

Hson-Mou Chang and Paul Pui-Hay But, *Pharmacology and Applications of Chinese Materia Medica*. Hongkong: World Scientific, 2001 [reprint]. 2 vols., 1432 pp.

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For more than 2000 years, the use of pharmaceutical substances—especially of botanical drugs—has been the central therapeutic approach pursued by Chinese medicine. A large country like China with its diverse geographical zones has an enormous wealth of plants. About 7,000 botanical species, almost 20 percent of the Chinese flora, have found their way into Chinese traditional materia medica.

When Chinese herbal therapies became popular in the West in the 1990s, many patients and physicians, in Europe at least, were still using herbal remedies from the European tradition of “phytotherapy” in their daily health care. Consumers consider these substances to be a “natural” medication, and prefer them to synthetic pharmaceutical drugs. They are convinced that consuming herbal drugs is less risky for their health. So, when phytotherapy with Chinese herbs was offered, it was accepted almost uncritically. In some cases, though, this proved to be dangerous, as the Chinese herbs, at that time, had not been subjected to the same amount of research as those herbs used in Western medicine that had become part of the European official pharmacopoeia.

The trust in Chinese botanical drugs was shaken when first reports of adverse effects caused by slimming pills containing the drug *Han fangji* 漢防己 (*Stephania tetrandra* S.Moore) appeared in the Western media in the early 1990s. *Han fangji* was accused of inducing renal failure. Chromatographic studies showed that the drug had been confused with another drug, i.e. *Guang fangji* 廣防己 (*Aristolochia Fangji*). Both are assigned colloquially the same name: *Fangji* 防己.

Most adverse effects of Chinese botanical drugs can be traced to ignorance and bad quality. For the Chinese practitioner, the outside appearance of a drug, that is, a combination of a traditionally defined aesthetic quality and its careful preparation, is most important. The determinants of drug quality that are crucial in Western pharmacology, namely identity, purity, and contamination, are not decisive for the Chinese practitioner when he buys a drug on the drug market. Besides adulteration and contamination, misidentification is an important problem for Western and Chinese practitioners. In Chinese traditional materia medica

one name can be given to different botanical drugs, and one and the same herbal substance may be traded under different names.

Practitioners of Chinese Medicine in Asia and in the West tend to overlook the potential of the intrinsic toxicity of botanical drugs, and consumers may not be aware of this danger. A botanical drug can contain more than one hundred constituents. Their synergistic effects, that is, their chemical interaction in the human organism after consumption, are rarely known.

Chinese medical practitioners, pharmacists, and researchers find a great deal of data on the therapeutic properties of Chinese herbs in the traditional literary sources. Formularies, *fangshu* 方書, constitute the historically most important literary genre of clinical Chinese medicine. They contain innumerable collections of combinations of drugs known to be effective and passed on for centuries, if not millennia, as proved recipes. Of similar importance are the so-called *bencao* 本草 works, i.e. collections of descriptions of the properties of individual drugs. The problem for the Western researcher or practitioner is the language. For example, the largest historical encyclopaedia of Chinese materia medica, the *Bencao gangmu* 本草綱目, "Materia Medica Arranged According to Monographs and Single Criteria" (1596), by Li Shizhen, is available in Chinese and Japanese only, but remains inaccessible to most Western readers.

Since the 1950s, the PRC has engaged in research on Chinese materia medica. This includes the collection of plant materials, studies in pharmacognosy, a search for active constituents, pharmacological research, and attempts at a verification of traditional indications. At the same time, guidelines for quality control of botanical substances, as well as for preparing and manufacturing traditional herbal remedies, have been issued. In this regard, the publication of the Administrative Law on the Drug Code of 1985 was a major milestone.

A series of official Pharmacopoeias of the People's Republic of China, the *Zhonghua renmin gongheguo yaodian* 中华人民共和国药典, reflects many of these initiatives. The first edition was published in 1977. The first of its two volumes was devoted to crude drugs and preparations from crude drugs, the second volume offered data on synthetic pharmaceutical substances. Since 1980, a revised and supplemented Chinese Pharmacopoeia has been published every five years. In 1992, for the first time, an English edition of the Chinese Pharmacopoeia was issued.

A pioneer work, the *Pharmacology and Applications of Chinese Materia Medica* was published by Chang and But in two volumes in 1986. This work offers material collected by a committee during 1978-1979, and was reviewed by the Chinese Society for Pharmacology before its publication in Chinese in 1983. The first English edition was issued in 1986; identical reprints appeared in 1996, 1998, and 2001.

The two volumes contain monographs of 250 items of Chinese materia medica: 231 herbal, 18 animal, and 1 mineral drug. The description of the drugs follows the information given in the "Pharmacopoeia of the People's Republic of China" of 1977. The names of the drugs are given in pinyin romanisation. They

are listed according to the number of strokes of their first Chinese character. An index of scientific names is provided at the end of the second volume.

Each monograph is divided into six entries:

1. Source. This section provides:

- The Chinese name, Chinese characters, botanical name, and the part of the plant being used. In some cases, alternative names of the plant are mentioned.
- Flavour, thermoquality, actions, and indications ascribed to a drug by traditional Chinese pharmacology.
- Botanical subspecies of the drug which alternatively could be used in different Chinese provinces.

2. Chemical composition.

3. Pharmacology, including toxicity.

4. Clinical studies.

5. Adverse effects.

6. References. These references quote research articles since the 1940s regarding chemical constituents, pharmacology, clinical studies, etc.

Three indexes of botanical names, pharmacological actions, and Chinese drug names are added at the end of each volume.

Reflecting research policy pursued in the PRC, the emphasis of this work is on Western pharmacology and clinical studies. The authors clearly indicate that an integration of Chinese and Western medicine is aimed at, with Western medicine taking the lead. In a preface, it is stated that the book is meant to be a reference work for the Western reader and that therefore it mentions only those aspects that correspond to Western scientific thought. Scientific terms are consistent with those in the "Index Medicus," "Chemical Abstracts," and the leading botanical journals. The preface for the Chinese reader states, that "traditionally ascribed actions are omitted in the English edition."

Chang and But quote data from both modern Western medicine and traditional Chinese pharmacology, that is, the primary qualities ascribed to botanical drugs in the traditional literary sources, i.e. flavour and thermoquality, are given. Thus, it is possible to assign to botanical drugs the traditional pharmacological effects as well. These parameters provide a link to Chinese traditional pharmaceutical literature from before the time when commissions in the PRC began to rationalize the body of Chinese traditional medicine in the 1950s. In this respect, this work differs from most of the scientific publications in English.

The difference between Chinese medicine and Western medicine is alluded to, for example, by designating organs such as "kidneys," *shen* 腎, and "spleen," *pi* 脾, in quotes to indicate that these are not Western biomedical terms but concepts from traditional Chinese medicine.

Modern readers interested in this work as a reference book should be aware that they are consulting a historical work dating from the time of the first Pharmacopoeia of the PRC, i.e. from 1977. The references to clinical pharmacological studies given at the end of each monograph start from the forties of the last century and end with the seventies. Since that time, a great deal of research has

been done on Chinese materia medica that has not been included in any of the reprints of this work. Paul But is a well known researcher in botany and biology. Molecular biology plays an important role in his studies on Chinese flora and Chinese herbal medicine. For further information, interested readers should turn to his publications since the 1990s. But's numerous articles in journals on pharmacutics and chemistry demonstrate his interest in creating "rational" botanical drugs, i.e. herbal remedies whose quality, chemical constituents, and intrinsic as well as extrinsic toxicity are known through pharmacological research. It is only by applying this approach that it is possible to compare the use of Chinese materia medica in Western and Chinese medicine, and to legitimate their therapeutic indications.