脉散（饮）
Shi Hu Ye Guang Wan		石斛夜光丸
Shi Quan Da Bu Wan	R-80	十全大补丸
Shu Dan Pai Shi Tang		疏胆排石汤
Shu Gan Jian Pi Jie Du Tang		疏肝健脾解毒汤
Shu Gan Wan	R-52	疏肝丸
Shu Jin Huo Xue Tang		舒筋活血汤
Si Jun Zi Tang	R-2	四君子汤
Si Ling San		四苓散
Si Miao San		四妙散
Si Ni San	R-61	四逆散
Si Ni Tang		四逆汤
Si Shen Wan	R-28	四神丸
Si Wu Tang	R-15	四物汤
Su Zi Jiang Qi Tang	R-98	苏子降气汤
Suan Zao Ren Tang	R-40	酸枣仁汤
Suo Quan Wan		缩泉丸
Tai Shan Pan Shi Yin		泰山磐石饮
Tao He Cheng Qi Tang		桃核承气汤
Tao Hong Si Wu Tang	R-16	桃红四物汤
Tian Ma Gou Teng Yin	R-64	天麻钩藤饮
Tian Ma Wan	R-55	天麻丸

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Tian Wang Bu Xin Wan	R-45	天王补心丸
Tiao Jing Wan	R-85	调经丸
Tiao Shen Tang	R-89	调神汤
Tong Xuan Li Fei Pian	R-47	通宣理肺片
Tou Tong Xiao Ling Dan		头痛效灵丹
Wan Dai Tang		完带汤
Wen Jing Tang		温经汤
Wen Pi Tang		温脾汤
Wu Ji Bai Feng Wan	R-19	乌鸡白凤丸
Wu Jia Pi Jiu		五加皮酒
Wu Jia Shen Gao (Ci Wu Jia Gao)	R-8	五加参膏
Wu Ling San	R-68	五苓散
Wu Wei Xiao Du Yin		五味消毒饮
Wu Zhu Yu Tang	R-71	吴茱萸汤
Wu Zi Yan Zong Wan		五子衍宗丸
Xi Huang Wan		犀黄丸
Xi Jiao Da Qing Tang		犀角大清汤
Xi Jiao Di Huang Wan	R-70	犀角地黄丸
Xiang Lian Wan		香连丸
Xiang Sha Liu Jun Zi Tang		香砂六君子汤
Xiang Sha Yang Wei Wan		香砂养胃丸

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
Xiang Sha Zhi Zhu Wan		香砂枳术丸
Xiao Chai Hu Tang	R-53	小柴胡汤
Xiao Feng San		消风散
Xiao Huo Luo Dan	R-51	小活络丹
Xiao Jian Zhong Tang	R-60	小建中汤
Xiao Qing Long Tang	R-63	小青龙汤
Xiao Yao Wan	R-41	逍遥丸
Xiao Ji Yin Zi		小蓟饮子
Xiao Luo Wan		消瘰丸
Xuan Yu Tong Jing Tang		宣郁通经汤
Xue Fu Zhu Yu Tang	R-38	血府逐瘀汤
Yan Ling Yi Shou Dan	R-79	延龄益寿丹
Yang Xin Jian Pi Wan	R-86	养心健脾丸
Yang Xin Yan Ling Yi Shou Dan	R-87	养心延龄益寿丹
Yi Gan Ling Pian		益肝灵片
Yi Guan Jian	R-11	一贯煎
Yi Qi Li Pi Zhi Zhu Wan	R-82	益气理脾枳术丸
Yi Shen Tang	R-77	益肾汤
Yi Wei Tang		益胃汤
Yin Chen Hao Tang	R-67	茵陈蒿汤
Yin Chen Zhu Fu Tang		茵陈术附汤
Yin Qiao Jie Du Pian	R-46	银翘解毒片
Yin Qiao San		银翘散

***Pin Yin* Name**	**Recipe Number**	**Chinese Name**
You Gui Wan		右归丸
Yu Dai Wan		愈带丸
Yu Quan Wan	R-12	玉泉丸
Yu Feng Ning Xin Wan		愈风宁心丸
Yu Ping Feng San	R-10	玉屏风散
Yu Ye Tang		玉液汤
Yu Zhen San		玉真散
Yuan Hu Zhi Tong Wan	R-56	元胡止痛丸
Yue Ju Wan (Xiong Zhu Wan)	R-36	越鞠丸
Zai Zao Wan (Ren Shen Zai Zhao Wan)		再造丸（人参再造丸）
Ze Xie Tang		泽泻汤
Zhen Gan Xi Feng Tang		镇肝熄风汤
Zhen Wu Tang	R-75	真武汤
Zheng Tian Wan		正天丸
Zhi Bai Di Huang Wan		知柏地黄丸
Zhi Shi Dao Zhi Wan	R-76	枳实导滞丸
Zhi Zhu Wan		枳术汤
Zhu Ling Tang		猪苓汤
Zhu Ye Shi Gao Tang		竹叶石膏汤
Zi Xue Tang		滋血汤
Zuo Gui Wan		左归丸
Zuo Jin Wan		左金丸

Glossary

GENERAL MEDICAL AND PHARMACEUTICAL TERMS

abscess: A lump of pus caused by inflammation or bacterial invasion.

acne: Common skin disorder. A condition of the sebaceous glands and hair follicles of the skin.

acupuncture: The ancient practice, especially as carried on by the Chinese, of piercing parts of the body with needles to treat disease or relieve pain.

adaptogen: A substance causing a state of nonspecific increased resistance (SNIR) to adverse stressors of various origin. Chinese herbs, ginseng, and Siberian ginseng are adaptogens which have no adverse effect on body functions.

Addison's disease: Illness caused by underactivity of the adrenal glands.

adenoma: A benign tumor of glandular origin.

adrenal gland: A two-part gland situated just above each kidney.

adrenaline: A hormone secreted by the adrenal gland that produces the "fight-or-flight" response. Also called epinephrine.

alkaloids: Nitrogenous crystalline or oily compounds, usually basic in character, such as atropine, morphine, quinine, etc.

allopathy: A term that describes the conventional method of medicine that combats disease by using substances and techniques specifically against the disease.

alternative: (as a drug): A nontraditional substance that produces a balancing effect on a particular body function.

amebic dysentery: Dysentery caused by a parasitic ameba.

amino acids: A group of nitrogen-containing chemical compounds that form the basic structural units of proteins.

analgesic: A substance that reduces the sensation of pain.

androgen: A synthetic male sex hormone substance that can give rise to masculine characteristics.

andropause: A decrease in testoterone production and resulting mental and physical symptoms. Also called male menopause.

anemia: A condition in which there is a reduction in the number of red blood corpuscles or of the total amount of hemoglobin in the bloodstream, or both, resulting in a paleness, generalized weakness, etc.

angina pectoris: Severe pain in the chest, usually on the left center side, caused by coronary heart disease.

anodyne: A pain killer.

anorexia nervosa: Psychological problem causing extreme loss of appetite and drastic weight loss.

antagonism: A mutually opposing action that can take place between organisms, muscles, drugs, etc.

antagonistic: Showing antagonism; acting in opposition.

anthelmintic: A substance that causes the elimination of intestinal worms.

antibody: Proteins manufactured by the body that bind to antigens to neutralize, inhibit, or destroy antigens.

antidote: A substance that neutralizes or counteracts the effects of a poison.

antifebrile: A fever reducer.

antigen: Any substance which, when introduced into the body, causes the formation of antibodies against it.

antihypertensive: Medicines that lower blood pressure.

antineoplastic: Substance that helps prevent abnormal growths.

antioxidant: A compound that prevents free radical or oxidative damage.

antipyretic: An agent that reduces fever.

antirheumatic: A substance that relieves rheumatic disorders.

anxiety: A state of being uneasy, apprehensive, or worried about what may happen; in psychiatry, an intense state of this kind, characterized by varying degrees of emotional disturbance and psychic tension.

aphrodisiac: A substance that increases sexual desire.

apoplexy: Sudden paralysis with total or partial loss of consciousness and sensation, caused by the breaking or obstruction of a blood vessel in the brain; stroke.

arteriosclerosis: A thickening of the artery wall, loss of elasticity, and hardening due to deposits of cholesterol and triglycerides.

arthritis: Painful inflammation of a joint or joints of the body, usually producing heat, redness, swelling, and pain. The condition can be brought about by nerve impairment, increased or decreased function of the endocrine glands, or degeneration due to age.

asthma: Spasm of the bronchi in the lungs and a narrowing of the airways.

astringent: A substance that contracts cell walls and stops unwanted discharges by causing shrinking of tissue.

atherosclerosis: A form of arteriosclerosis. A process in which fatty substances (cholesterol and triglycerides) are deposited in the walls of medium to large arteries, eventually leading to blockage of arteries.

autoimmune: A process in which antibodies develop against the body's own tissues.

balm: A soothing or healing medicine applied to the skin, such as tiger balm in Chinese medicine.

Ben Cao (Ben ts'ao): The compendium of crude drugs. The first *Ben Cao* was *Shen-nong Ben Cao Jing* formally published in the second century. The complete *Ben Cao* is *Ben Cao Gang Mu* published by Li Shi Zhen in 1596.

benign: A mild disorder that usually is not harmful or fatal.

bile: A thick oily fluid excreted by the liver; bile helps the body digest fat.

blood pressure: The force exerted by blood as it presses against and attempts to stretch blood vessels.

blood stasis: A stagnation of blood circulation.

bronchitis: Infection of the bronchi.

bursitis: Inflammation of bursae, especially those located between bony prominence and muscles or tendons at the shoulders and knees.

cancer: Common term for a neoplasm, or a tumor, that is malignant. A large portion of human cancers may be caused by various chemicals, such as nitrites, some steroids, asbestos, and smoking, radiation, viruses, etc.

Candida albicans: A yeast common to the intestinal tract.

candidiasis: A complex medical syndrome produced by a chronic overgrowth of *Candida albicans.*

carbohydrate: Sugars and starches.

carbuncle: Collection of boils in the skin.

carcinogen: Any agent or substance capable of causing cancer.

carcinogenesis: The development of cancer caused by the actions of certain chemicals, viruses, or unknown factors on primarily normal cells.

carcinoma: Any of several kinds of cancerous growths made up of epithelial cells.

cardiac output: The volume of blood pumped from the heart in one minute.

cardiopulmonary: Pertaining to the heart and lungs.

cardiotonic: A compound that tones and strengthens the heart.

cardiovascular: Referring to the heart and the blood vessels as a unified vascular system.

carminative: A substance that promotes the elimination of intestinal gas.

carotene: Fat-soluble plant pigments, some of which can be converted into vitamin A by the body.

cartilage: A type of connective tissue that acts as a shock absorber at joint interfaces.

cathartic: A substance that stimulates the movement of the bowels.

cerebrovascular: Referring to the brain and the blood vessels as a unified body system.

chemotherapy: The prevention or treatment of infection by the systemic administration of chemical drugs.

cholecystitis: Inflammation of the gallbladder.

cholelithiasis: Gallstones.

choleretic: A compound that promotes the flow of bile.

cholesterol: A sterol, or fatty alcohol, found especially in animal fats, blood, nerve tissue, and bile and thought to be a factor in atherosclerosis.

cirrhosis: A severe disease of the liver characterized by the replacement of liver cells with scar tissue.

colic: Pertaining to the colon. Severe spasms in any hollow or tubular soft organ accompanied by pain.

colitis: Inflammation of the colon, usually associated with diarrhea that contains blood and mucus.

collagen: The protein that is the main component of connective tissue.

congestive heart failure: Chronic disease that results when the heart is not capable of supplying the oxygen demands of the body.

constipation: Condition in which evacuating the bowels is infrequent and difficult.

constituent: An essential part or component. The chemical entities contained in a crude drug.

consumption: A disease that causes the body or part of the body to waste away; especially tuberculosis of the lungs.

contagious: A disease that can be transferred from one person to another by social contact, such as sharing the home or workplace.

convulsion: A violent, involuntary contraction or spasm of the muscles.

corticosteroid drugs: A group of drugs similar to the natural corticosteroid hormones and used predominately in the treatment of inflammation and to suppress the immune system.

Crohn's disease: Inflammatory disease of the bowel.

crude drugs: Naturally occurring materials of animal, plant, and mineral origin that have not been chemically processed or purified.

Cushing's syndrome: A condition caused by a hypersecretion of cortisone and characterized by spindly legs, "moon face," "buffalo hump," abdominal obesity, flushed facial skin, and poor wound healing.

cyst: An abnormal lump or swelling filled with fluid or semisolid material in any body organ or tissue.

cystitis: Inflammation of the inner lining of the bladder. It is usually caused by a bacterial infection.

debilitating disease: Any disease that causes weakness.

debility: Weakness, feebleness, languor of body.

decoctions: Teas or liquid prepared by boiling a botanical substance with water for a specified period of time, followed by straining or filtering.

degeneration: Deterioration of mentality; deterioration in structure or function of cells, tissues, or organs, as in disease or aging.

dehydration: Excessive loss of water from the body.

dementia: Senility. Loss of mental function.

depressant: A drug or medicine that lowers or retards the rate of muscular function or nervous activity; a sedative.

depression: An emotional state of dejection usually associated with manic-depressive psychosis.

dermatitis: Inflammation of the skin.

diabetes: An inheritable, constitutional disease, characterized by the failure of the body tissues to oxidize carbohydrates at a normal rate. Its most important factor is a deficiency of insulin.

diaphoresis: Profuse sweating.

diaphoretic: An agent which increases perspiration.

diastolic: The second number in a blood pressure reading. It is the measure of the pressure in the arteries during the relaxation phase of the heartbeat.

diuretic: A compound that causes increased urination.

diverticulitis: Inflammation of weak points in the large intestine, especially the colon, causing stagnation of feces in little distended sacs of the colon (diverticula).

dosage (dose): The amount of drug needed at a given time to produce a particular or clinically desired activity or effect.

dosage form: The physical state in which a drug or drugs is dispensed, such as tablets, capsules, or injectables, suitable for drug delivery to the patient.

double-blind study: A way of controlling against experimental bias by ensuring that neither the researcher nor the subject know when an active agent, or placebo is being used.

duodenum: The first stretch of the small intestine.

dysentery: Acute intentional infection causing severe pain and diarrhea.

dysfunction: Abnormal function.

dysmenorrhea: Severe pains accompanying monthly menstruation.

dyspepsia: Disturbed digestion, indigestion, or impaired digestion.

edema: Excessive accumulation of fluid in the tissue spaces due to disturbance in the mechanisms of fluid exchange.

electroencephalogram (EEG): A measure of the changes in electric potential produced by the brain.

eleutheroside: A biologically active saponin glycoside, isolated from the root of Siberian ginseng, having varied, but similar, activities of ginseng glycosides.

emetic: A substance that induces vomiting.

emphysema: A condition caused by air entering the tissues of the air sacs (alveoli) in the lungs thus breaking down the thin walls so that gas exchange cannot take place.

encephalitis: Inflammation of the brain usually as a result of viral infection.

endocrine glands: Any of the ductless glands, such as the adrenals, the thyroid, and the pituitary, whose secretions pass directly into the bloodstream.

endogenous: Product arising from within the body or a cell.

endometrium: The mucous membrane lining of the uterus.

enteritis: Inflammation that can occur in any section of the small intestine.

enzymes: An organic catalyst that speeds chemical and biological reactions.

epidemiology: The study of the occurrence and distribution of diseases in human populations.

epilepsy: Abnormality of brain function causing seizures.

essential fatty acid: Fatty acids that the body cannot manufacture; linoleic and linolenic acids.

essential oils: Also known as volatile oils, ethereal oils, or essences. They are usually complex mixtures of a wide variety of organic compounds (e.g., alcohols, ketones, phenols, acids, ethers, esters, aldehydes, and oxides) that evaporate when exposed to air. They generally represent the odoriferous principles of plants.

estrogen: Any of a group of female hormones. Estrogens cause the thickening of the lining of the uterus and vagina in the early phase of menstruation;

responsible for female secondary sex characteristics. Estradiol, estrone, and estriol account for most estrogenic activity.

excipient: An inert substance or substances used as a vehicle in drugs.

excretion: The process of elimination of waste products from a cell, tissue, or the entire body.

exogenous: Originating outside an organ or the body.

expectorant: A remedy that promotes or modifies the amount of fluid or semifluid matter from the lungs and air passages expelled by coughing and spitting.

extracts: Concentrated forms of natural products, obtained by treating crude materials containing these substances with a solvent and then removing the solvent completely or partially from the preparation. The most commonly used extracts are fluid extracts, solid extracts, powdered extracts, tinctures, and native extracts.

fatigue: Inability to perform reasonable and necessary physical and or mental activity. Fatigue may be associated with systemic disorders such as anemia, deficiency of nutrition, oxygen, addiction to drugs, endocrine gland disorders, or kidney disorders in which there is a large accumulation of waste products, or psychic disorders, etc. Excess fatigue causes exhaustion.

fibrositis: Inflammation of the body's connective tissue.

flavonoid: A generic term for a group of flavone-containing compounds that are found widely in nature. They include many of the compounds that account for plant pigments (anthocyanins, anthoxanthins, apigenins, flavones, flavonols, bioflavonols, etc.). These plant pigments exert a wide variety of physiological effects in the human body.

fluid extracts: These extracts are typically hydroalcohol solutions with a strength of one part solvent to one part herb. The alcohol content varies with each product. They are, in essence, concentrated tinctures.

gallstone: Insoluble stones which occur in the gallbladder.

gastritis: Inflammation of the stomach lining.

gastroenteritis: Inflammation of stomach and intestines.

genin: A term used to refer to the aglycone or nonsugar portion of glycosides in plants.

gerontology: The study of aging.

gingivitis: Inflammation of the gums.

ginsenoside: Japanese term referring to a number of ginseng saponin glycosides isolated from the methanol extract of *Panax ginseng* root.

glaucoma: A condition in which the pressure of the fluid in the eye is so high that it causes damage.

glucose: A monosaccharide that is one of the primary energy sources.

gluten: One of the proteins in wheat and some other grains that gives dough its tough elastic character.

glycosides: Sugar-containing compounds composed of a glycone (sugar component) and an aglycone (nonsugar-containing component) that can be cleaved in hydrolysis. The glycone portion may be glucose, rhamnose, xylose, fructose, arabinose, or any other sugar. The aglycone portion can be any kind of compound—e.g., sterols, triterpenes. anthraquinones, hydroquinones tannins, carotenoids, or anthocyanidins.

glycosuria: The presence of sugar in the urine.

goiter: Condition where there is enlargement of the thyroid gland causing swelling at the front of the neck.

gonadotrophic: A substance (hormone) that is gonad stimulating, or sex-gland stimulating.

gout: Inflammation in joints caused by a build up of uric acid.

hay fever: Allergic reaction to pollen causing inflammation of the mucus membranes of the nose.

helper T cell: Lymphocytes that help in the immune response.

hematinic: A blood tonic that increases the formation of hemoglobin and red blood cells.

hemoglobin: The red coloring matter of the red blood corpuscles and a protein yielding heme and globin in hydrolysis; it carries oxygen from the lungs to tissues and carbon dioxide from tissues to the lungs.

hemorrhage: Loss of blood, bleeding.

hemorrhoids: Distended or enlarged veins in the lining inside or just outside of the rectum that cause pain, itching, discomfort, and bleeding.

hepatic: Pertaining to the liver.

herbal: Referring to a plant used for medicinal purposes.

histamine: An amine produced by the decarboxylation of histidine and found in all organic matter; it is released by the tissues in allergic reactions, lowers blood pressure by dilating blood vessels, stimulates gastric secretions, etc.

histaminic: Causes the stimulation of the visceral muscles, dilation of the capillaries, stimulation of the salivary, pancreatic, and gastric secretions.

hepatomegaly: Enlargement of the liver.

holistic medicine: A form of therapy aimed at treating the whole person, not just the part or parts in which symptoms occur.

homeostasis: The maintenance of steady states in organism by coordination of physiologic processes. All organ systems are integrated by automatic adjustments to keep within narrow limits the disturbances excited by the changes in the organism or in the surroundings of the organism. The tendency to maintain, or the maintenance of normal, internal balance.

hormone: A secretion of an endocrine gland that controls and regulates body functions.

hyperglycemia: Excess sugar in the blood.

hyperglycemic: Referring to the condition of hyperglycemia.

hypertension: Excessive tension, usually synonymous with high blood pressure.

hypertensive: Referring to hypertension.

hypnotic: A remedy that causes sleep.

hypochlorhydria: Insufficient gastric acid output.

hypoglycemia: Low blood sugar.

hypoglycemic: Referring to the condition of hypoglycemia.

hypotension: Diminished or abnormally low tension, usually synonymous with low blood pressure.

iatrogenic: Literally, "physician produced." This term can be applied to any medical condition, disease, or other adverse occurrence that results from medical treatment or medication.

impotence: Inability of the male to perform sexual intercourse; erection difficulties. Impotence may result from physical causes such as structural

abnormalities of the genital organs, decreased activity of the thyroid, pituitary, or sex glands, anemia, or other debilitating diseases, alcoholism, or may be psychological in origin.

indigestion: Condition in which digestion is difficult, resulting in abdominal pain.

infarction: Death to a localized area of tissue as a result of an inadequate supply of oxygen. Myocardial infarction usually results from formation of a thrombus.

inflammation: The reaction of the tissues to injury. The essential process, regardless of the causative agent, is characterized clinically by local heat, swelling, redness, and pain.

infusions: Teas produced by steeping a botanical substance in hot water.

insomnia: Sleeplessness or disturbed sleep; a prolonged condition of inability to sleep.

insulin: A hormone secreted by the pancreas that lowers blood sugar levels.

interferon: A potent immune-enhancing substance that is produced by the body's cells to fight off viral infection and cancer.

in vitro: In glass; referring to a process or reaction carried out in a culture dish, test tube, etc. Outside a living body and in an artificial environment.

in vivo: In the living organism (in a living body of an animal or plant) used in contrast to in vitro.

jaundice: A condition caused by elevation of bilirubin and characterized by a yellow discoloration of the skin and the eyes.

lactose: One of the sugars present in milk. It is a disaccharide.

laryngitis: Inflammation of the larynx.

laxative: A substance that promotes the evacuation of the bowels.

leukemia: Any disease of the blood-forming organs resulting in an abnormal increase in the production of leukocytes often accompanied by anemia and enlargement of the lymph nodes, spleen, and liver.

leukocyte: One of the colorless more or less ameboid cells of the blood containing a nucleus and cytoplasm.

leukorrhea: Vaginal discharge, often indicating infection.

lipid: Fats, phospholipids, steroids, and prostaglandins.

longevity: Term denoting the length or duration of life used to indicate an unusually long life.

lymph: Fluid contained in lymphatic vessels that flows through the lymphatic system and is returned to the blood.

lymphocyte: A type of white blood cell found primarily in lymph nodes.

malaise: A vague feeling of being sick or of physical discomfort. A general feeling of illness, lack of appetite, and decreased energy.

malignant: A term used to describe a condition that tends to worsen and eventually causes death.

mast cell: A cell found in many tissues of the body that contributes greatly to allergic and inflammatory processes by secreting histamine and other similar particles.

mastitis: Acute inflammation of the breasts.

materia medica: The branch of science dealing with all drugs used in treatment of diseases, their sources, descriptions, actions, preparations, dosage, and use.

meningitis: Inflammation of the membranes that protect the brain.

menorrhagia: Excessive loss of blood during menstrual periods.

menstrual flow: Discharge of blood and tissue debris of monthly period.

metabolism: Sum of all biochemical processes involved in life: two subcategories of metabolism are anabolism, the building up of complex organic molecules from simpler precursors, and catabolism, the breakdown of complex substances into simpler molecules, often accompanied by the release of energy; metabolic reactions are usually catalyzed by enzymes.

metrorrhagia: Bleeding that occurs in the middle of the menstrual cycle.

monosaccharide: A simple, one-unit sugar, such as fructose or glucose.

mucous membrane: The soft pink tissue that lines most of the cavities and tubes in the body, including the respiratory tract, gastrointestinal tract, genitourinary tract, and eyelids. Mucous membranes secrete mucus.

mucus: The slick, slimy fluid secreted by the mucous membranes. Mucus acts as a lubricant and mechanical protector of the mucous membranes.

neoplasis: A medical term for a tumor formation, characterized by a progressive, abnormal replication of cells.

neurasthenia: A group of symptoms ascribed to debility or exhaustion of the nerve centers; fatigability, lack of energy, various aches and pains, and disinclination to activity.

neurogenic: Of nervous origin; stimulated by the nervous system.

neurosis: A disorder of the psyche of psychic functions.

night blindness: The inability to see well in dim light or at night.

nocturia: The disturbance of a person's sleep at night by the need to pass urine.

normalization: Reduction to normal or standard state.

oleoresins: Primarily, mixtures of resins and volatile oils. They either occur naturally or are made by extracting the oily and resinous materials from botanicals with organic solvents (e.g., hexane, acetone, ether, alcohol). The solvent is then removed under vacuum, leaving behind a viscous, semisolid extract, which is the oleoresin. Examples of prepared oleoresins are paprika, ginger, and capsicum.

oncology: The study or science of neoplastic growth or cancer.

organism: Any living entity with differentiated members with specialized functions that are interdependent, and that is so constituted as to form a unified whole capable of carrying on life processes.

osteoarthritis: Most common form of arthritis, affecting mainly hips, knees, and shoulders.

osteopathy: A manipulative technique used on the joints and now accepted in orthodox medicine.

otitis media: Acute infection of the middle ear.

panaxoside: Russian term referring to a number of ginseng saponin glycosides isolated from the methanol extracts of *Panax ginseng*.

pancreatitis: Inflammation of the pancreas.

paralysis: Partial or complete loss or temporary interruption of a function, especially of voluntary motion or of sensation in some parts or all of the body.

Parkinson's disease: a slowly progressive, degenerating nervous system disease characterized by resting tremor, pill rolling of the fingers, a masklike facial expression, shuffling gait, and muscle rigidity and weakness.

pathogen: Any agent, particularly a microorganism, that causes disease.

pathogenesis: The process by which a disease originates and develops, particularly the cellular and physiological processes.

pathogenic factors: A typical TCM term. They can be exogenous or endogenous; pathogenic factors cause disease.

peptic ulcer: An ulcer occurring on the internal membranes of the digestive tract.

pH: A chemical symbol used to express acidity and alkalinity in terms of hydrogen ion concentration. The pH values may range from 0 to 14; numbers less than 7 indicate acidic, and numbers greater than 7 indicate basic.

pharmacognosy: The science dealing with the preparation, uses, and properties of crude drugs. In a broad sense, pharmacognosy embraces the knowledge of the history, distribution, cultivation, collection, selection, preparation, commerce, identification, evaluation, preservation, actions, and use of crude (natural) drugs and other agents affecting the health of humans and animals.

pharyngitis: Inflammation of the pharynx, the airway in back of the nose connected to the trachea (windpipe).

phlebitis: Inflammation of the veins closest to the skin.

phlegm: Thick mucus from the respiratory passages.

phospholipid: A type of lipid compound that is an ester of phosphoric acid and contains one or two molecules of fatty acid, an alcohol, and a nitrogenous base, such as lecithin, cephalin, and sphingomyelin.

physiology: The study of the functioning of the body including the physical and chemical processes of its cells, tissues, organs, and systems.

phytosterol: Any of several steroid alcohols found in plants.

placebo: A biologically inert substance, such as lactose, that is used as a sham drug. Placebos have no inherent pharmacological activity but may produce a biological response.

pneumonia: A lung infection usually caused by bacteria or viruses.

polysaccharide: A molecule composed of many sugar molecules linked together.

polyuria: Excessive urination.

pressor: Designating a nerve that, when stimulated, causes a rise in blood pressure; a substance capable of raising blood pressure.

prostaglandin: Hormonelike compound manufactured from essential fatty acids.

prostate gland: Male gland surrounding neck of the bladder and urethra.

prostatitis: Inflammation or enlarged prostate gland.

psychosomatic: Pertaining to the relationship between the mind and body. Commonly used to refer to those physiological disorders thought to be caused entirely or partly by psychological factors.

pulmonary: Of the lungs.

pulse: Alternative expansion and contraction of artery walls as heart action varies blood volume within the arteries. Usually, the pulse rate is determined by counting the pulsations per minute in the radial artery at the wrist. Various diseases may be indicated by changes in the rate, rhythm, and force of the pulse.

purgative: An agent that causes watery evacuation of the intestinal contents.

pyretic: Of, causing, or characterized by fever.

rejuvenation: A renewal of youth; a renewal of strength and vigor; specifically, a restoration of sexual vigor.

resins: Complex oridative products of terpenes that occur naturally as plant exudates or are prepared by alcohol extraction of botanicals that contain resinous particles.

rheumatism: A popular term of any of various painful conditions of the joints and muscles, characterized by inflammation, stiffness, etc., including rheumatoid arthritis, bursitis, neuritis, etc.

rheumatoid arthritis: A chronic disease whose cause is unknown, characterized by inflammation, pain, and swelling of the joints accompanied by spasms in adjacent muscles and often leading to deformity in the joints.

RNA (ribonucleic acid): Nucleic acid occurring in cell cytoplasm and the nucleolus, first isolated from plants, but later found also in animal cells, containing phosphoric acid D-ribose, adenine, guanine, cytosine, and uracil.

saccharide: A sugar molecule.

sapogenin: Term referring to the nonsugar portion of ginseng saponin glycosides.

saponins: Non-nitrogenous glycosides, typically with sterol or triterpenes as the aglycone, that possess the common property of foaming, or making suds, when strongly agitated in an aqueous solution. Saponins are characterized by forming colloidal solutions in water that foam upon shaking, have a bitter, acrid taste, and are irritating to the mucous membranes; hemolytic to blood cells.

satiety: A feeling of fullness or gratification.

saturated fat: A fat whose carbon atoms are bonded to the maximum number of hydrogen atoms; found in animal products such as meat, milk, dairy products, and eggs.

sciatica: Severe pain in the lower back, legs, along the course of sciatic nerve.

sclerosis: The process of hardening or scarring.

sedative: A substance with quieting function or activity.

senile dementia: Mental deterioration associated with aging.

shingles: Viral infection of the nerve ganglia, *herpes zoster.*

side effect: Drug-induced symptoms that may be undesirable.

sinusitis: Inflammation of the mucous membrane of the sinuses, eyes, and nasal cavity.

stigmasterol: A sterol derived from the soybean.

stimulant: An agent that causes increased functional activity.

stomachic: One of the class of substances that may stimulate the secretory activity of the stomach.

stomatitis: Inflammation of the stomach.

stress: Any stimulus or succession of stimuli that disrupt the homeostasis of an organism.

syndrome: A group of signs and symptoms that occur together in a pattern characteristic of a particular disease or abnormal condition.

synergism: The response or action of one drug enhanced by another. The term potentiation has been used for synergism.

synergistic: Referring to synergism.

T cell: A lymphocyte that is under the control of the thymus gland.

tapeworm: Long, flat worm that lives as a parasite in human digestive tracts.

thrombosis: Formation of a blood clot in a blood vessel.

thyroid gland: Gland that regulates the body's metabolic rate, situated in front of the windpipe.

tinctures: Alcohol or hydroalcohol solutions usually containing the active principles of botanicals in low concentrations. They are usually prepared by maceration, percolation, or by dilution of their corresponding fluid or native extracts. The strengths of tinctures are typically 1:10 or 1:5. Alcohol content will vary.

tinnitus: A condition in which sounds (ringing) occur in the ears for no apparent reason.

tonic: An agent or drug given to improve the normal tone of an organ, or the general well-being of the patient.

tonic effect: Mentally or morally invigorating; stimulating.

tonsillitis: Inflammation of the tonsils.

tuberculosis: Infectious disease caused by tubercula bacteria in the lungs.

tumor: Abnormal growth of cells anywhere in the body. Slow-healing sore occurring internally or externally.

urethris: Inflammation of the tube from the bladder.

uric acid: Waste product produced by metabolism.

urinalysis: The analysis of urine.

urticaria: Hives.

vasoconstriction: The constriction of blood vessels.

vasodilation: The dilation of blood vessels.

vermifuge: Anthelmintic remedy that eliminates worms from the body.

viscera: Organs enclosed within a cavity, especially the abdominal organs.

visceral pain: Pain in the intestines and abdominal cavity.

vitality: Mental or physical vigor; energy.

vitamin: An essential compound that acts as a catalyst in normal processes of the body.

volatile oils: Essential oils that represent the odoriferous principles of plants: peppermint oil, clove oil, rose oil, etc.

Western diet: A diet characteristic of Western societies, i.e., a diet high in fat, refined carbohydrates, processed foods, and low in dietary fiber.

whooping cough: Infectious childhood disease of the upper respiratory tract.

IMPORTANT TRADITIONAL CHINESE MEDICINE TERMS

General and Physiological Terms

***Da Chang* (TCM large intestine):** Passes waste received from the small intestine.

***Dan* (TCM gallbladder):** The function of this organ is related to psychic and emotional activities.

***Fei* (TCM lung):** The lungs are in charge of vital energy and perform the function of respiration. The lungs clean the inspired air and keep it and the vital energy flowing downward. If this function is impeded, coughing, asthma, oliguria, or edema may occur. The lungs are associated with the skin surfaces. Dysfunction of the lungs may cause spontaneous sweating and colds. The lungs have their specific manifestations in the nose and are associated with the voice. The volume of one's voice is determined by the condition of the lungs.

food stagnation: Stagnant food in the body. Herbs are used to remove the stagnant food and restore the normal functions of the stomach and spleen.

***Gan* (TCM liver):** Stores blood, controls the flow of vital energy, and controls functions of sinews, tendons. *Gan* serves as a reservoir, and regulates the circulation and volume of blood. *Gan* smooths and regulates the flow of vital energy and blood and supplies the tendons with nutrients to develop physical strength. If this function is impaired, numbness, tremor, or spasm of the muscles and tendons and sluggishness of the joints may occur. The outward manifestation of *Gan* is reflected in the nails, for example, lustrous nails signify a sound *Gan. Gan* is also reflected in the eyes. Poor eyesight or discoloration of the eyes may indicate a pathological condition of the liver.

***Gan-Qi* (vital energy of the liver):** The disturbance of the Liver-*Qi,* either a physiological state or pathological condition is marked by fullness of the chest and pain in the costal region with symptoms of indigestion or abnormal menstruation (menoxenia).

***Gan-Yin* and *Gan-Yang* (yin of the liver and yang of the liver):** The liver stores the soul and is easily affected by anger. Pathogenic Wind can damage the liver which causes vertigo, tremors, or even convulsions.

***Jin Ye* (body fluids):** A general term for all fluids in the body, including secretions such as saliva, tears, sweat, urine, etc., and liquid nutrients and mucous body fluid, such as those stored in the articular and cranial cavities.

***Jing* (Essence of Life):** The fundamental substance that underlies all organic life. It maintains body function. The source of organic changes *(Shen)* is supportive and nutritive and is the basis of reproduction and development in TCM.

***Pang huang* (TCM bladder or urinary bladder):** Stores and discharges urine.

***Pi* (TCM spleen):** The *Pi* normalizes blood circulation within the blood vessels, and nourishes the flesh and the limbs. Its impairment usually leads to chronic hemorrhagic disease, loss of flesh, and weakness of limbs. The *Pi* has its specific body opening in the mouth and has its outward manifestation in the lips, i.e., red and lustrous lips signify normal functioning of the spleen.

***Pi-Qi* (vital energy of the spleen):** Includes digestion, assimilation, transportation, and distribution of nutrients and fluid.

***Qi* (Vital Energy):** *Qi* is believed to be the basic element. The concept of *Qi* has no English equivalent. It is often translated as "energy," but this does not convey the complexity of its meaning. Broadly, *Qi* is the life force within the human organism, encompassing all the emotional, mental, and physical. *Qi* is the source of all movement in the body.

***San Jiao* (TCM Triple Burners):** The three sections of the body cavity: Upper-*Jiao,* middle-*Jiao,* and Lower-*Jiao.*

***Shen* (Spirit or mental faculties):** *Shen* is the substance unique to human life. If *Jing* is the source of life, and *Qi* is the ability to activate and move, *Shen* is the vitality behind *Jing* and *Qi* in human body. Animate and inanimate movement are indicative of *Qi,* instinctive organic processes reflect *Jing,* human actions indicate the presence of *Shen.* In a healthy person, *Shen*

is the capacity of the mind to form ideas and is the desire of the personality to live life.

***Shen* (TCM kidney):** Stores the essence of life, whether congenital or acquired. *Shen* stores the reproductive essence and regulates water circulation. The health of the *Shen* determines the condition of the bones and teeth and controls the Fire of the Vital Gate, which is the source of heat energy of the body. It serves as the dynamic force of functional activity of viscera and also plays an important role in development, growth, and sexual potency. *Shen* is intolerant of dryness, and has its outward manifestation in the hair of the head. The health condition of the kidneys is reflected in the ears and healthy *Shen* ensures sharp hearing.

Shen-Yin* and *Shen-Yang: The Vital Essence or genuine Essence and the vital function of the kidneys.

viscera and bowels (internal organs): The five viscera are the five yin organs: heart, liver, spleen, lungs, and kidneys. The six bowels are yang organs: the stomach, large intestines, small intestines, gallbladder, bladder, and the Triple Burners.

***Wei* (TCM stomach):** Receives and digests food.

***Xiao Chang* (TCM small intestine):** Receives digested food from the stomach, digests it further, absorbs useful nutrients, and excretes the waste, passing it on to the large intestine.

***Xin* (TCM heart):** Xin controls blood circulation and is in charge of mental activities, including consciousness and thinking. Dysfunction of the *Xin* may result in insomnia, amnesia, impairment of consciousness, psychosis, etc. *Xin* has its outward manifestation in the face, and also in the tongue. A dark purple tongue indicates blood stasis; pallor of the tongue reveals blood deficiency, ulcer on the tongue indicates excessive fire of the heart.

***Xin Bao* (TCM pericardium):** Surrounds the heart and protects it against attack from exogenous pathogenic factors.

***Xue* (blood):** The red fluid circulating through the blood vessels which nourishes the body tissues. *Xue* is derived from the transformation of food essence and nutrients produced in the spleen and stomach, and from the vital essences stored in the kidneys. *Xue* is stored in the liver and distributed throughout the body based on demand. Its circulation is promoted by the heart with the assistance of the lungs and is controlled by the spleen. The dysfunction of any of these organs may lead to blood deficiency or abnormal blood flow.

yin and yang: The two fundamental forces in the universe, ever opposing and complementing each other. An old philosophical concept used in Chinese medicine to refer to various antitheses in anatomy, physiology, pathology, and the diagnosis and treatment of diseases. For example, yin qualities are referred to as interior, Cold, and hypofunctional, while yang qualities are exterior, Heat, and hyperfunctional.

Pathology and Treatment of Disease Terms

cause of diseases: TCM classifies etiology into exogenous causes, endogenous causes, and non-exo-endogenous causes. The exogenous causes of disease refer chiefly to the six excessive and climatic influences, the pathogenic factors of Wind, Cold, Summer Heat, Dampness, Dryness, and Heat. These factors are also called Six Evils. The endogenous causes refer chiefly to excessive emotional changes. Non-exo-endogenous causes refer chiefly to intemperance in eating, drinking, sex, and work, burn, trauma, and animal bite injuries.

Cold: Cold is one of the six pathogenic factors and includes external Cold and internal Cold. Symptoms of external Cold are chills, headache, and general aching. Symptoms of internal Cold are watery diarrhea, abdominal pain, and cold limbs.

Dampness: Dampness is one of the six pathogenic factors that are exogenous causes of disease. It can also be caused by water retention or impaired water distribution, often referred to as endogenous Dampness. Dampness disturbs the normal flow of *Qi* and the functioning of the spleen and stomach. It can also be caused by water retention or impaired water distribution, often referred to as endogenous Dampness.

Dampness and Heat in the liver and gallbladder: Symptoms such as fever and chills, jaundice, costal and abdominal pain, a bitter taste in the mouth, nausea, and a slippery, rapid pulse may occur.

deficiency of blood: A condition that may lead to symptoms of pallor, dizziness, palpitations, insomnia, etc., usually resulting from profuse bleeding or chronic hemorrhage, or impaired blood production due to impaired function of the spleen.

deficiency of both Lung-*Qi* and Kidney-*Qi*: Symptoms such as dyspnea, asthma, shortness of breath, spontaneous sweating, and cough with profuse sputum may occur.

deficiency of both lung yin and kidney yin: Symptoms such as dry cough, shortness of breath, dryness of throat, afternoon fever, lumbago, night sweating, and nocturnal emission may occur.

deficiency of kidney yang: Marked by general debility with symptoms such as aversion to cold, lumbago, nocturnal emission, impotence, and frequent urination at night. Serious cases are called Decline of the Fire of the Vital Gate in TCM.

deficiency of *Qi:* A deficiency or absence of *Qi* causing a *Qi* deficiency in the spleen, the lungs, kidneys, or liver.

deficiency of Spleen-*Qi:* Symptoms such as dizziness, fatigue, shallow face, indigestion, abdominal distension, lassitude, anorexia, gastric neurosis, chronic dysentery, and anemia may occur. It is also usually seen in cases of peptic ulcer.

differentiation syndrome: Overall analysis of symptoms and signs of disease, including the cause, nature, and location and the patient's physical condition.

Dryness: Dryness prevails in autumn. It impairs Vital Essence and body fluid and causes red eyes, dryness of the nasal cavities and lips and dry cough.

eight principals in diagnosis: Yin and yang, exterior and interior, Heat and Cold, Insufficiency (or deficiency), and Excessiveness of illness. TCM uses the eight principal syndrome when analyzing and diagnosing a disease.

emotional factors: The endogenous factors causing diseases if in excess: joy, anger, melancholy, anxiety, sorrow, fear, and fright.

endogenous Wind stirring in the liver: Endogenous Wind causes dizziness, convulsions, and spasms.

exuberance of liver yang: May be caused by a deficiency of liver yin and kidney yin. Marked by dizziness, headache, flushed face, blurred vision, tinnitus, a bitter taste in the mouth, and scarlet redness of the tongue. In cases of hypertension, a taut pulse is usually present.

Heat: Heat is one of the six pathogenic factors that are exogenous causes of disease. Pathological manifestations of Fire are: flushed face, bloodshot eyes, acute inflammation, etc.

hypofunction and Coldness of the spleen and stomach: Symptoms such as Cold and pains over the stomach, anorexia, abdominal fullness, belching, vomiting thin fluid, chronic diarrhea, lassitude, and cold limbs may occur.

intense Heat (Fire) in the liver: Strong emotional agitation. Symptoms are headache, dizziness, bloodshot eyes, flushed face, and a scarlet redness of the tip and sides of the tongue with a yellow coating. The patient is easily angered and exhibits mental irritability.

phlegm (mucus): Pathogenic secretions of the diseased respiratory organs.

pulse feeling: TCM diagnosis. There are many kinds of pulses, including: floating, sinking (deep), slow, rapid, smooth, hesitant, feeble, forceful, relaxed, taut, hollow, and uneven.

stagnancy: In pathology, stagnancy is a stoppage of motion of any fluid in the body. Six kinds of Stagnancy are: *Qi,* (vital energy) blood, Dampness, Fire, phlegm (mucus), and food.

stagnation of Liver-*Qi:* caused by emotional factors. Symptoms include a feeling of fullness in the chest and costal region. Choking sensations, sighinglike breaths, dizziness, a bitter taste in the mouth, loss of appetite, nausea, and menstrual complaints in women may occur.

stagnation of vital energy *(Qi)*: Various pathogenic factors, such as emotional depression, improper diet, infections, and injury can impede the normal circulation of *Qi* and result in its stagnation. This results in stuffiness and pain. Long-standing or continued stagnation of *Qi* may lead to stagnation of blood, a condition in which the blood moves sluggishly or is clogged in the blood vessels. The pathological symptoms may be blood stasis, marked by aggravation of local pain, with tenderness, or mass formation in the tissue.

Summer Heat: It brings on symptoms such as fever, headache, thirst, fidgeting, sweating, and rapid pulse.

tongue: In a TCM diagnosis, the size, form, color, smoothness (moisture), and coating (fur), of the tongue are inspected. For example, a reddened tongue indicates the presence of Heat, a whitish tongue indicates a deficiency of vital energy and blood, a deep redness indicates intense Heat usually seen in febrile disease, and a blue and purple tongue indicates blood stasis. A white coating on the tongue indicates a Cold factor or disease with only the surface of the body involved; a yellow coating indicates illness with Heat, and a grey or black coating indicates a severe illness.

Wind: Wind is one of the six pathogenic factors that are exogenous causes of disease. It is the most common of the exogenous factors.

yin-yang imbalance: Imbalance can occur when there is a predominance or deficiency of either yin or yang. For example, a preponderance of yin can

lead to a deficiency of yang, a deficiency of yang can lead to a preponderance of yin. An exuberance of yang can lead to a deficiency of yin. Conversely, a deficiency can lead to exuberance of yang. An imbalance in which both yin and yang are deficient is also possible.

Bibliography

Part I

Beijing TCM College (1980). *Essentials of Chinese Acupuncture.* Beijing: Foreign Language Press.

Bieler, Henry G. (1965). *Food Is Your Best Medicine.* New York: Random House.

Bowers, John Z. and Purcell, E. F. (Eds.) (1974). *Medicine and Society in China.* Philadelphia: Wm. F. Fell Co.

Cheng Du Zhong Yi College (1973). *Chang Yong Zhong Yao* [Commonly Used Chinese Herbal Medicine]. Shanghai: Shanghai Ren Min Wei Sheng Press.

Croizier, Ralph C. (1968). *Traditional Medicine in Modern China.* Cambridge, MA: Harvard University Press.

He, Yu-Min (1987). *Introduction On Traditional Chinese Medicine*. Shanghai: Shanghai TCM College Press.

Hsu, Hong-Yen and Peacher, William G. (1977). *Chen's History of Chinese Medical Science.* Taipei, Taiwan: Modern Drug Publishing Co.

Huard, P. and M. Wong (1973). *Chinese Medicine.* New York: McGraw Hill Book Co.

Institute of Pharmacology, Chinese Academy of Medical Sciences (1959). *Zhong Yao Zhi* [Chinese Herbology]. Beijing: Ren Min Wei Sheng Press.

Jiang Su Province Health Department (1980). *Zhong Yi Ji Chu* [Fundamentals of Traditional Chinese Medicine]. Jiangsu: Jiangsu Science and Technology Press.

Kaptchuk, Ted. J. (1983). *The Web That Has No Weaver.* New York: Congdon and Weed.

Krantz, John C. and Carr, C. Jelleff (1969). *The Pharmacologic Principles of Medical Practice.* Baltimore: The Williams and Wilkins Co.

Liu, Jilin and Peck Golden (1995). *Chinese Dietary Therapy*. New York: Churchill Livingstone.

Loo, Cyous, W. S. (1984). A comparison of western and eastern medicine. *American Journal of Acupuncture,* December 5.

Mann, Felix (1978). *Acupuncture: The Chinese Art of Healing.* London: William Heinemann Medical Books.

National Academy of Sciences (1975). *Herbal Pharmacology in The People's Republic of China.* Washington, DC: U.S. Government Press.

Risse, Guenter B. (1973). *Modern China and Traditional Chinese Medicine: A Symposium Held at the University of Wisconsin, Madison.* Springfield, IL: Charles C. Thomas, Publisher.

Takahashi, M. and Brown, Stephen (1986). *Qigong for Health*. Tokyo: Japan Publications.

Veitth, Ilza (1973). *The Yellow Emperor's Classic of Internal Medica*. Berkeley: University of California Press.
Weil, Andrew (1999). Botanical efficacy in the clinical setting. In Eskinazi, D. (Ed.), *Botanical Medicine* (pp. 43-45). New York: Mary Ann Liebert, Inc.

Parts II and III

Bensky, Dan and Gamble, Andrew (1986). *Chinese Herbal Medicine Materia Medica*. Seattle: Eastland Press.
Bone, Kerry (2001). *Clinical Applications of Ayurvedic and Chinese Herbs*. Queensland, Australia: Phytotherapy Press.
Brekham, I. I. (1980). *Man and Biologically Active Substances*. New York: Pergamon Press.
Chang, H. and But, P. (1986). *Pharmacology and Applied Chinese Materia Medica (Volume 1).* Singapore: World Scientific Press.
Chang Min-Yi. (1992). *Shi Yong Kang Ai Yan Fang* [Practical Recipes for Cancer Treatment]. Beijing: Chinese Medical Pharmaceutical Technology Press.
Chen, Z. L. and Chen, M. I. (1992). *A Comprehensive Guide to Chinese Herbal Medicine*. Long Beach, CA: Oriental Health Arts Institute Press.
Cheng Du Zhong Yi College (1973). *Chang Yong Zhong Yao* [Commonly Used Chinese Herbal Medicine]. Shanghai: Ren Min Wei Sheng Press.
Dong, Kunshan, Wang, Xiu Qin, and Dong, Yifan (1998). *Xian Dai Lin Chuang Zhong Yao Xue* [Contemporary Clinical Chinese Materia Medica]. Beijing: Zhong Guo Zhong Yi Yao Press.
Eskinazi, Daniel (Ed.) (1999). *Botanical Medicine*. New York: Mary Ann Liebert Pub.
Gao, L. W. (1994). *Clinical Manual of Toxic Chinese Herbs*. Beijing: Xue Yuan Press.
Hastings, Arthur C., Fadiman, J., and Gordon, J. S. (1981). *Health for the Whole Person*. New York: Bantam Books.
Hou, Joseph P. (1978). *The Myth and Truth About Ginseng*. South Brunswick, NJ: A. S. Barnes and Co.
Hsu, Hong-Yen (1982). *Chinese Herbs Medicine and Therapy.* Los Angeles, CA: Oriental Healing Arts Institute Press.
Hsu, Hong-Yen and Peacher, William G. (1977). *Chen's History of Chinese Medical Science.* Taipei, Taiwan: Modern Drug Publishing Co.
Jiang Su New Medical College (1977). *Encyclopedia of Chinese Materia Medica.* Shanghai: Shanghai Science and Technology Press.
Jiang Su Province Health Department (1980). *Zhong Yi Ji Chu* [Fundamentals of Traditional Chinese Medicine]. Jiangsu: Jiangsu Science and Technology Press.
Kim, Jung-Yun (1974). *Saponin and Sapogenin Distribution in America's Ginseng Plants.* PhD Thesis. Ann Arbor, MI: University of Michigan Microfilms.
Leung, A. and Foster, S. (1996). *Encyclopedia of Common Natural Ingredients*. New York: John Wiley and Sons, Inc.

Ling, Yeouruenn (1995). *A New Compendium of Materia Medica*. Beijing: Science Press.

Long, Z. X. (Ed.) (1998). *Basic Theories of Traditional Chinese Medicine*. Beijing: Academy Press.

National Academy of Sciences (1975). *Herbal Pharmacology in The People's Republic of China.* Washington, DC: U.S. Government Press.

The Pharmacopoeia Commission (1995). *Pharmacopoeia of the People's Republic of China (Volume 1).* Guang Zhou: Guang Dong Science and Technology Press.

Risse, Guenter B. (1973). *Modern China and Traditional Chinese Medicine: A Symposium Held at the University of Wisconsin, Madison*. Springfield, IL: Charles C. Thomas, Publisher.

Schulz, V., Hansel, R., and Tyler, V. (2001). *Rational Phytotherapy*. Heidelberg, Germany: Springer-Verlag.

Smith, F. P. and Stuart, G. A. (1973). *Chinese Medicinal Herbs*. San Francisco: Georgetown Press.

Tang, W. and Eisenbrand, G. (1992). *Chinese Drugs of Plant Origin: Chemistry, Pharmacology and Use in Traditional and Modern Medicine*. Berlin/Heidelberg: Springer-Verlag.

Wang, Jin-Hong (Ed.) (1994). *Xin Bian Chang Yong Zhong Yao Shou Ce* [Manual of Commonly Used Chinese Medicinal Herbs]. Beijing: Jin Dun Press.

Wang, J. M. (1985). *Chinese Herbal Pharmacology*. Shanghai: Shanghai Science and Technology Press.

Wang, Y. S. (1983). *Pharmacology and Applications of Chinese Materia Medica*. Beijing: People's Health Publisher.

Weng, W. L. (1993). *Huo Xue Hua Yu Zhi Liao Yi Nan Bing* [Blood Invigorating Stagnation Dispersing for the Treatment of Difficult Diseases]. Beijing: Academia Press.

Wu, B. J. (1983). *Pharmacology of Chinese Herbal Medicines*. Beijing: People's Health Press.

Yan, De-Xin (1993). *Zhong Guo Li Dai Zhong Yi Kang Shuai Lao Mi Yao* [Secret Essentials for Combating Senility with Chinese Medicine Through Various Dynasties]. Shanghai: Wen Huei Publishing House.

Yeung, Him-che (1983). *Handbook of Chinese Herbs*. San Francisco, CA: Institute of Chinese Medicine Press.

Yin, J. (1995). *Modern Research and Clinical Applications of Chinese Materia Medica (Volume 2)*. Beijing: Chinese Medical Classics Press.

Zhang, Enqin (1988). *Zhong Yao Xue* [The Chinese Materia Medica]. Shanghai: Publishing House of Shanghai TCM University.

Zhou, R. H. (1993). *Resource Science of Chinese Materia Medica*. Beijing: China Medical and Pharmaceutical Science Press.

Zhou, Jinhuang and Liu, Ganzhong (1991). *Recent Advances in Chinese Herbal Drugs*. Beijing: Science Press.

Zhou, Jinhuang and Xing, S. T. (1994). *Zhongyao Mianyi Yaoli Xue* [Immunopharmacology of Chinese Medicinal Herbs]. Beijing: People's Military Medicine Press.

Zhu, Youping (1998). *Chinese Materia Medica—Chemistry, Pharmacology and Applications*. Amsterdam: Harwood Academic Publishers.

Part IV

Bai, Gang and Xiao, Hongben (1995). *Zhong Yao Fang Ji Yan Jiao Yu Ying Yong Da Chuan* [Encyclopedia of Chinese Medicine Formulas, Studies and Applications]. Beijing: China Science and Technology Press.

Chen, Keji (Ed.) (1982). *Ci Xi-Guang XuYi Fangxuan Yi* [Selection of Imperial Palace Medical Prescriptions of Ci Xi-Guang Xu], Second Edition. Beijing: Zhong Hua Book Press.

Chen, Song-gu and Li, Fei (1993). *Zhong Yao Yu Fang Ji De Lin Chuang Ying Yung,* [A Clinical Guide to Chinese Herbs and Formula], Jin Hai De (Translator). New York: Charleston Livingstone.

Fang, Ding-ya and Shen Guo-nan (1994). *Zhong Cheng Yao Link Chuang Ying Yong Zhi Nan* [Practical Clinical Application of Chinese Herbal Patent Medicines]. Beijing: Science and Technology Documentation Press.

Guang Dong College of Traditional Chinese Medicine (Eds.) (1973). *Zhong Yi Fang Yao Xue* [Traditional Chinese Medicine Recipes]. Guang Zho, China: Guang Dong People's Publishing Co.

Hu, Ximing (1989). *Zhong Guo Zhong Yi Mi Fang Da Chuan* [Collections of Chinese TCM Secret Formulas], 3 volumes. Beijing: Wen Huei Press.

Ou, Ming (1989). *Manual of TCM Prescriptions.* Hong Kong: San Lian Press.

The Pharmacopoeia Commission (1995). *Pharmacopoeia of the People's Republic of China (Volume 1).* Guang Zhou: Guang Dong Science and Technology Press.

Wang, Jen-Zhi (1994). *Fang Ji Xue* [Chinese Herbal Prescriptions]. Taiyuan, China: Science and Technology Press.

Weng, W. L. (1993). *Huo Xue Hua Yu Zhi Liao Yi Nan Zheng* [Blood Invigorating Stagnation Dispersing for the Treatment of Difficult Diseases]. Beijing: Academia Press.

Zhang, Enqin (Ed.) (1988). *Fang Ji Xue* [Prescriptions of Traditional Chinese Medicine]. Shanghai: Publishing House of Shanghai TCM University.

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