

TRADITIONAL CHINESE MATERIA MEDICA – A RETROSPECT AND PROSPECT

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For thousands of years, traditional medicine and remedies have been practiced and used in the fight against disease in China. They have proved to be valuable and the distillate of vast historical experience based on field-tested human experiments, long-term observations and clinical trials. The Chinese people believe that traditional medicine is consistent with their own culture. Endowed with a unique theoretical system and provided outstanding clinical results, traditional Chinese medicine continues to play an important role in helping the Chinese nation flourish.

The recent study of traditional medicinal plants in China has given us confidence that what was recorded in ancient medical literature through empirical observations is indeed still coincident with the concepts of modern chemistry, pharmacology and medicine. The task of revealing what is valid and efficacious should be retained, and what is mythic and invalid should be discarded in traditional Chinese medicine may require scientific research lasting for several generations. Therefore, multi-disciplinary cooperation and international collaboration in this field would be essential. Systematic coordination of work in traditional medicine by world organizations, national governments, private foundations and individual scientists is a requisite as well.

Key words: China – traditional medicine – modern medicine – integration

World Health Organization announced that “The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being . . .”. But in spite of the great advances of modern scientific medicine, traditional medicine is still the only form of health care readily available to the majority of the people in the developing countries. Thus, the accumulated knowledge of traditional medicine should not be ignored, and be integrated with modern medicine (Kao, 1979; Editorial, 1985). Actually, many of today’s popular drugs had their origins in traditional medicines. Morphine, quinine, digitalis, ephedrine and reserpine, for example, were isolated from traditional medicinal plants, which were known to be efficacious in the treatment of certain diseases long before phytochemical investigations.

China has a wide variety of climate, soil and terrains. Many species of plants are grown throughout the country, and more than 5,000 traditional medicinal herbs have been collected and identified to date. China devotes annually 266,667 ha of land to herb cultivation, and

more than 500 traditional pharmaceutical companies produce over 3,000 patent herbal medicines to meet the population’s needs both in prophylaxis and treatment (Hu, 1987).

The medicinal plants studied nowadays in China could be arranged under 4 categories (Xu et al., 1985): 1. Traditional Chinese medicines; 2. Chinese folk medicines; 3. Western medicinal plants; 4. Traditional compound prescriptions.

Traditional medicines mean that they have been prescribed by the most of traditional medical doctors all over the country and recorded in the ancient medical classics and pharmacopoeias. Folk medicines including those materials taken by the Chinese minorities are usually adopted by local witch doctors as well as some medical doctors. Generally, folk medicines are not nationwide popular, and mainly for the treatment of endemic diseases. They have not yet been described in Chinese medical classics. The Western medicinal plants include all those plants which have been studied abroad already. The compound prescriptions

refer to the recipes containing several plants and other components. Most of them have been collected in ancient classics, but some are nostrums and still kept in secrecy by families. According to the traditional Chinese medical philosophy, a compound recipe often consists of 4 different functional groups, namely, the principal, adjuvant, auxiliary and conductant. The principal provides the principal curative effect, the adjuvant helps strengthen the principal effect, the auxiliary relieves secondary symptom or decreases the toxicity of the principal, and the conductant directs the action of the principal to the target organ or site. Each group in a compound recipe may comprise more than one plant or other component.

In Chinese ancient medical literature, there are 3 major medicinal classics.

1. *Shen Nong's Herbal* — It is dated to the BC 1st century, listed 365 remedies, presented their therapeutic properties. The remedies were divided into superior, common and inferior. The superior or high-grade drugs were meant to be non-toxic and had rejuvenating properties; the common or medium drugs were said to be tonics and applied for deficiency states; while the inferior or low-grade ones were used for curing disease, being toxic and were not to be given for a prolonged period of time. The legendary Shen Nong was traditionally worshipped by the drug guilds as their patron god.

2. *Revised Compendium of Materia Medica* — In AD 659, the Tang dynasty court promulgated the first pharmacopoeia compiled by Su Ging in 36 volumes. It listed 844 medicinal substances and is the earliest state pharmacopoeia in the world history.

3. *The Compendium of Materia Medica* — It was the most outstanding and comprehensive work in this field, compiled and published in 52 volumes by Li Shizhen in 1590. It listed 1,892 medicinal substances including plants, insects, animals, minerals and others. There are over 1,000 illustrations and 10,000 prescriptions in this compendium with detailed descriptions of the appearance, properties, method of collection, preparation and use of each substance. It was arranged into 16 classes. Li was one of the most famous scientist in China. He took a great trip to carry out the investigation in medicinal plants, and spent

most of his life to finish writing and compiling the Compendium.

Modern drugs are classified by the chemical structures, pharmacological actions or therapeutic purposes. But in the term of traditional Chinese medicine, the traditional drugs are categorized into 4 energies and 5 tastes. The 4 energies are: cold, hot, warm and cool. They are judged by the body's reaction to and the therapeutic effect of the drug. The 5 tastes are: sour, bitter, sweet, salty and pungent. Energy and taste are interrelated. Different drugs may fall into the same energy category but taste differently or vice versa.

Soon after the founding of new China in 1949, a series of regulations and policies were laid down and forceful measures taken to protect and develop the traditional medicine and pharmacology. The central government and local municipalities proclaimed that traditional Chinese medicine must be given prominence on an equal footing with Western medicine. During the period of 1960 to 1970, a large number of handbooks on the subject of folk medicines were successively published by provincial authorities. Medical doctors are encouraged to learn the concepts and principles of traditional Chinese medicine. An express provision concerning the development of traditional Chinese medicine and pharmacology was written into the Constitution of the People's Republic of China in 1982. Furthermore, the government established the State Administration of Traditional Chinese Medicine, thus accelerating the development of traditional medicine. At present, China is drafting "The Traditional Medicine Law" to ensure the rapid development of traditional Chinese medicine under the protection of law (Hu, 1987). Meantime postgraduate study programs have also been established in 19 traditional medical colleges.

During last 4 decades 104 drugs have been developed in China, 60 of them originated from medicinal plants (Xu et al., 1985; Liu, 1985; Zhu, 1987). In 1985 the new edition of Chinese Pharmacopoeia was published in 2 volumes. Volume one deals with 713 traditional Chinese drugs, and volume two contains 776 Western drugs. In primary health care, herbal remedies are as popular as synthetic drugs and antibiotics, and account for 30-50% of the total consumption of medicaments; in certain inner moun-

tainous districts, the proportion is as high as 90%. The statistical data show that the sales of traditional Chinese drugs in Shanghai rose from 38% of the total sales of drugs in 1984 to 50.9% in 1985 (Ding, 1987a, b).

It is necessary to explain that the promotion of traditional medicine does not mean to advocate a return to the primary folk medicine. Traditional medicine mainly is a complement to, rather than a substitute for modern medicine. In China the idea of integrating traditional with modern medicine has met with opposition from a number of modern medical doctors, pharmacologists and medicinal chemists. They are engaged in an argument with traditionalists in several aspects.

In modern medicine to avoid drug interactions, the use of a single drug is preferred. Conversely, in traditional Chinese medicine a recipe mainly contains several herbs, but if it is simplified in certain way, the traditional doctors and pharmacists would argue that any modification of a recipe would violate the traditional medical theory, and therefore could alter the efficacy and toxicity (Way, 1985).

Another aspect of the modern scientific approach to natural products is to chemically isolate, identify and pharmacologically screen the active principles from medicinal plants. When chemists and pharmacologists fail to get any active compounds, they will give up the project. However, the benefits of traditional Chinese remedies frequently result from the combination of various plants and other ingredients. The efficacy of a prescription could be evaluated as the sum of additive, synergetic and antagonistic effects of all ingredients (Shibata, 1985). The traditionalists suppose that the search for pure active principles just reflects the analytical methodology of modern science, and traditional Chinese drugs may sometimes be effective only in combination, i. e. in the form of compound recipe.

For example a decoction of *Rehmannia* and other 5 plants called Liu Wei Ti Huang Tang is one of the popular patent medicine. The formula is:

Rehmannia glutinosa root 25.0g

Cornus officinalis fruit 12.5g

Dioscorea batatas root 12.5g

Alisma plantago aquatica var. orientale tuber 9.4g

Pachyma cocos tuber 9.4g

Paeonia suffruticosa root 9.4g

The principal component is *Rehmannia glutinosa*, the *Cornus officinalis* has a tonic effect. The prescription then is balanced in such a way as to maximise the therapeutic properties of the drugs used by combining a tonic with a dispersive. This prescription has traditionally been used for the treatment of various kidney diseases including those with hypertension and a controlled experiment showed it could really improve the renal function of rats, lower the blood pressure and decrease the mortality rate.

From the viewpoint of modern scientists, there are a few factors making them hesitated to study these compound recipes, for instance, difficulties in getting raw materials with same quality, no standard processing for the pre-treatment of material, difficulties in establishing suitable screening models and monitoring the metabolism pathway of each component in a compound recipe, and a wide gap between ancient Chinese medicine and modern medicine in concepts and theories of diseases (Hosoya, 1985).

In recent years there has been much work done in the area of traditional medicinal plants in China, and many good results or leads have been achieved (Xu et al., 1985; Zhu, 1987). However, most of research projects carried out are designed on the principles of modern medicine and chemistry, and applying the pharmacological models commonly used in Western countries. How to establish different native screening models adapted for traditional Chinese medicine is one of the crucial problems. There are great differences in the therapeutic effects of the compound recipe from those of individual plants, and single plants from active principles. Whether the optimal effectiveness is the combined action of known and unknown compounds originally occurring in plants, or there are additional new active principles resulting from preparation and formulation of a recipe is also a formidable challenge to be taken in future (Xu et al., 1985).

It is a long way from the selection of the efficacious target prescription, crude extract or plant confirmed by long experience of popular use to the chemical isolation and identification of active principles, the pharmacological and toxicological studies by means of animal and human experimentation, and

finally their utilization as approved new drugs (Editorial, 1985).

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