"12th Five-Year Plan" English-Chinese Bilingual Innovation Textbook for Higher Education in Chinese Medicine

全国中医药行业高等教育"十二五"英汉双语创新教材

Processing of Chinese Materia Medica

中药炮制学

(English-Chinese)

(英汉对照)

Editor-in-Chief Zhong Lingyun, David Karlau, Gong Qianfeng

主编 钟凌云 戴维·卡劳(美) 龚千锋

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《中药炮制学》（英汉对照）编委会

"12th Five - Year Plan" English - Chinese Bilingual Innovation Textbook for Higher Education in Chinese Medicine

Processing of Chinese Materia Medica (English - Chinese)

Editorial Board

编写说明

中药炮制是我国独有的制药技术，通过炮制加工的中药饮片，与中药材、中成药并称为中药产业的三大支柱。围绕中药炮制技术建立的中药炮制学学科是我国中医药学科重要的组成部分，《中药炮制学》也已成为中药学类专业的必修课程。为使我国独具特色的炮制技术能够为世界所了解，亟需借助相应的载体，而《中药炮制学》双语教材将实现载体功能，有效地实现教学与传播的融合。这既能使中药学类专业的学生和广大中药行业从业人员在掌握中药炮制研究领域专业知识，了解和掌握相关的专业外语词汇，在具备从事中药炮制的教学、科研及开发应用能力的同时，相应提高英语水平，进一步增强其文化与技术沟通能力，又可帮助世界对中药炮制技术有所了解，为传承和发扬我国中医药事业奠定良好基础。

中药炮制学双语教材是以“十二五”国家级规划教材、全国高等中医药院校规划教材《中药炮制学》为依据编写完成。全书共12章，其中前5章分别介绍了中药炮制概述、炮制与临床疗效的关系、炮制目的、炮制辅料、炮制品质量要求与贮藏等，第6章至第12章则对炮制的具体过程，从净制、切制到具体炮制方法等，从品名、来源、炮制方法、炮制作用、炮制现代研究等方面对各饮片炮制进行论述。

参与本书编写的高等院校和研究院所包括辽宁中医药大学、上海中医药大学、天津中医药大学、南昌大学和山东科技大学。在编写过程中，山东科技大学的David Karlau和江西中医药大学的英文教师针对本书稿的英文文法进行了校正，同时得到了参与本书编写的院校和科研单位各级领导的热情鼓励和支持，在此一并表示深深的谢意！

由于编者水平有限，本书的不妥之处在所难免，请广大读者在使用本教材过程中提出宝贵意见，以便进一步修改提高。

《中药炮制学》双语教材编委会

2014年9月

Written Description

Chinese materia medica processing (CMMP) is the exclusive pharmaceutical technology in China. The pieces of traditional Chinese drugs by processing, traditional Chinese medicine and Chinese patent drugs are called the three backbone of Chinese medicine industries. Discipline of CMMP based on TCM processing technology is the important composition in Chinese TCM disciplines. The course of CMMP has become the required discipline for TCM majors. In order to make this peculiar processing technology known by the world, corresponding vehicles are urgently needed. The bilingual textbook of CMMP can be one of the vehicles. It will be effective to realize the integration of teaching and spreading. Firstly, the students of TCM majors and general persons worked in TCM industry can grasp the knowledge of TCM processing, as well as understanding the professional English words . Meanwhile, people who had the ability of teaching, research, application in this field can also improve their English level and strengthen their communication ability of culture and technology. Secondly, with the help of this book, TCM processing can be achieved a good understanding by outside world. The publication of this book could provide a good foundation for inheriting and promoting of TCM throughout the world.

The bilingual textbook of *Processing of Chinese Materia Medica* is written based on "the 12th Five - Year Plan" National - level teaching materials and traditional Chinese Medicine Colleges teaching materials. It contains 12 chapters, in which the previous 5 chapters introduce the introduction, the relationship between processing and clinically therapeutic effectiveness, the purposes of processing, the supplemental material of CMMP and the quality control and storage of processed products. From the 6th chapter to 12th chapter, it elaborate the concrete procedure from purifying, cutting to the concrete CMMP skills, and expound the processing of each decoction pieces of traditional Chinese drugs which include the commodity name, source, processing method, processing function and modern research of drugs' processing.

The participating universities and research institutes to write the book include Liaoning University of TCM, Shanghai University of TCM, Tianjin University of TCM, Nanchang University and Shandong University of Science and Technology. In the process of compiling, David Karlau from Shandong University of Science and Technology and English teachers from Jiangxi University of TCM calibrate the manuscript

grammar. We also get enthusiastic encourage and support of leaders from the participating universities and research institutes. We give our deep gratitude to them.

For the limited of the editor, it will be unavoidable for some deficiency. Please put forward precious suggestion in the course of use for further improvement and modification in the future.

Editorial Committee of Bilingual Textbook of CMMP
09 – 10 – 2014

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Chapter One Introduction

What is the meaning of the Chinese material medica processing (CMMP)? And what is the scientific principle of the Chinese material medica processing (CMMP)? When we get access to this ancient but young subject, we should broaden our vision to understand the function of the Chinese material medica processing (CMMP). At first, we should know the definition of the Chinese material medica processing (CMMP).

Section One The Definition and Nature of Chinese Materia Medica Processing (CMMP)

1. The Definition of CMMP

According to the TCM theory, Chinese materia medica processing (CMMP) refers to a kind of pharmaceutical technology in accordance with the dialectical medication needs, the nature of the drugs itself, and the different requirements for compounding.

The broad sense: including cleansing, cutting and processing.

The narrow sense: including frying, stir – frying, calcining, steaming, boiling, blanching, repeated processing, fermentation, sprouting, frost – like powder making, baking, grinding in water, etc.

The definition of subject of CMMP: The science of CMMP is a subject specializing in the theory, technology, specification standard, history, and development.

About the theory of CMMP: It mainly refers to clarify the processing mechanism. Taking carbonizing drugs by stir – frying for example, the method can enhance its function of hematischesis. The TCM theory holds that "when red blood meets with black drugs, the former stops bleeding" (The five elements promotion and restriction mutually: metal – wood – water – fire – earth). While the modern theory believes that carbonizing drugs by stir – frying could increase the content of tannin, and promote blood clotting.

About the technology: The aim is to enhance the effect of processing and to standardize the processing technology. Taking Semen Strychni (*Maqianzi*) for example, there are stir – frying with sand technology, frying with oil technology, soaking in urine technology, and processing with vinegar technology. Among them, the soaking in urine technology is the distinctive processing method

of Jiangxi Zhangbang. The aim of researching processing technology is to conserve the efficacy of medicines and improve the traditional technology.

About the specification standards: The aim is to standardize the types, specifications and quality standard of prepared drug in pieces, including cutting, thickness, vertical slices, transverse slices of the prepared drug in pieces, and the color standards of processed products, and to determine the quality standards of the processed products by applying modern research methods. Taking Semen Crotonis Pulveratum (*Badoushuang*) for example, the pharmacopoeia stipulates that the fatty oil in it should between 18% and 20%. Using the contents of strychnine as the indicator, the processing of Semen Strychni (*Maqianzi*) is included in the pharmacopoeia, thus standardizing and theorizing the processing and overcoming the limitations of the standards using experience to judge.

2. Basic Task of CMMP

Explore the principle of CMMP: The principle of CMMP refers to the scientific basis and the effect of CMMP, and the discussing of the physical change and chemical change of Chinese materia medica in the course of processing under certain technological conditions, and the pharmacological effects' changes originating from these changes, and the clinical significance owing to these changes, thus making certain scientific evaluation for processing methods. The principle covers such principle studies as reduction of side - effect, enhancement of efficacy, moderation of drug nature, generating of new efficacy, such as, the study of the processing mechanism of Radix Polygoni Multiflori (*Heshouwu*), Corydalis Rhizoma (*Yanhusuo*), etc.

Improve the technology of CMMP: The improvement of CMMP technology includes two aspects. First, improve the traditional processing technology. For example, Rhizoma Alismatis (*Zexie*) has been processed through the method of stir - frying with salt - water since the ancient times. But the modern research shows that, compared with the other processing technologies such as stir - frying Rhizoma Alismatis with bran, the efficacy of stir - frying Rhizoma Alismatis with salt - water makes no significant difference with them. We therefore believe that the method of stir - frying medicine with salt - water needs further discussion. Second, at present most of the prepared - drug - in - pieces transform the manual operation into the mechanical operation, which is the improvement of the CMMP technology, meanwhile promoting the large - scale production of prepared - drug - in - pieces industry.

Formulate quality standard of prepared drugs in pieces: In addition to experience of appearance differentiation, the quality standard of prepared drugs in pieces includes content of active ingredient, limitation of toxic ingredient, pesticide residue, heavy metals content, and research of fingerprinting similarity that has been discussed more in recent years.

3. Relationship between CMMP and Other Subjects

Relationship with the theory of TCM: The CMMP is the pharmaceutical technologies conducted under the direction of the T. C. M theory.

Relationship with chemistry of Chinese materia medica: To know about the principal constituents of drugs and their changes before and after processing, such as, Cortex Phellodendron contains berberine, which easily resolves in water. Therefore, when using water to process it, we should adopt the "as quickly as possible" means so as to avoid the loss of the effective constituents.

Relationship with analytical chemistry: Include two aspects, namely, chemical analysis and instrumental analysis. In chemical analysis, carrying on chemical analysis for raw and cooked products, judging which one is good and which one is bad through qualitative and quantitative analysis.

Relationship with identification of Chinese materia medica: Once the drugs are cut into small pieces, we could identify and distinguish the cross sections of prepared drugs in pieces through the knowledge of identification science.

Section Two Origination and Development of CMMP

1. Origination of CMMP

The CMMP originated from the primitive society, developing along with the discovery of the Chinese materia medica. The CMMP is closely related with the invention of fire and the development of cooking skills (including the development of auxiliary materials and storage devices).

2. Development of CMMP

The development of CMMP has gone through four stages, namely, the origination and formation period of CMMP technology, the formation period of processing theory, the expanding application period of processing varieties and technology, and the rejuvenation and development period of processing.

Section Three Laws and Regulations of CMMP

Promulgated in December 2001, *the Drug Administration Law of the People' s Republic of China* (PRC) is the current basic law of drug production, use and inspection, and these are the laws and regulations that the Chinese materia medica processing must comply with.

In addition, the state – level laws and regulations include the *Pharmacopoeia of People's Republic of China*, whose appendix consists of the special chapter of the General Rules of the Chinese Materia Medica Processing (CMMP). The special chapter specifies the meaning of various processing methods, the operating methods sharing some general characteristics and quality requirements, being the state – level quality standards for traditional Chinese medicine processing.

Commissioned by the Bureau of Drug Administration of the Ministry of Public Health (Now National Health and Family Planning Commission of the People' s Republic of China), the China Academy of T. C. M (Now China Academy of Chinese Medical Sciences) took the lead to organize the relevant units and personnel to compile the *National Specifications of Chinese Materia Medica Processing*, which was published in 1988, and has been adopted as the ministry – level processing standards of prepared Chinese drugs in pieces (tentative). The appendix contains the General Rules of the Chinese Materia Medica Processing (CMMP) and the National Profile of the Chinese Materia Medica Processing Methods, etc.

The local standards should be in line with the standards of state – level and ministry – level, under the circumstances that the varieties or projects are not included by the state – level and the ministry – level standards, can the local authorities formulate corresponding standards. Simultaneously, they should be reported to the drug supervision and management departments of the State Council for the record, such as, *Jiangxi Provincial Specifications of Chinese Materia Medica Processing*, *Fujian Provincial Specifications of Chinese Materia Medica Processing*, *Shaanxi Provincial Specifications of Chinese Materia Medica Processing*, *etc.*

第一章 概 述

中药炮制是什么？中药炮制的科学原理是什么？当接触这门古老而又年轻的学科时，我们应开阔视野去理解中药炮制的作用，首先需要了解的就是中药炮制的定义。

第一节 中药炮制的定义和性质

1. 中药炮制定义

根据中医药理论，按照辨证用药的需要和药物自身的性质及调剂制剂不同要求，所采取的一项制药技术，即为中药炮制。

广义：包括净制、切制和炮炙。

狭义：包括炒、炙、煅、蒸、煮、焯、复制、发酵、发芽、制霜、烘焙、水飞等。

中药炮制学定义：中药炮制学是专门研究中药炮制理论、工艺、规格标准、历史沿革及其发展的学科。

关于中药炮制理论：阐明炮制机理，例如药物炒炭后增强其止血作用，中医理论认为，“红见黑则止”（五行相生相克：金－木－水－火－土）。而现代理论则认为，药物炒炭后能增加鞣质含量，促进血凝。

关于工艺方面：目的在于提高炮制作用并规范炮制工艺。例如马钱子，有砂炒、油炸、尿泡、醋制，其中尿泡为江西樟帮的特色制法。炮制工艺研究的目的是保存药效的同时对传统工艺进行改进研究。

有关规格标准：目的在于规范饮片类型、规格和质量标准。包括饮片的切制、厚薄、纵片、横片，炮制品的色泽标准，以及应用现代研究确定炮制品的质量标准。如巴豆霜，药典规定其含脂肪油应为18%～20%；马钱子的炮制以士的宁含量作为指标载入药典，从而使炮制规范化、理论化，克服标准用经验判断的局限性。

2. 中药炮制学基本任务

探讨炮制原理：炮制原理是指药物炮制的科学依据和药物炮制的作用，即探讨在一定工艺条件下，中药在炮制过程中产生的物理变化和化学变化，以及因这些变化而产生的药理作用的改变和这些改变所产生的临床意义，从而对炮制方法作出一定的科学评价。它包括对降低副作用、增强疗效、缓和药性、产生新药效的原理研究等内容，例如对于何首乌、延胡索的炮制机理研究等。