6 ASIAN PLANTS

6.1 Herbs of the Traditional Chinese Medicine

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Abstract

Chinese herbal medicine represents one of the largest and extensively studied contributions of traditional Chinese medicine. The fundamentals of Chinese herbal medicine are built on extensive, centuries-long exploration, research and analysis that focused on healing and restoration of energy. Chinese herbal medicine is not restricted to plants and includes a wide variety of naturally occurring materials that individually or in combination have therapeutic effects that help balance and maintain health, and offer multiple approaches and modalities to treatments of particular diseases or medical conditions.

Keywords: Chinese herbal medicine, clinical applications, concurrent use

History of Chinese Herbal Medicine

The herbal medicine and culture of China draw on a rich and extensive history of empirical observation. Through the process of trial and error, generations of healers have determined that hundreds of native Chinese herbs have therapeutic properties, supporting overall health and targeting specific diseases. Ancient artifacts and documents illustrate the development and evolution of Chinese herbal medicine, as they have adapted to Chinese culture and epidemiology; unfortunately, many of the sources dated between 1066–221 B.C. were either damaged or destroyed over the years (Chen, 2012).

One of the earliest and most fundamental texts of Chinese herbal medicine is the *Shen Nong Ben Cao Jing* (Divine Husbandman's Classics of the Materia Medica). According to the legend ascribed in the text, Shen Nong (The Divine Farmer) first introduced agriculture and animal husbandry in China. It is also stated in the *Master of Huai Nan* that Shen Nong "tasted a hundred herbs and came across seventy poisonous herbs each day" (Wu 2005). The *Shen Nong Ben Cao Jing* is a compendium of 365 herbs, with information about their temperature, taste, toxicity, dosage, and forms of delivery (Chen, 2012).

The expansion of trade and commerce between China and neighboring countries led to the introduction of novel herbs in China, which found medicinal use over time. These herbs are documented in the *Ben Cao Jing Ji Zhu* (Collection of Commentaries on the Classic of the Materia Medica), written by Tao Hong-Jing in 480–498 A.D. The *Ben Cao Jing Ji Zhu* is the second oldest known text of Chinese's herbal medicine. It contains descriptions of 730 herbs, as well as information about the identification and preparation of herbs (Ibid.).

The Tang dynasty (618–907 A.D.) is a significant period in the history of Chinese civilization. China underwent tremendous progress and growth in medicine and culture. Many classic texts were written during this era, such as the *Tang Ben Cao* (Tang Materia Medica), written 657–659 A.D. This text is also known as the *Xin Xiu Ben Cao* (Newly Revised Materia Medica). The *Kai Bao Ben Cao* (Materia Medica of the Kai Bao Era), written by Ma Zhi in 973–974 A.D., was the most comprehensive source of information about herbal medicine during the Song dynasty, with descriptions of 983 herbs. The period between 1057 and 1060 A.D., the *Jia You Ben Cao* (Materia Medica of the Jia You Era) was written by Zhang Yu-Xi and Su Song, which included details of 1082 herbs. The *Jing Shi Zheng Lei Bei Ji Ben Cao* (Differentiation and Application of Materia Medica), written by Tang Shen-Wei in 1082 A.D., merged references from other texts and expanded the overall Chinese herbal compendium to 1558 herbs. During the Ming dynasty, Li Shi-Zhen wrote one of the most important texts of Chinese herbal medicine in 1578 A.D., the *Ben Cao Gang Mu* (Materia Medica). Li Shi-Zhen

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devoted his entire life to studying herbal medicine, and compiled the text over 27 years, collecting descriptions and illustrations of 1892 individual herbs and 11000 herbal formulas.

Nomenclature of Chinese Herbs

The majority of Chinese herbal medicines comprise botanical specimens. However, the term is inclusive of a wide variety of naturally occurring materials such as animal parts, insects, shells, and minerals. As a whole, this collection of therapeutic substances is called "Chinese Herbal Medicine", even though "herbs" are not only plants and botanicals (Chen, 2012). In modern usage, the naming of herbs involves the Chinese character, the pinyin transliteration, pharmaceutical or Latin name, the common English name, and Japanese and Korean names for some herbs (Bensky, 2004).

Herbs can receive their names from their unique physical appearance. For example, Niu Xi (*Radix Cyathuale seu Achyranthis*) translates as "cow knees", since it has large joint-like structures that resemble cow knees; Long Yan Rou (*Arillus Longan*), "dragon eye meat", refers to the meaty part of the Longan fruit that looks like the eyes of a dragon. In addition, the color of the herb can provide information about its therapeutic attributes, as well as indicating the quality of the herb for purchasing or pharmaceutical use. Therefore, color is an essential factor in the traditional nomenclature of herbs (Chen, 2012). The following are examples of the names of herbs according to their colors.

Red herbs are denoted by hong (red), chi (bright red), or zhu (dull red). For instance, Hong Hua (*Flos Carthami*) is "red flower", Chi Shao (*Radix Paeoniae Rubrae*) is "bright red peony", and Zhu Sha (*Cinnabaris*) is "dull red sand". Red herbs are associated with Fire, the Heart, blood, and spirit (Shen), which is housed within the Heart. Many red herbs are known to invigorate the blood, regulate menstruation, clear heat, calm the mind, and stop bleeding (Holmes, 2002). Yellow herbs are huang (yellow) or jin (gold). For instance, Huang Bai (*Cortex Phellodendri*) means "yellow fir". Da Huang (*Radix et Rhizoma Rhei*), translates as "big yellow", and Jin Yin Hua (*Flos Lonicerae*), or "golden silver flower". Per Holmes (2002), yellow herbs are associated with Earth (the element) and the Spleen and Stomach organs. They strengthen the Spleen and transform dampness. White herbs are called bai (white) or yin (silver). Bai Shao (*Radix Paeoniae Alba)* translates to "white peony", and Yin Guo Ye (*Folium Ginkgo*) is "silver fruit leaf". White herbs are associated with Metal (the element), the Lungs, and the Qi, and are known to treat various respiratory conditions (Chen, 2012; Holmes, 2002). Qing denotes blue-green herbs. Qing Pi (*Pericarpium Citri Reticulatae Viride*) means "blue-green peel" and Da Qing Ye (*Folium Isatidis*) means "big blue-green leaf". Blue-green herbs are associated with Wood (the element) and strongly moves the Liver Qi (Holmes, 2002). Herbs that are green are referred to as lu. Some green herbs are Lu Dou (*Semen Phaseoli Radiati*) "green bean" and Lu Cha (*Folium Camelia Sinensis*) "green tea". Black herbs are associated with the Water element, and, therefore, with the Kidney organ, Yin, and Essence. Black-colored herbs contain hei or wu in their names, such as Hei Dou (*Semen Glycine Max*) "black bean", Hei Zao (*Fructus Jujubae*) "black jujube", and Wu Yao (*Radix Linderae*) "black medicine" (Holmes, 2002).

Nomenclature can also be founded on smell and taste. A distinctive fragrance or odor can be a determinant factor in the naming of some herbs. Xiang ("fragrant") describes herbs that are aromatic. For example, Mu Xiang (*Radix Aucklandiae*) means "fragrant wood", and Jiang Xiang (*Lignum Dalbergiae Odoriferae*) means "descending fragrance". Other examples include Yu Xing Cao (*Herba Houttuyniae*) or "fish smell herb", which has a unique fishy odor, and Bai Jiang Cao (*Herba cum Radice Patriniae*) or "rotten paste herb".

Classification of Chinese Herbs

Texts will often categorize herbs as superior, medium, or inferior in grade, based on determinants such as a therapeutic index and potential side effects. Herbs of superior grade have high therapeutic action, little or no side effects, and may be taken safely for a long period.

Some examples of superior herbs are Ren Shen (*Radix Ginseng*), Gan Cao (*Radix Glycyrrhizae*), Da Huang (Radix Rehmanniae), Shi Hu (*Herba Dendrobii*), Ba Ji Tian (*Radix Morindae Officinalis*), Huang Qi (*Radix Astragali*), and Gou Qi Zi (*Fructus Lucii*). These herbs are suitable for general medicine as well as a food-grade use. Herbs of medium quality have therapeutic benefits with possible side effects, requiring supervision and prescription from a knowledgeable practitioner. Such herbs include Gan Jiang (*Rhizoma Zingiberis*), Ma Huang (*Herba Ephedrae*), Dang Gui (*Radix Angelicae Sinensis*), Bai Shao (*Radix Paeoniae Alba*), Wu Zhu Yu (*Fructus Evodiae*), and Hou Po (*Cortex Magnoliae Officinalis*). Lastly, the inferior grade herbs have a greater likelihood of side effects compared to therapeutic benefits, especially if not properly processed. These herbs must be administered under the strict supervision of a professional. Some examples include Fu Zi (*Radix Aconiti Lateralis Praeparata*), Ban Xia (Rhizoma Pinelliae), Da Huang (*Radix et Rhizoma Rhei*), Gan Sui (*Radix Euphorbiae Kansui*), Ba Dou (*Fructus Crotonis*), and Wu Gong (*Scolopendra*) (Chen, 2012). Commonly, texts will classify herbs based on their primary therapeutic action, the original source of the substance, or the zang (viscera) and fu (bowel) organs to which the medicinal is directed.

Growth and Harvest of Chinese Herbs

Climate, geography and timing of harvest are significant factors that influence the quality of Chinese herbs, being heavily dependent on environmental conditions. For some herbs, the optimum quality is reached if grown in a humid climate while some thrive best in a dry desert. Some grow only in northern or southern climates, and others are best harvested during long hot summers, or in the middle of cold winters. The timing of the harvest considerably affects the potency of herbs, as plants go through seasonal changes of growth, maturation, blossoming, fruiting, withering and dormancy, since the specific part of the plant depends on the developmental cycle.

For instance, in harvesting Chinese herbs that comprise the entire plant, it is best to collect the specimen immediately prior to the blooming of flowers. If leaves are the targeted medicinal component, they are harvested immediately before or during flower blooming, when the leaves contain the highest level of active ingredients and have the greatest aroma. Flowers are best harvested while in bloom when they are the desired component. Meanwhile, seeds and fruits are collected from the early to the middle stages of fruit development. The barks are best collected in spring and summer, when plant growth insures that the maximum level of nutrients is circulating within the bark of the tree. Lastly, roots should be harvested during the dormant phases of late winter or early spring, when all nutrients are stored within the roots (Chen, 2012).

Preparation and Processing of Chinese Herbs

Preparation and processing are crucial components in the practice of Chinese herbal medicine. Although some herbs are used while fresh or in their original form, most require processing before use to obtain maximum availability of active ingredients. Moreover, each specific method of preparation has a purpose that affects the herb's overall therapeutic impact and effectiveness (Ibid.). In addition, the various preparation methods can modify the nature of the herb, adapting them to the requirements of the specific formula or patient. Traditionally, the seven main purposes of preparing and processing herbs are "to enhance or alter therapeutic actions, to minimize loss of active components, to maximize extraction of constituents, to reduce side effects and/or toxicity, to increase surface area and facilitate extraction, to prevent spoilage and prolong shelf life, to clean herbs prior to ingestion" (Sionneau, 1995; Chen, 2012). Some herbs only required simple procedures such as washing, drying, or cutting, whereas others required more complex treatments. These include pulverization, cutting, and defatting (Sionneau, 1995).

Characteristics of Chinese Herbal Medicine

A defining property of Chinese medicine is that it allows for precise differentiation of the symptoms and patterns of disease that is treated in accordance with the properties of individual herbs. With this system, a unique formula can be constructed with herbs that are selected for their specific characteristics and functions, which address the particular symptoms and patterns that have been identified. Here, the term "characteristics" refers to a set of values that describe thermal properties, taste, direction, channel affiliations, and toxicity of each herbal substance. Characteristics of herbs are strongly related to the herb's functions, and vice-versa (Chen, 2012).

Six primary tastes can be defined when describing the characteristics of herbs – pungent, sweet, sour, salty, bitter and bland, in addition to the two minor tastes, aromatic and astringent. Each taste has a unique effect, and herbs with similar tastes can have some common functions. Meanwhile, herbs with several tastes can exert more complex or multiple therapeutic effects. Pungent herbs disperse and activate both Qi and blood, and are, therefore, considered Yang in nature. The pungent taste is associated with the Lung organ and Metal element. Sweet herbs have a tonifying, nourishing, harmonizing, moderating, or moistening effect, and are Yang in nature. They are associated with the Spleen organ and Earth element. Herbs with a sweet taste primarily address conditions of deficiency, such as that of the Qi, blood, Yin or fluids, while also having the ability to alleviate acute pain or mental and emotional distress. Meanwhile, herbs with a sour taste have a stabilizing, astringent, and cooling effect, are Yin in nature and are associated with the Liver organ and Wood element. The sour taste addresses disorders of fluid leakage and discharge, more especially with long-term deficiency. These herbs are usually given with caution to patients presenting pain. Salty herbs have a softening, dissolving, cooling, descending, and moistening effect, are Yin in nature, and are associated with the Kidney organ and the Water element. These herbs are especially useful for treating hardness, accumulations, masses and swellings, and can be cautioned in the conditions of leakage and discharge. Herbs with a bitter taste have a draining, cooling, drying, and descending effect, are Yin in nature, are associated with the Heart organ and Fire element, and are used to treat excess heat, fire, damp-heat, accumulations, and rebellious Qi. Bitter herbs are cautioned in cases of Spleen Qi deficiency and deficiency-type cold patterns. Lastly, the bland taste has a draining, diuretic effect on water, which is considered Yin in nature, and can be useful for addressing water accumulation with edema (Holmes, 2002).

Temperature is an important defining feature of Chinese herbs, and it describes the so-called thermal property of the herb in terms ranging from cold, cool, and neutral, to warm and hot. The main traditional treatment, according to classic texts, is, "Cold disease must be warmed, and hot disease must be cooled" (Chen 2012). Accordingly, colder herbs are usually used to address disorders of heat, such as fever or sore throat. Likewise, herbs of warm or hot temperature treat disorders that are cold in nature, such as abdominal coldness with pain, or cold extremities. Neutral herbs are used for hot or cold disorders (Ibid.).

Another parameter that is considered in Chinese herbal medicine is the direction of the herb, which refers to the guiding affinity of the herb to certain areas of the body. Disorders can be characterized with a direction that is upward, such as coughing or vomiting, descending (diarrhea, prolapse), inward (common cold transforming to pneumonia), or outward (perspiration). Similarly, herbs have their own dynamicity, and the strategic use of herbal directionality can be used to counter the direction of the disease condition. In addition, herbs with a particular directional affinity can be used as a guiding herb within a formula in order to focus the therapeutic effect on the affected area (Chen, 2012). Herbs can also have an affinity towards certain channels, especially treating those signs and symptoms that are unique to the meridian (Holmes, 1995).

Overall, it is essential to consider the thermal property, taste, direction and affected channels when designing and prescribing herbal formulas to patients, as well as to identify

the correct pattern of the disease. For instance, selecting the correct taste with the wrong temperature or channels for a specific patient or disease will likely result in ineffective treatment (Chen, 2012).

Clinical Applications of Chinese Herbal Medicine

The practice of Chinese herbal medicine is a delicate combination of art and science, using both rational and intuitive approaches to treatment. Although traditional Chinese medicine offers multiple approaches and modalities for the treatment of disease, any curative effect requires a thorough understanding of the disorder that is specific to the patient, an accurate differential diagnosis, and precise prescription of herbs.

When constructing herbal formula, it is essential to select the most appropriate herbs while taking into account any cautions and contraindications, the appropriate dosage, and any suitable methods of preparation. Commonly, Chinese herbs are prescribed as a formula, though they may be prescribed as a single herb (Chen, 2012). The dosage is another critical, yet variable, factor in Chinese herbal medicine, usually based on the patient's physique, constitution, severity of symptoms, and duration of illness. Due to these factors, many medical books do not give specific dosage amounts; rather, dosage ranges are given (Hsu, 1986).

Concurrent Use of Herbal Medicines and Pharmaceuticals

The modern global practice of medicine is now at a crossroads, at which patients are being treated simultaneously with both Western and Chinese medicine (Chen, 2012). For instance, it is now somewhat common for patients to take herbal therapies or supplements with prescription pharmaceuticals. As the public becomes increasingly open to adding herbs and supplements to their lifestyle regimen, both patients and health professionals must be aware of potential adverse drug-herb interactions. Thus, safety has become a major point of discussion in the field of alternative medicine. Although herbs are classified and distributed as dietary supplements, it must be taken into consideration that herbs, if used incorrectly, like any other substance, may have an adverse effect on patients. Therefore, a well-qualified practitioner of Chinese herbs is the safest route of access to herbal therapy (Ibid.).

Summary

In the modern global practice of medicine as a whole, Chinese medicine has become increasingly recognized and followed due to its versatile and extensively studied approach to maintaining health. Currently, it has been observed that patients are more commonly being treated simultaneously with both Western and Chinese medicine. As the public becomes progressively open to innovative alternative medicine, both patients and health care professionals must be aware when unconventional treatment and mainstream treatment are being combined. As a major aspect of Chinese medicine, Chinese herbal medicine is a delicate combination of art and science, which uses rational and intuitive approaches to create "smart" supplemental or herbal extract treatments to prevent diseases and to restore the body's energy balance. The knowledge and implementation of Chinese herbal medicine remain of crucial importance in the development of the field of modern medicine, and further understanding and determination of its effectiveness and potential are needed.

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