



全国中医药行业高等教育“十三五”创新教材

National “Thirteenth Five-Year-Plan” Innovative Textbooks
for Higher Education in Chinese Medicine Industry

中药药理学

(英文版)

Pharmacology of Chinese Materia Medica
(English Edition)

— 供中药学、药学专业用 —

(Suitable for Majors of Chinese Materia Medica and Pharmacy)

主 编 陈长勋

Editor-in-Chief Chen Chang-xun

副主编 汪选斌 聂红

Associate Editors-in-Chief Wang Xuan-bin Nie Hong

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China Press of Traditional Chinese Medicine



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Preface

Pharmacology of Chinese Materia Medica is a relative new scientific discipline, which studies and clarifies how traditional Chinese materia medica works on the body by using modern scientific approaches.

Over the past few decades, more and more overseas students come to China to study traditional Chinese medicine and pharmacy. On the other hand, an increasing number of native students plan to engage in international collaborative research after graduation. In order to foster the ability of the native students to communicate in English while studying medicine and pharmacy knowledge, and to meet the demands of overseas students for their study of traditional Chinese medicine, it needs a series of English teaching materials.

Here, we provide a comprehensive textbook on Pharmacology of Chinese Materia Medica for the first time. It can be used by international students for the undergraduate study and by native students for the special training purposes while studying medicine and pharmacy knowledge.

This textbook consists of three sections: pandect, specific discussion and appendix. The pandect, which contains 4 chapters, introduces basic knowledge of Pharmacology of Chinese Materia Medica. The specific discussion part consists of 17 chapters. In this part, each chapter begins with the general introduction of a category of Chinese materia medica, followed by discussion of commonly used Chinese medicines individually. In this textbook, all mentioned medicinal herbs are given Chinese pinyin names according to *Pharmacopoeia of People's Republic of China*, and marked with the tones. In each chapter, all the names of the Chinese medicines when firstly appeared are annotated with Chinese name, Latin name and popular English name so as to avoid any confusion. For each kind of materia medica, a brief introduction about its sources, major chemical constituents, traditional properties and efficacies is provided. Pharmacological effects are the key part and discussed in detail then. The kinetic parameters of the representative active components are briefly reviewed; however, it is not necessary given for each medicinal herb. In the part of the applications, diseases that are suitably treated by the discussed herb are described. The clinical applications of modern preparations of the medicinal herb and its effective components are introduced, only when they are approved by the State Food and Drug Administration. In the part of adverse reactions,

the toxic reactions and side effects that may occur in clinic are described. The toxic reactions in animal experiments are presented in the paragraph of safety evaluation, but not necessary for each kind of materia medica. The appendix contains 2 items: ① names of traditional Chinese medicines mentioned in this textbook; ② frequently used abbreviations.

This textbook is completed by the editorial board. All the board members are professors or experts engaged in teaching and research in the professional field. However, it is a challenge for us to edit a textbook in English. Although we have done our best, some problems may still exist.

We sincerely welcome and greatly encourage all valuable opinions and suggestions from experts and readers in order to revise and improve the textbook in the future.

Chen Chang-xun

June, 2017

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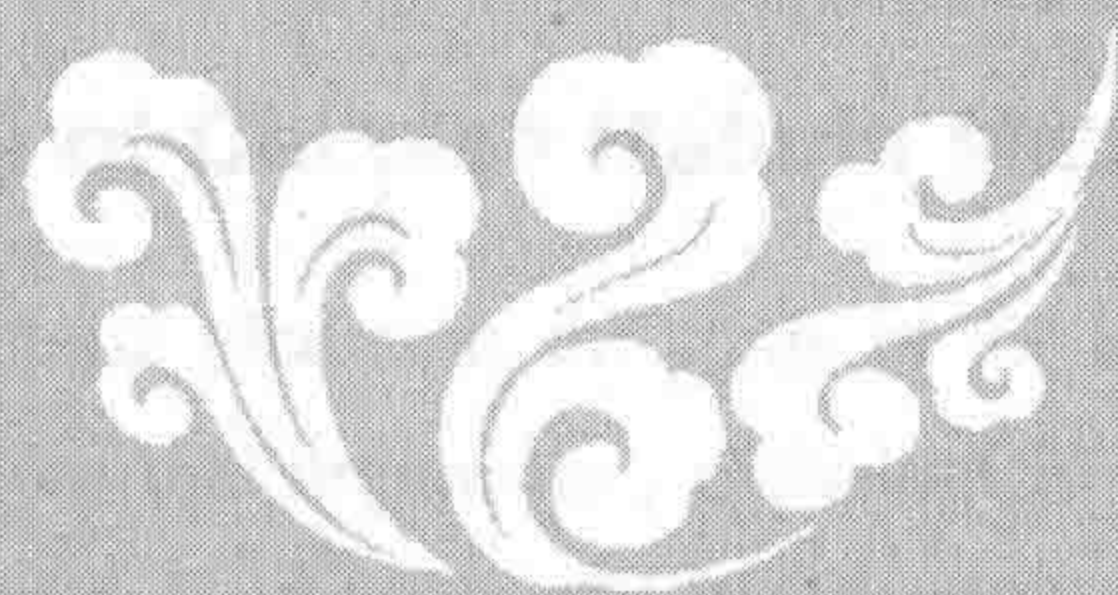
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中 · 药 · 药 · 理 · 学

Part | Pandect



Chapter 1 General Introduction

1. What is Chinese Materia Medica?

Most of the Chinese medicinal materials recorded in the classical works of Chinese medicine and traditionally used in clinic are originated from plants, animals, minerals and other natural products; however, a small part of them are biological or chemical products. Chinese materia medica refers to any medicinal substance that is used under the guidance of traditional Chinese medicine theories for the prevention and treatment of diseases. As the main source of Chinese medicinal materials is from plants, Chinese Materia Medica has historically been called as “*Bencao*” (herbal medicines).

2. What is Pharmacology of Chinese Materia Medica?

Pharmacology of Chinese Materia Medica is the study of the interactions between Chinese materia medica and organisms (including normal organisms, pathological organisms and pathogens) by using modern scientific technology under the guidance of Chinese medicine theories.

The contents of Pharmacology of Chinese Materia Medica include two aspects, namely pharmacodynamics and pharmacokinetics. The former is to study the effects of Chinese materia medica on the body and the underlying mechanisms. The latter is to study the metabolic process of Chinese materia medica in the body. That means it aims at the study of absorption, distribution, transformation and elimination of the substances contained in traditional Chinese materia medica.

As a new subject, Pharmacology of Chinese Materia Medica has rapidly developed during the past decades. It is an important part of Chinese medicine disciplines, and an important branch subject of Chinese Materia Medica. Pharmacology of Chinese Materia Medica follows the theory of traditional Chinese medicine (TCM) and applies modern medicinal knowledge to explore the effects of Chinese materia medica and clarify the related mechanisms. It provides better understanding of how Chinese materia medica works for the prevention and treatment of diseases, and how it causes cellular physiological and biochemical changes and produces therapeutic effects.

Chapter 2 The Basic Actions of Chinese Materia Medica

According to the theory of traditional Chinese medicine (TCM), the occurrence of a disease is the process of the struggle between healthy *Qi* and pathogenic factors. Diseases are generally related to disorder of *Zang-fu* (脏腑) functions and imbalance between *Yin* and *Yang* in human body. Different pathogenic factors affecting the human body can cause excess or deficiency of *Yin* or *Yang*, and the dysfunction of *Zang-fu* as well as *Meridians* and *collaterals* (经络). The basic principle of treating diseases with traditional Chinese materia medica is to strengthen the body resistance, expel pathogenic factors, and restore the normal functions of *Zang-fu* organs, so that the excess or deficiency of *Yin* or *Yang* can be corrected. The mechanism that Chinese materia medica prevents and treats diseases is based on the internal properties. One of the purposes of the research in the field of Pharmacology of Chinese Materia Medica is to reveal the scientific connotation of the properties and efficacies of Chinese materia medica.

1. Reinforcing healthy *Qi* and expelling pathogenic factors (扶正祛邪)

1.1 Reinforcing healthy *Qi* (扶正)

It is related to using Chinese materia medica to strengthen the body's defense against diseases, to maintain and improve the physical condition and constitution. The ancient Chinese physicians recognized long ago that when vital *Qi* keeps in the body, evils are not able to indulge in wilful persecution (正气存内,邪不可干), namely if the defense ability is strong enough, pathogens are not able to invade healthy body causing various diseases. Strengthening healthy *Qi* plays a key role in preventing diseases. Reinforcing healthy-*Qi* usually involves using tonic herbs to enhance the body's defense ability. Modern researches indicate that many traditional Chinese tonic herbs may enhance immune function, improve digestive ability, promote metabolism, supplement body's essential substances and help body to recover from a shortage of energy, etc. For instance, *Rén shēn* (人参, *Ginseng Radix et Rhizoma*, ginseng root) and *Huáng qí* (黄芪, *Astragali Radix*, astragalus root) can strengthen the immune system, ameliorate the neuroendocrine function, promote anabolic activity and regulate the digestive and absorptive ability and improve the function of hypothalamic-pituitary-gonadal axis, hypothalamic-pituitary-adrenal axis and hypothalamic-pituitary-thyroid axis.