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Chinese Herbal Medicine: MATERIA MEDICA

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CHINESE
HERBAL
MEDICINE

Materia Medica

PORTABLE 3rd EDITION

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Preface to 3rd Edition

THE FIRST EDITION OF *Chinese Herbal Medicine: Materia Medica* was published in 1986, and the revised edition in 1993. During the ensuing years there has been a huge increase in the use of Chinese herbal medicine in those Western countries where this book has served as a basic reference text. About six years ago we realized that some important changes had to be made if the book was to remain useful, and we have been working hard ever since to bring this new book to fruition.

To assist with this edition, two new co-authors were invited to contribute their special expertise. Steven Clavey, an author and practitioner from Melbourne, Australia, applied his clinical and scholarly expertise to expand the traditional background and usage of each herb. He was primarily responsible for in-depth discussions of the herbs in the COMMENTARY, MECHANISMS OF SELECTED COMBINATIONS, COMPARISONS, TRADITIONAL CONTRAINDICATIONS, and NOMENCLATURE & PREPARATION sections. Our other new co-author is Erich Stöger, from Austria, trained in both traditional Chinese and modern pharmacology. He has done extensive work in herb identification, which is reflected in this book, as well as his work translating and editing monographs on Chinese materia medica in German. He was primarily responsible for the identification section as well as QUALITY CRITERIA, MAJOR KNOWN CHEMICAL CONSTITUENTS, ALTERNATE SPECIES & LOCAL VARIANTS, ADULTERANTS, ALTERNATE NAMES, and ADDITIONAL PRODUCT INFORMATION.

The principal changes in this edition can be divided into four categories:

- First, our guiding principle has been to provide the type of information that enables the reader to practice Chinese

herbal medicine more effectively. To this end, in each entry we added new types of information: commentaries, discussions of key combinations, comparisons of related herbs. This new material provides the reader with a more well-rounded picture of the herbs and how they are used from both contemporary and pre-modern perspectives. In addition, because one of the keys to successful practice is proper preparation of the herbs, we also added a section that describes the different methods of preparing individual herbs, and the advantages of each.

- Second, we address the issue of safety more directly. This has two aspects. The first concerns toxicology research. Much work has been done in this area since the previous editions of this work were published, and we now include a section on toxicity in each entry where it is warranted. The literature on this subject is in its infancy, and often raises more questions than it answers. This information should therefore only be used for cautionary purposes, and not as an excuse to ban herbs or limit their availability.

The second aspect of safety is proper herb identification. We can't be sure that the herbs we give our patients are safe if we don't even know what they are. This is a major issue in contemporary Chinese herbal medicine and is discussed at length in the INTRODUCTION. In this edition we have added new sections to each entry dealing with quality criteria, alternate species and local variants, and adulterants. We have also updated the information on the major known chemical constituents of each herb. In doing so, we have tried to balance the competing pulls of tradition, convenience, utility, and scientific taxonomy. It is our belief that a consensus is building around these

important issues, primarily because of their impact on safety. On the other hand, we have chosen not to directly address the thorny issue of herb-drug interactions, as the information available at this time on the subject is often too unclear to be useful.

- Third, we separated out those materia medica that we consider to be obsolete and put them in their own chapter (19). Some are derived from endangered species, as identified in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Appendix 1. Others have a level of toxicity that far outweighs their usefulness, rendering them unsuitable for use.
- Finally, there are many substances that are new to this edition. These either appear in textbooks from the People's Republic of China or are in relatively common use outside of China. This now brings the total number of substances discussed in our book to approximately 532, of which 478 are discussed at some length.

One aspect of prior editions that we elected to remove from this one is pharmacological and clinical research. This is a field that has exploded in recent years and deserves a multi-volume work of its own. Given our own disposition—that the practice of Chinese herbal medicine must be grounded on traditional approaches—and our limited expertise, we felt that we simply could not do justice here to the vast amount of new research that has been published. Fortunately, however, there are a number of other books on this topic in English to which we can happily refer the reader, among them *The Pharmacology of Chinese Herbs*, 2d ed. (Huang Kee-Chang and W. Michael Williams, 1998), *Pharmacology and Applications of Chinese Materia Medica* (Chang Hson-Mou et al., 2000), and *Chinese Materia Medica: Chemistry, Pharmacology and Applications* (Zhu You-Ping, 1998).

In preparing this book we consulted a wide range of sources. Except where otherwise indicated, all of the information is drawn from the Chinese sources listed in the TRANSLATORS' BIBLIOGRAPHY. With respect to the ACTIONS & INDICATIONS section, we relied primarily on three recent textbooks: *Chinese Herbal Medicine* (Yan Zheng-Hua, 1991), *Clinical Traditional Chinese Herbal Medicine* (Lei Dai-Quan and Zhang Ting-Mo, 1998), and *Chinese Herbal Medicine* (Gao Xue-Min, 2000). There is a high level of agreement on the basic actions of the herbs in modern materia medica texts, and these books were consulted for their relatively comprehensive treatment of the subject.

Our translation methodology remains largely unchanged from the previous edition. As always, our goal has been

to translate Chinese medicine into English as clearly and transparently as we can. Yet, as our understanding of the medicine has improved, and the experience of our profession in transmitting information about Chinese herbal medicine into English has grown, we have made certain changes in our terminology, the most important of which are discussed in the GLOSSARY.

Another change is the manner in which we refer to the herbs themselves. We have adopted the new standard in international pharmacognosy that places the genus and species (when relevant) in front of the part of the plant used. For example, what used to be rendered as *Herba Ephedrae* is now *Ephedrae Herba*. This change will allow readers to more easily cross reference our work with those of other authors. We continue to combine the pinyin transliteration of the standard name of an herb with its pharmaceutical name, as this is the clearest method of identification. A cross reference to the names used in the previous edition of our work is provided in APPENDIX 8.

While we use the standard *pīnyīn* transliteration system from the People's Republic of China, we have modified it to better fit the needs of our audience. The standard transliteration system separates each word, while we separate each syllable (character). For example, we write *jīn yīn huā* instead of *jīnyīn huā*. We do this because much of our audience is untutored in Chinese, and separation by syllables is easier to read. We also modified the rendering of Chinese given names. In the standard method of transliteration, the two syllables (characters) of a given name are combined and placed after the surname, as in Zhang Zhongjing. In part to make things less confusing, and in part to emphasize to a Western audience that both parts of a two-syllable given name are important, we separate the two syllables with a hyphen, as in Zhang Zhong-Jing. We believe that this is clearer to our readers than the standard approach, and hope that Sinologists will forgive us this trespass.

Many people generously shared their knowledge and expertise on various aspects of this project. Among them are our colleagues Mazin al-Khafaji, Peter Deadman, Subhuti Dharmananda, Andy Ellis, Johann P. Gruber, Amy Hanks, Andreas Höll, Volker Scheid, and Nigel Wiseman.

Christine Tani provided the bulk of the Japanese transliterations, with some contributions from Atsue Morinaga, Gretchen de Soriano, and Jacqueline Young. Jinwoong Kim, professor of pharmacognosy at Seoul National University, not only brought our transliteration of the Korean names for the herbs up to date, but also participated in our deliberations regarding herb identification. We would like to particularly thank our mentor and friend Yao Da-Mu in Beijing for all his encouragement and assistance with issues of herb identification. Michael Ellis in Australia did much of the basic work on the herb comparison tables.

We wish to express our appreciation to the many Chinese authors whose works form the basis of our text. Given the focus of this book on herb identification, we especially pay tribute to some of the early pioneers of modern pharmacognosy in China who laid the foundations of this field, while laboring under extremely difficult circumstances. In particular, we honor the names of Lou Zhi-Cen (樓之岑), Cheng Jing-Rong (誠靜容), Xu Guo-Jun (徐國鈞), Chen Jun-Hua (陳俊華), Zhao Da-Wen (趙達文), Yao Da-Mu (姚達木),

and Xiao Pei-Gen (肖培根).

We also thank John O'Connor for his perspicacious editing, Hans Bleicher for his help with the photos, and Gary Niemeier for his artful book design. All errors are ours alone.

We hope that this new edition will prove useful not only to you, our readers, but more importantly, to your patients.

— DAN BENSKY, STEVEN CLAVEY, ERICH STÖGER

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EXTERIOR-RELEASING HERBS ARE those that release disorders lodged in the very superficial levels of the body. When external pathogenic factors (including wind-heat, wind-cold, wind-dampness, and summerheat) invade the body, they first attack its superficial, exterior aspects. Symptoms associated with the exterior then appear: chills, fever, headache, stiff neck, and general muscle aches. Sometimes sweating will appear, which resolves the condition, in which case no treatment is necessary. At other times, however, there will be an absence of sweating; or, even though there is sweating, it is not accompanied by any change in the condition. At this juncture, herbs that release the exterior are used.

Most exterior-releasing herbs are diaphoretics, that is, they release or expel the external pathogenic influences through sweating. There is a saying in Chinese medicine, “When [the disease] is in the skin, sweating will bring it out.”

When a disease progresses slightly further into the body it is said to lodge in the muscle layer. The clinical presentation then includes fever, general body aches, and profuse sweating. At this stage, especially when the patient has sweated without any beneficial change in their condition, it is appropriate to use the subset of herbs that release the muscle layer. The most prominent member of this group is *Cinnamomi Ramulus* (*guì zhī*).

Some of the herbs that release the exterior have additional functions: stopping coughs and wheezing, controlling pain or spasms, and venting rashes such as measles. In Chinese medicine, the treatment of rashes such as measles consists of bringing the rash (which is a sign of heat) to the surface and venting it, thereby dispersing the disease. This is similar to releasing an exterior disorder through sweating. Herbs that vent the rash of measles and

similar diseases are especially useful in cases of relatively long duration, when it is believed that the rash is “trapped” in the body.

Section 1

WARM, ACRID HERBS THAT RELEASE THE EXTERIOR

Herbs that release the exterior can be further divided by character and function into warm, acrid and cool, acrid classes. The warm, acrid herbs dispel wind-cold and are used for exterior disorders when the fever is mild, the chills severe, and there are other signs and symptoms of wind-cold including headache, body and neck pains, and absence of thirst.

麻黄

má huáng

PHARMACEUTICAL NAME *Ephedrae Herba*

FAMILY *Ephedraceae*

STANDARD SPECIES

Ephedra sinica STAPF (草麻黄 *cǎo má huáng*)

Ephedra intermedia SCHRENK & C.A. MEY.

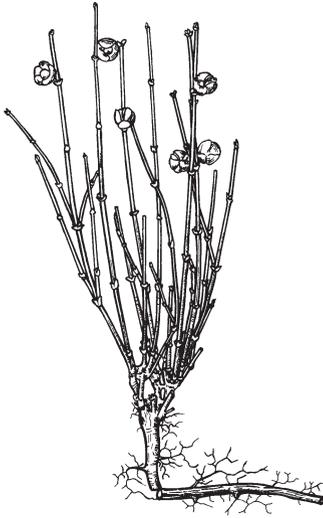
(中麻黄 *zhōng má huáng*)

Ephedra equisetina BGE. (木贼麻黄 *mù zéi má huáng*)

ENGLISH *ephedra stem, ma-huang*

JAPANESE *maō*

KOREAN *mahwang*



TEXT IN WHICH FIRST APPEARED

Divine Husbandman's Classic of the Materia Medica

PROPERTIES acrid, slightly bitter, warm

CHANNELS ENTERED Lung, Bladder

KEY CHARACTERISTICS induces sweating, calms wheezing, promotes urination

DOSAGE 2-9g

CAUTIONS & CONTRAINDICATIONS Because this herb has a rather strong effect of inducing sweating and opening up the Lungs, the dosage should not be too large. Nor should it be prescribed, without some adjustment in the prescription, for those who are debilitated, those with spontaneous sweating from exterior deficiency, those with night sweats from yin deficiency, or those with wheezing associated with the failure of the Kidneys to accept qi. See TOXICITY below.

Actions & Indications

- Induces sweating and releases the exterior: for patterns of wind-cold exterior excess (greater yang cold damage) with chills, fever, headache, absence of sweating, and a tight, floating pulse. This herb is very effective in opening the pores and interstices to release the exterior.
 - With Cinnamomi Ramulus (*guì zhī*) for patterns of wind-cold exterior excess presenting with fever and chills but no sweating, as in Ephedra Decoction (*má huáng tāng*). Also for wind-cold-damp painful obstruction.
- Disseminates and facilitates the Lung qi, calms wheezing, and stops coughing: for cough and wheezing due to wind-cold obstructing the Lungs. The herb both encourages the Lung qi to flow more easily, and directs it downward. It is important for treating either externally-contracted or internally-generated wheezing.
 - With Armeniacae Semen (*xìng rén*) for wind-cold cough

and wheezing, as in Ephedra Decoction (*má huáng tāng*) or Three-Unbinding Decoction (*sān áo tāng*).

— With Gypsum fibrosum (*shí gāo*) for cough from heat obstructing the Lungs with wheezing and nasal flaring, as in Ephedra, Apricot Kernel, Gypsum, and Licorice Decoction (*má xìng shí gān tāng*). Often more effective when used with Scutellariae Radix (*huáng qín*) and Mori Cortex (*sāng bái pí*).

— With Ginseng Radix (*rén shēn*) for wind-cold where there is underlying primal qi deficiency.

- Promotes urination and reduces edema: especially for edema that accompanies an exterior condition.
 - With Atractylodis macrocephalae Rhizoma (*bái zhú*) for acute onset edema, often together with Poriae Cutis (*fú líng pí*) and Mori Cortex (*sāng bái pí*), as in Maidservant from Yue Decoction plus Atractylodes (*yùè bì jiā zhú tāng*).
- Warms and disperses cold pathogens: useful for wind-damp painful obstruction and deep-rooted toxic sores without a head.
 - With Aconiti Radix lateralis praeparata (*zhì fū zǐ*) for wind-cold painful obstruction, or exterior cold conditions and edema associated with yang deficiency.
 - With Rehmanniae Radix praeparata (*shú dì huáng*) for deep-rooted toxic sores without a head caused by cold-dampness obstructing the channels. This combination is also used for cough and wheezing associated with Kidney yin deficiency, as in Yang-Heartening Decoction (*yáng hé tāng*).

Note: If heat is generated from the use of Ephedrae Herba (*má huáng*), Gypsum fibrosum (*shí gāo*) and Scutellariae Radix (*huáng qín*) may be added for their cooling effect.

Commentary

Ephedrae Herba (*má huáng*) is strongly acrid, dispersing and warm, and enters the channels of the Lungs and Bladder, both of which relate to the exterior of the body. The dispersing action of the herb is thus expressed in the exterior, by opening up the interstices and pores to induce sweating and drive out pathogenic influences. The acrid, dispersing action of Ephedrae Herba (*má huáng*) opens up the Lungs to disseminate and facilitate the Lung qi, and thus alleviate coughs and calm wheezing. It also enters the greater yang, both the channel and the Organ (Bladder). This is why the herb is able to release the exterior while also promoting urination. As Zhang Xi-Chun observed, “Ephedrae Herba (*má huáng*) treats the pathogen in the greater yang channel by inducing sweating, and the pathogen in the

greater yang Organ by releasing it through urination.”

The acrid, dispersing character of Ephedrae Herba (*má huáng*) is also utilized in other ways. Because it is warm as well as strongly dispersing, it can be used to drive out cold pathogens in cases of wind-damp painful obstruction, and combined with other herbs to expel wind-dampness.

It is also used for deep-rooted toxic sores without a head caused by localized accumulation of dampness (or phlegm) and cold, which prevents nourishment from reaching the area, and thereby causing a breakdown in the tissues. Combined with herbs that restore nourishment, the warm, dispersing nature of Ephedrae Herba (*má huáng*) can be instrumental in breaking up the congealing of the gathered yin pathogens, thus allowing nourishment to reach the area and repair the tissues. Finally, it can be added to external medications for the specific purpose of opening the pores to allow the medication to be absorbed more quickly.

When used properly, the warming dispersal of Ephedrae Herba (*má huáng*) can be a powerful and versatile agent, but its use requires familiarity with the qualities of the local environment and population. A dosage appropriate in one place may be excessive in another. Chinese physicians have been debating the relationship between locality and dosage of this herb for a long time, as reflected in the following passage from Lu Jiu-Zhi, quoted by Zhang Xi-Chun in *Essays on Medicine Esteeming the Chinese and Respecting the Western*:

[For] Ephedrae Herba (*má huáng*) to promote sweating at several tenths of a gram is perhaps possible in southerners, but difficult to achieve in the north. The weather is warm in the south, the people's skin thin: they sweat easily. Thus, a southern proverb warns, 'Ephedrae Herba (*má huáng*), no more than one gram.' In the north, outside the [Great] Wall, the climate is freezing, the people's skin tough and thick, especially in those who work outside exposed to the wind and frost. When it is also in the middle of winter, then a sweat could only be produced if repeated doses of 20 grams or more are used. Thus, the Way of Herbs values adapting the approach in accordance with the time, place, and people, adroitly changing with the circumstances, and not hobbled by set views [about dosage].

Li Shi-Zhen also provided some advice regarding the management of common, mild reactions to this herb:

If ingestion of Ephedrae Herba (*má huáng*) causes continuous spontaneous sweating, use cold water to soak the scalp, then pat Ephedrae Radix (*má huáng gēn*) powder over the area of sweating and it will stop. After using any medicine containing Ephedrae Herba (*má huáng*), drafts must be avoided for one day, otherwise the illness will recur. The problem of red eyes can be avoided by always using Scutellariae Radix (*huáng qín*) as an accompaniment to Ephedrae Herba (*má huáng*).

Mechanisms of Selected Combinations

➤ WITH CINNAMOMI RAMULUS (*guì zhī*)

Both of these herbs are acrid and warm, and both enter the greater yang channel. The combination is used when pathogenic cold has attacked and lodged in the exterior, especially in winter. Ephedrae Herba (*má huáng*) travels best at the protective level; it strongly disperses cold by promoting sweating. Cinnamomi Ramulus (*guì zhī*) moves best at the nutritive level, where it warms the channels and releases the muscle layer, but its sweat-inducing action is much less than that of Ephedrae Herba (*má huáng*). The diaphoretic effect of Ephedrae Herba (*má huáng*) is enhanced by the addition of Cinnamomi Ramulus (*guì zhī*), and the latter can lead a pathogen lodged at the nutritive level out to the exterior, where it is dispersed.

When using this combination, caution must be exercised to prevent excessive sweating, which could injure the qi and fluids. However, one must be equally careful not to induce less sweating than needed, since this will have no effect. Generally, pathogenic cold lodged in the exterior requires only a mild sweat to release it, but the intensity of the sweating required depends upon an evaluation of the strength of the patient and the strength of the pathogen.

A strong patient with a strong wind-cold pathogen requires Ephedrae Herba (*má huáng*) at twice the dose of Cinnamomi Ramulus (*guì zhī*), as in Major Bluegreen Dragon Decoction (*dà qīng lóng tāng*). If the dose is equal, or there is only slightly more Ephedrae Herba (*má huáng*), there will be a moderate sweating effect. More Cinnamomi Ramulus (*guì zhī*) than Ephedrae Herba (*má huáng*) induces only a slight sweat, which is often useful in treating older or weaker patients, who may also benefit from combining these herbs in lower dosages, as in Two-parts Cinnamon Twig Decoction and One-part Ephedra Decoction (*guì zhī èr má huáng tāng*).

➤ WITH ARMENIACAE SEMEN (*xìng rén*)

Both herbs enter the Lung channel and excel at alleviating cough and calming wheezing. However, their mechanisms of action differ. Ephedrae Herba (*má huáng*) disseminates and facilitates the flow of Lung qi, while Armeniacae Semen (*xìng rén*) primarily drains and directs the Lung qi downward. Because these various actions exactly match the Lung's own movements in disseminating and moving downward, this pair can restore normal Lung function and so is frequently found in ancient formulas. For example, in *Records of Thoughtful Differentiation of Materia Medica*, Zhou Yan offers this explanation:

Armeniacae Semen (*xìng rén*) is known as the 'right hand' of Ephedrae Herba (*má huáng*). Ephedrae Herba (*má huáng*)

unbinds the muscle layer, while *Armeniacae Semen* (*xìng rén*) opens the collaterals of the Lungs. *Ephedrae Herba* (*má huáng*) is hard by nature, while *Armeniacae Semen* (*xìng rén*) is soft. *Ephedrae Herba* (*má huáng*) spreads externally, while *Armeniacae Semen* (*xìng rén*) directs downward internally. When the two are combined, the pathogen is completely eliminated.

As this passage suggests, regardless of whether a pattern is hot or cold, this combination is still useful, with the appropriate additions. What is more, because *Ephedrae Herba* (*má huáng*) and *Armeniacae Semen* (*xìng rén*) also release the exterior, the pair is strong enough to use as a two-herb formula when a wind-cold exterior pattern is causing cough, sensations of fullness in the chest, and wheezing.

➤ WITH *REHMANNIAE RADIX PRAEPARATA* (*shú dì huáng*)

This combination benefits the Kidneys while calming wheezing. It is most suitable when the Kidney qi is not secure and cannot accept qi, which manifests as chronic wheezing characterized by difficult inhalation with prolonged exhalation. The patient is often emaciated and fatigued. The Lungs control the qi, while the Kidneys are its root. Thus, if the Kidneys are weak and have difficulty accepting inhaled qi, the qi will not remain stable at the deeper levels (below the navel) but instead will rebel upward with wheezing. *Rehmanniae Radix praeparata* (*shú dì huáng*) nourishes the true yin, generates essence, blood, and primal qi, thus enhancing the Kidney's ability to accept the inhaled qi. *Ephedrae Herba* (*má huáng*) helps the Lungs redirect the qi downward instead of accumulating in the upper body, and so settles the wheezing.

Together these herbs also warm and unblock the channels and collaterals. *Rehmanniae Radix praeparata* (*shú dì huáng*) is tranquil and nourishing, while *Ephedrae Herba* (*má huáng*) is mobilizing: it can enter deeply into accumulated phlegm and blood stagnation. This is an illustration of the adage “tranquility requires movement for motivation.” This combination can be used in the treatment of cold from deficiency in the nutritive level blood, where cold, congealed phlegm has stagnated and caused deep-rooted toxic sores without a head, as in *Yang-Heartening Decoction* (*yáng hé tāng*).

➤ WITH *GINSENG RADIX* (*rén shēn*)

Ephedrae Herba (*má huáng*) has a strong dispersing action, possibly too strong for those with externally-contracted wind-cold who also have weak primal qi or temporary qi deficiency due to overwork. *Ginseng Radix* (*rén shēn*) restores the primal qi so that the dispersing action of *Ephedrae Herba* (*má huáng*) will be able to dispel the pathogen without inducing profuse or continuous sweat-

ing. *Ginseng Radix* (*rén shēn*) is the most fitting of the qi-supplementing herbs to prescribe with *Ephedrae Herba* (*má huáng*). *Astragali Radix* (*huáng qí*) is less suitable, for although it also tonifies the primal qi, it tends to secure the exterior and work against the action of *Ephedrae Herba* (*má huáng*). *Codonopsis Radix* (*dǎng shēn*) tonifies the Spleen qi rather than the primal qi, and would therefore also not be the best choice.

One occasionally hears the statement that “tonifying herbs should not be used with exterior patterns” for fear of strengthening the pathogen. In *Precepts for Physicians*, Yu Chang discusses this at length. He concludes that this is a problem only if there is no existing deficiency, as there is then nowhere for the tonification to be received other than by the pathogen. However, if there is significant deficiency, tonification is indicated and there is no impediment to its use:

There are situations of cold damage where *Ginseng Radix* (*rén shēn*) should be included in the prescription: the primal qi will then flourish and the external pathogen will be carried outward by its power. If the person's primal qi is weak, even though the [force of the] herbs themselves move toward the exterior, the qi remains passively in the middle. In mild cases, a pathogen will be half expelled, leaving half to remain and cause difficulties; a severe pathogen will follow the primal qi as it withdraws inward, causing endless fevers. Thus, weak deficient people must have *Ginseng Radix* (*rén shēn*) in with their exterior [releasing] herbs: it makes the herbs powerful so that, with a single gush, the pathogen is thrust out. This is definitely not a matter of ‘tonification.’

➤ WITH *GYPSUM FIBROSUM* (*shí gāo*)

Both are acrid, dispersing and enter the Lungs, but *Ephedrae Herba* (*má huáng*) is warm and works on the exterior while *Gypsum fibrosum* (*shí gāo*) is very cold and works more deeply at the muscle layer and interior. Together they act strongly to disseminate the Lung qi, cool the heat, and calm the wheezing, and are particularly appropriate for exterior pathogens which have moved internally, transformed into heat, and clogged the Lungs. This pattern presents with such symptoms as prolonged fever, cough, and wheezing. This pair of herbs is the basis for the formula *Ephedra, Apricot Kernel, Gypsum, and Licorice Decoction* (*má xìng shí gān tāng*).

Beyond this, *Gypsum fibrosum* (*shí gāo*) can lead *Ephedrae Herba* (*má huáng*) to the interior while moderating its sweat-inducing effect; the *Gypsum fibrosum* (*shí gāo*) itself clears heat which is trapped within pathogenic water and dampness. The pair is thus highly effective in treating wind-edema. However, the dosage of *Ephedrae Herba* (*má huáng*) must be greater than normal in this case, between 10 to 15g, in order to move fluids, while the dos-

age of *Gypsum fibrosum* (*shí gāo*) is somewhat smaller than normal, 20-30g being sufficient.

➤ WITH GINKGO SEMEN (*bái guǒ*); see page 894

Traditional Contraindications

Its nature is light, lifting, and very dispersing, and is most rapid at releasing the exterior ... excessive sweating devastates yang and can endanger a person's life—be on guard! From the end of spring through summer until the beginning of autumn, the standard approach is to forbid it; only in the winter when symptoms appear, showing that a truly cold pathogen has injured the nutritive [level], is it of benefit. If not during the winter months, or the symptoms are not those of a cold pathogen, or are those of a cold pathogen in the interior, or those of pathogenic wind injuring the protective [level], then *Ephedrae Herba* (*má huáng*) is not suitable, even though there may be fever and chills: there will not be aching and stiffness of the head and body, and no floating and tightness in the six pulse positions.

When the condition is right for sweating, it must not be excessive. Sweat is the fluid of the Heart, excessive sweating will agitate the Heart blood, or cause great loss of yang, or cause bleeding—and this then becomes a major affliction. (*Harm and Benefit in the Materia Medica*)

Toxicity

This herb contains central nervous system stimulants and may cause high blood pressure, restlessness, and insomnia. It should be used with caution in treating patients with high blood pressure. Do not use in conjunction with cardiac glycosides, as cardiac arrhythmias may occur. Allergic reactions in the form of cutaneous eruptions combined with slightly elevated temperature and measles-like erythema have been reported. Because ephedrine stimulates the sphincter muscle of the bladder, long-term administration may cause oliguria or anuresis.

The toxic dose is approximately 30-45g. Symptoms of acute toxic reaction include palpitations, insomnia, restlessness, diaphoresis, chest pain, elevated temperature, and tremor. Extreme overdoses can lead to blurred vision, dilated pupils, coma, dyspnea, dysuria, convulsions, respiratory arrest, cardiac failure, bradycardia, and ventricular fibrillation.

Nomenclature & Preparation

Literal English translation: "hemp yellow"

➤ CLEANED EPHEDRA (*淨麻黃 jìng má huáng*)

This has the nodes on the stalks removed, as well as the roots, as both are generally considered to reduce the herb's diaphoretic effect. The nodes can be left if the herb is not to be used to induce sweating. For example, the formula Three-Unbinding Decoction (*sān ào tāng*) specifically calls for

Ephedrae Herba (*má huáng*) without the nodes removed, since the desired effect is to disseminate the Lung qi and calm wheezing, rather than sweating.

➤ EPHEDRA COTTON (*麻黃絨 má huáng róng*)

Cleaned ephedra is brought to a boil until it 'rolls over' in the water ten times, or simply infused in boiling water until froth rises; it is then removed and dried. Once dried, it is ground until the fibers become soft. It is then called ephedra cotton.

Usually, when cleaned ephedra is used to promote sweating, the patient first boils it, then removes the froth, as it can cause agitation. Ephedra cotton saves this trouble. The diaphoretic effect, however, is slightly less than cleaned ephedra, while stronger than prepared ephedra.

➤ PREPARED EPHEDRA (*炙麻黃 zhì má huáng*)

Cleaned ephedra is stir-fried with water. This method of preparation reduces the herb's diaphoretic action, but strengthens its effect in calming the Lungs. *Discussion of Cold Damage* says to remove the froth after boiling. According to *Materia Medica of Combinations*, this is because the froth "makes one irritable"; however, "frying with honey before use will also work."

➤ HONEY-PREPARED EPHEDRA

(*蜜炙麻黃 mì zhì má huáng*)

Honey is first brought to a boil slowly, and the froth and any residual wax or extraneous material scraped from the surface. The honey is then poured through a filter. It is returned to the wok, and again brought to a boil, which is maintained at 116-118°C until the whole wok bubbles and the honey no longer stretches between the fingers.

Boiling water is then added to thin the honey, which is then poured slowly over cleaned ephedra and left covered briefly. The amount of cooked honey should be approximately one-fifth the amount of herb, while the amount of water should be approximately one-third the quantity of honey; too much water and the herb will become overly damp and difficult to dry after preparation. The herb is then dry-fried at a low temperature until deep yellow and no longer sticky to the touch.

When ephedra is prepared with honey, the diaphoresis is modified by the sweetness of the honey. Not only is the intensity of its acrid, dispersing qualities moderated, but the duration of its action is lengthened in a kind of 'time-release' manner. Sweetness pertains to the earth phase and thus brings harmony. Honey preparation also moistens the Lungs and protects this tender Organ from the drying effects of the acrid, warm qualities of the unprepared herb.

Quality Criteria

Best quality has light green or yellowish green stems with a reddish brown center. The stem sections cannot be pulled apart. The taste is bitter and astringent.

Major known chemical constituents

1. Alkaloids

L-ephedrine, d-pseudo-ephedrine, L-N-methyl-ephedrine, d-N-methyl-pseudoephedrine, L-norephedrine, d-nor-pseudoephedrine, ephedrine; ephedroxane

N.B. There are two groups of species, which differ in the relation of the two alkaloids ephedrine and pseudoephedrine:

- E. sinica*, *E. equisetina*, *E. saxatilis*, *E. gerardiana*: These contain from two to more than twenty times more ephedrine than pseudoephedrine.
- E. intermedia*, *E. lomatolepis*, *E. likiangensis*: These contain two to six times more pseudoephedrine than ephedrine.

2. Volatile oil

E. sinica: $\alpha,\alpha,4$ -trimethyl-3-cyclohexen-1-methanol, β -terpineol, p-menten-7-ol, 2,3,5,6-tetramethylpyrazine, α -terpineol, myrcene, dihydrocarveol, p-menth-2-en-7-ol, 1,3,4-trimethyl-3-cyclohexene-1-carboxaldehyde

E. equisetina: 6,10,14-trimethyl-2-pentadecanone, 3,7,11,15-tetramethyl-2-hexadecen-1-ol, octadecanoic acid methyl ester, myrcene, dihydrocarveol, 1,3,4-trimethyl-3-cyclohexene-1-carboxaldehyde, 2,3,5,6-tetramethylpyrazine

3. Flavonoids

leucodelphinidin, 3-O- β -D-glucopyranoyl-5,9,4'-trihydroxy-8-methoxyflavone, apigenin, triclin, kaempferol rhamnoside, herbacetin, 3-methoxyherbacetin

4. Other constituents

organic acids, catechins

Note: The volatile oil is thought to be responsible for the dispersing quality of this herb. The various forms of processing described above reduce the volatile oil content by approximately fifty percent. Processing with honey has no effect on the alkaloid content of the herb, but it does reduce the solubility of the alkaloids which results in a mild, prolonged action.

Alternate species & local variants

Ephedra intermedia var. *tibetica* (西藏中麻黄 *xī zàng zhōng má huáng*) - Tibet

Ephedra likiangensis (麗江麻黄 *lì jiāng má huáng*) - Yunnan, Sichuan

Ephedra monosperma (單子麻黄 *dān zǐ má huáng*) - Sichuan

Ephedra minuta (短麻黄 *duǎn má huáng*) - Sichuan

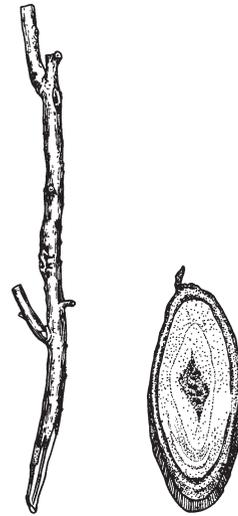
Ephedra przewalskii (膜果麻黄 *mó guǒ má huáng*) - Xinjiang

Alternate names

麻黄草 *má huáng cǎo*

Additional product information

The best growing region is Shanxi province.



ENGLISH cinnamon twig, cassia twig

JAPANESE *keishi*

KOREAN *kyeji*

TEXT IN WHICH FIRST APPEARED

Divine Husbandman's Classic of the Materia Medica

PROPERTIES acrid, sweet, warm

CHANNELS ENTERED Heart, Lung, Bladder

KEY CHARACTERISTICS light and warm, releases the muscle layer, unblocks yang qi, warms the middle

DOSAGE 3-9g

CAUTIONS & CONTRAINDICATIONS Contraindicated in cases of warm-heat pathogen disease, yin deficiency with heat signs, and heat in the blood with vomiting. During pregnancy or in cases of excessive menstruation, use only in doses of 6g or less, preferably the dry-fried cinnamon twigs. Its use is also discouraged where there are signs of pathogenic heat. See TOXICITY below.

Actions & Indications

- Releases the exterior and assists the yang: for exterior wind-cold regardless of whether it is relatively deficient or excessive.

— With *Paeoniae Radix alba* (*bái sháo*) for externally-contracted wind-cold that presents as a disharmony of the nutritive and protective qi with fever, chills, and sweating. This combination can also be used for warming and tonifying the middle burner, as in Cinnamon Twig Decoction (*guì zhī tāng*) and Minor Construct the Middle Decoction (*xiǎo jiàn zhōng tāng*).

— With *Ephedrae Herba* (*má huáng*) for externally-contracted wind-cold marked by severe chills, fever, and lack of sweating, as in Ephedra Decoction (*má huáng tāng*).

- Warms and unblocks the channels and collaterals: for wind-cold-damp painful obstruction.

桂枝

guì zhī

PHARMACEUTICAL NAME Cinnamomi Ramulus

FAMILY Lauraceae

STANDARD SPECIES

Cinnamomum cassia PRESL (肉桂 *ròu guì*)

ACTIONS	INDICATIONS
Warms the menses, invigorates the blood	Menstrual problems due to blood stasis
Benefits the Lungs	Stops coughs due to Lung qi deficiency, esp. those which worsen on exertion

Saccharum Granorum (*yí táng*) 742

Tonifies the middle burner qi, alleviates pain	Spleen deficiency due to overexertion with shortness of breath and loss of appetite; abdominal pain due to cold from yang deficiency of the middle burner
Moistens the Lungs, stops coughs	Dry, non-productive cough with weak voice and labored breathing

2 HERBS THAT TONIFY THE BLOOD**Rehmanniae Radix praeparata** (*shú dì huáng*) 744

Tonifies the blood	Blood deficiency with pallor, dizziness, palpitations, insomnia, irregular menstruation
Nourishes the yin	Kidney yin deficiency causing night sweats, nocturnal emissions, steaming bone disorder, wasting and thirsting disorder
Generates essence, augments the marrow	Lumbar pain, weak legs, lightheadedness, tinnitus, hearing loss, delayed development, premature greying

Polygoni multiflori Radix praeparata (*zhì hé shǒu wū*) 746

Nourishes the blood and yin, preserves the essence	Liver and Kidney deficiency causing premature greying of hair, weak lower back and knees, spermatorrhea, vaginal discharge, or scanty menses; Liver blood deficiency with dizziness or tinnitus due to Liver yang rising
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Polygoni multiflori Radix (*non praeparata*) (*shēng hé shǒu wū*) 749

Moistens the Intestines, resolves fire toxicity, expels wind from the skin, reduces sores, and checks malarial disorders	Fire toxin carbuncles, sores, and neck lumps; constipation due to blood deficiency; wind rash due to blood deficiency; chronic malarial disorders with qi and blood deficiency
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Angelicae sinensis Radix (*dāng gūī*) 750

Tonifies the blood and regulates the menses	Pallid complexion, tinnitus, blurred vision or palpitations due to blood deficiency; menstrual disorders associated with blood deficiency
Invigorates and harmonizes the blood to stop pain	Abdominal pain caused by blood stasis, esp. that due to cold from deficiency; traumatic injury; blood deficiency with wind-damp painful obstruction
Moistens the Intestines and unblocks the bowels	Dry intestines due to blood deficiency
Reduces swelling, expels pus, generates flesh	Sores and abscesses requiring tonification and invigoration of the blood

Paeoniae Radix alba (*bái sháo*) 754

Nourishes the blood and regulates the menses	Menstrual or uterine disorders due to blood deficiency
Curbs the Liver yang and alleviates pain	Flank, chest, or abdominal pain from Liver constraint or disharmony between the Liver and Spleen; cramping pain or spasms
Preserves the yin and adjusts the nutritive and protective levels	Spontaneous sweating, night sweats, vaginal discharge; best used as part of a combination for exterior conditions with sweating that fails to expel the pathogen

ACTIONS

INDICATIONS

Asini Corii Colla (*ē jiāo*) 758

Tonifies the blood	Dizziness, sallow complexion, or palpitations due to blood deficiency
Stops bleeding	Any type of bleeding, esp. consumptive disorders with coughing of blood, blood in the stool, or excessive uterine bleeding
Nourishes and moistens the yin	Yin deficiency with symptoms such as irritability, insomnia, or dry cough

Lycii Fructus (*gǒu qǐ zǐ*) 761

Tonifies the Liver and Kidney yin, mildly tonifies the Kidney yang	Yin and blood deficiency with symptoms such as sore back and legs, impotence, wasting and thirsting disorder
Benefits the essence and brightens the eyes	Liver and Kidney deficiency with blurred vision, dizziness
Enriches the yin and moistens the Lungs	Consumptive cough

Mori Fructus (*sāng shèn*) 763

Gently tonifies and cools the blood and enriches the yin	Blood or yin deficiency leading to dizziness, tinnitus, premature greying of hair; constipation due to blood deficiency in the elderly; wasting and thirsting disorder due to yin deficiency; Liver yin deficiency allowing yang to ascend
Moistens the Intestines	Constipation due to insufficient blood or fluids

Longan Arillus (*lóng yǎn ròu*) 764

Nourishes the blood, tonifies the qi, calms the spirit	Heart and Spleen deficiency causing insomnia, palpitations, forgetfulness, or dizziness
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3 HERBS THAT TONIFY THE YANG**Cervi Cornu pantotrichum** (*lù róng*) 766

Tonifies the Kidneys, fortifies the yang	Kidney yang deficiency with fatigue, impotence, cold extremities, tinnitus, sore lumbar and knees, frequent and copious urination
Tonifies the Governing vessel, augments the essence and blood, strengthens the sinews and bones	Physical or mental development disorders with deficient essence and blood
Regulates the Penetrating and Conception vessels, stabilizes the Girdle vessel	Cold from deficiency in the uterus leading to infertility, watery vaginal discharge, or uterine bleeding
Nourishes the qi and blood	Chronic ulcers or yin-type boils

Gecko (*gé jīè*) 770

Fortifies the Kidney yang, tonifies the Lungs	Kidneys unable to grasp qi; consumptive cough or cough with blood-streaked sputum
Assists the Kidney yang, augments the essence and blood	Impotence, daybreak diarrhea, or urinary frequency from Kidney yang deficiency

Cordyceps (*dōng chóng xià cǎo*) 772

Gently tonifies the Kidney yang, augments the essence	Impotence, sore and weak lower back and legs due to Kidney yang deficiency
Tonifies the Lung yin, settles coughs and wheezing, stops sweating and bleeding	Chronic cough, or consumptive cough with blood-streaked sputum; wheezing from deficiency

ONE IMPORTANT CRITERION for combining herbs is their tastes or flavors. As noted in the Introduction to this book, the attribution of function to taste dates back to the *Inner Classic*, and the utilization of taste as a means of understanding how to best utilize herbal combinations can be found in texts from at least as early as the Tang dynasty. The table below provides a comprehensive outline of the clinical effects of taste combinations, along with examples. But first, here is an expanded example of how such taste combinations work in practice, based on the acrid taste.

1. Acrid and Sweet Disperses

A passage in Chapter 5 of *Basic Questions* notes that “Acrid and sweet discharges and disperses as yang.” It is common knowledge in China that a hot infusion of ginger and brown sugar can be used to treat an invasion of wind-cold, a typical example of this combination of flavors. An important classical formula incorporating this principle is Cinnamon Twig Decoction (*guì zhī tāng*), with Cinnamomi Ramulus (*guì zhī*) and Paeoniae Radix (*sháo yào*) paired with Glycyrrhizae Radix (*gān cǎo*) and Jujubae Fructus (*dà zǎo*). But it is also known that sweet tonifies while acrid disperses; when they are combined for the purpose of tonification, there is dispersal without obstruction. This is why tonifying formulas, while predominantly sweet, may also include acrid-flavored herbs. Examples include Chuanxiong Rhizoma (*chuān xiōng*) in Four-Substance Decoction (*sì wù tāng*), Citri reticulatae Pericarpium (*chén pí*) in Tonify the Middle to Augment the Qi Decoction (*bǔ zhōng yì qì tāng*), and Aucklandiae Radix (*mù xiāng*) in Restore the Spleen Decoction (*guī pí tāng*). Moreover, the acrid-sweet combi-

nation serves to regulate and harmonize, for example, the use of Pinelliae Rhizoma praeparatum (*zhì bàn xià*) combined with rice to harmonize the Stomach, or Zingiberis Rhizoma recens (*shēng jiāng*) and Jujubae Fructus (*dà zǎo*) to harmonize the nutritive and protective aspects.

2. Acrid Opens and Bitter Directs Downward

All the “Drain the Epigastrium” (*xiè xīn*) formulas in *Discussion of Cold Damage* utilize the acrid flavor of Zingiberis Rhizoma recens (*shēng jiāng*) and Pinelliae Rhizoma praeparatum (*zhì bàn xià*) combined with the bitter flavor of Scutellariae Radix (*huáng qín*) and Coptidis Rhizoma (*huáng lián*) to treat the nausea and rebelliousness of epigastric focal distention and fullness. Because acrid opens and bitter directs downward, this combination permits the clear qi to ascend and the turbid material to descend, as they should. Later formulas, such as Left Metal Pill (*zuǒ jīn wán*) or Aucklandia and Coptis Pill (*xiāng lián wán*), clearly exemplify this principle. It assumes even more importance in the methods that the warm disorder school adopted to address damp-warmth, as shown in such formulas as Coptis and Magnolia Bark Drink (*lián pò yǐn*) or Sweet Dew Special Pill to Eliminate Toxin (*gān lù xiāo dú dān*).

3. Acrid Disseminates and Sour Binds

When acrid and sour flavors are used together, within dispersion there is restraint and within restraint there is dispersion. One opens, the other closes, and although this appears to be contradictory, in practice it is very effective, allowing each to supplement the other. For example, in ancient formulas Schisandrae Fructus (*wǔ wèi zǐ*) and Asari Radix et Rhizoma (*xì xīn*) are frequently used together, as in cough

*Based on materials from Lin Qian-Liang, *Chinese Materia Medica*, 1981, pp. 27-31.

treatments to bind the Lungs and settle the cough while not obstructing the elimination of the pathogenic influence. This method can also prevent the excessive release of the exterior when it is used to expel cold, such as in the formulas Minor Bluegreen Dragon Decoction (*xiǎo qīng lóng tāng*) and Belamcanda and Ephedra Decoction (*shè gān má huáng tāng*).

4. Acrid Disperses and Salty Softens

Stubborn phlegm conditions can be treated with this combination of flavors, using acrid to disperse and salty to soften in order to transform phlegm and dissolve clumps. For example, Flushing Away Roiling Phlegm Pill (*gǔn tán wán*) uses the combination of Chloriti Lapis/Micae Lapis aureus (*méng shí*) and Aquilariae Lignum resinatum (*chén xiāng*), while Sargassum Decoction for the Jade Flask (*hǎi zǎo yù hú tāng*) very distinctively combines salty herbs such as Sargassum (*hǎi zǎo*) and Eckloniae Thallus (*kūn bù*) with

acrid ones that disperse, such as Pinelliae Rhizoma praeparatum (*zhì bàn xià*), Citri reticulatae Pericarpium (*chén pí*), Citri reticulatae viride Pericarpium (*qīng pí*), Angelicae pubescentis Radix (*dú huó*), and Chuanxiong Rhizoma (*chuān xiōng*).

5. Acrid Facilitates Movement while Bland Leaches

The acrid flavor promotes movement to transform dampness, while the bland flavor leaches out dampness and promotes fluid metabolism and urination. This combination of acrid and bland works best when targeting turbid dampness. A good example is Three-Seed Decoction (*sān rén tāng*) with its use of the bland Lophatheri Herba (*dàn zhú yè*) and Coicis Semen (*yì yǐ rén*) combined with acrid-flavored Amomi Fructus rotundus (*bái dòu kòu*) and Pinelliae Rhizoma praeparatum (*zhì bàn xià*), which treats both damp warmth and turbid dampness accumulating internally.

Summary Table of Combinations by Taste

■ Combinations and Examples

	Acrid	Bitter	Sweet	Sour	Salty	Bland
Acrid	Release the exterior; regulate qi	Open up and direct downward	Discharge and disperse to regulate the protective and nutritive	Simultaneously disperse and restrain	Transform phlegm and reduce clumps	Leach out dampness and transform turbidity
Bitter	Evodiae Fructus (<i>wú zhū yú</i>), Coptidis Rhizoma (<i>huáng lián</i>) [Left Metal Pill (<i>zuǒ jīn wán</i>)]	Purge and dry dampness	Clear Organ heat	Eject and drain outward	Soften hardness and purge	Leach out dampness and guide out heat [through the urine]
Sweet	Zingiberis Rhizoma recens (<i>shēng jiāng</i>), Glycyrrhizae Radix (<i>gān cǎo</i>) [Cinnamon Twig Decoction (<i>guì zhī tāng</i>)]	Gentianae Radix (<i>lóng dǎn cǎo</i>), Glycyrrhizae Radix (<i>gān cǎo</i>) [Gentian Decoction to Drain the Liver (<i>lóng dǎn xiè gān tāng</i>)]	Tonify and replenish	Preserve the yin and moderate spasmodic pain	Enrich the Liver and extinguish internal wind	Strengthen the Spleen and promote elimination of dampness
Sour	Asari Radix et Rhizoma (<i>xì xīn</i>), Schisandrae Fructus (<i>wú wèi zǐ</i>) [Minor Bluegreen Dragon Decoction (<i>xiǎo qīng lóng tāng</i>)]	Schisandrae Fructus (<i>wú wèi zǐ</i>), Armeniacae Semen (<i>xìng rén</i>)	Glycyrrhizae Radix (<i>gān cǎo</i>), Paeoniae Radix alba (<i>bái sháo</i>) [Peony and Licorice Decoction (<i>sháo yào gān cǎo tāng</i>)]	Restrain and inhibit and consolidate	Induce vomiting of wind-phlegm	Relieve Summerheat
Salty	Aquilariae Lignum resinatum (<i>chén xiāng</i>), Chloriti Lapis/Micae Lapis aureus (<i>méng shí</i>) [Flushing Away Roiling Phlegm Pill (<i>gǔn tán wán</i>)]	Rhei Radix et Rhizoma (<i>dà huáng</i>), Natrii Sulfas (<i>máng xiāo</i>) [Major Order the Qi Decoction (<i>dà chéng qì tāng</i>)]	Haliotidis Concha (<i>shí jué míng</i>), Ostreae Concha (<i>mǔ lì</i>), Gastrodiae Rhizoma (<i>tiān má</i>) [Gastrodia and Uncaria Drink (<i>tiān má gōu téng yǐn</i>)]	Ostreae Concha (<i>mǔ lì</i>) and Ziziphi spinosae Semen (<i>suān zǎo rén</i>); Mantidis Ootheca (<i>sāng piāo xiāo</i>) & Rubi Fructus (<i>fù pén zǐ</i>)	Purge by moistening & soften hardness	Direct down, drain out, and expel pathogenic water and dampness
Bland	Amomi Fructus rotundus (<i>bái dòu kòu</i>), Lophatheri Herba (<i>dàn zhú yè</i>) [Three-Seed Decoction (<i>sān rén tāng</i>)]	Akebiae Caulis (<i>mù tōng</i>), Lophatheri Herba (<i>dàn zhú yè</i>) [Guide out the Red Powder (<i>dǎo chì sǎn</i>)]	Glycyrrhizae Radix (<i>gān cǎo</i>), Poria (<i>fú líng</i>) [Poria and Licorice Decoction (<i>fú líng gān cǎo tāng</i>)]	Chaenomelis Fructus (<i>mù guā</i>), Poria (<i>fú líng</i>) [Six-Ingredient Drink with Mosla (<i>liù wèi xiāng rú yǐn</i>)]	Lysimachiae Herba (<i>jīn qián cǎo</i>), Talcum (<i>huá shí</i>) [for urinary calculus]	Leach out dampness and promote urination



牛膝 *niú xī*

LEFT: *Achyranthis bidentatae Radix* (牛膝 *niú xī* or 淮牛膝 *huái niú xī*) – standard herb

MIDDLE: *Cyathulae Radix* (川牛膝 *chuān niú xī*) – standard herb

RIGHT: *Strobilanthis nemorosi Radix et Rhizoma* (牛膝馬藍 *niú xī mǎ lán*) – adulterant for *Cyathulae Radix*

confusion of herbs called *shān cí gū*

LEFT: *Cremastrae seu Pleiones Pseudobulbus* (山慈菇 *shān cí gū*) – standard herb

RIGHT: *Asari sagittaroidis Herba* (山茨菇 *shān cí gū*, 土細辛 *tǔ xì xīn*) – erroneous usage because of Chinese character confusion

