

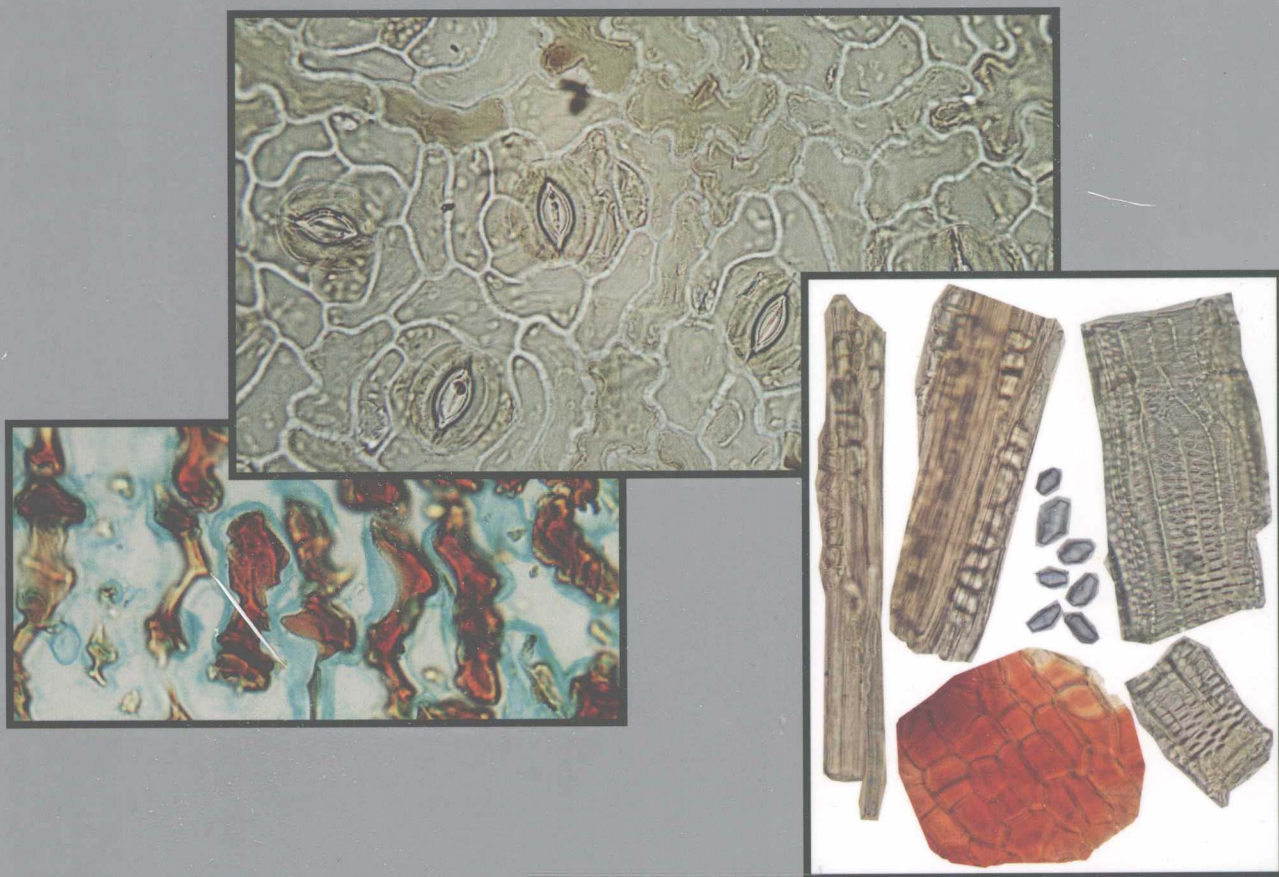
# 中华人民共和国药典

## 中药药显微鉴别彩色图鉴

An Illustrated Handbook on Microscopic Identification of  
Chinese Crude Drugs for Chinese Pharmacopoeia

国家药典委员会

Chinese Pharmacopoeia Commission



人民卫生出版社  
PEOPLE'S MEDICAL PUBLISHING HOUSE



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## 中药材显微鉴别彩色图鉴

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# An Illustrated Handbook on Microscopic Identification of Chinese Crude Drugs for Chinese Pharmacopoeia

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# 序

中医中药是我国优秀传统文化瑰宝，为中华民族的繁衍昌盛作出了巨大的不可磨灭的贡献，直至今日，中医中药仍然是我国医疗卫生保健事业中的重要力量。中药是中医防治疾病的主要物质基础，中药的质量好坏，无疑将直接影响到中医的疗效。

《中华人民共和国药典》是保证国家药品质量的一部法典，作为国家药典委员会的一名成员，我经常在思考“药典”怎样才能更好地体现出“以人为本”的思想？

因此当我有幸先睹了国家药典委员会组织编著的《中华人民共和国药典中药材显微鉴别彩色图鉴》后，受到了很好的启迪：将药典中中药材的显微鉴别内容，通过图文并茂、科学翔实、形象生动并准确地展现在科技工作者和读者面前，这样的工作将大大提高并促进对中药材真伪优劣的鉴别的能力和效果，达到保证人民身体健康的目的，这无疑是一次体现“以人为本”思想的很好实践。

中药品种的真实性即基源，直接关系到实验研究的科学性、临床疗效和人民生命安全。显微鉴定法是中药真实性鉴别的重要手段之一，具有快速、简便、准确的特点，尤其中成药显微粉末鉴别是我国对国际社会的一项重要贡献！因此发达国家诸如美国药典、欧洲药典、日本药局方等也均收载有显微鉴别的内容，在实践中得到较为广泛的应用。在药品检验工作中，检验者要根据检品在显微镜下呈现的微观特征与已知中药对照品的显微特征进行比较而作出判断，因此，正确药材显微特征的彩色图谱将有助于准确地鉴定药材。

由中华人民共和国药典委员会组织编著的首部《中华人民共和国药典中药材显微鉴别彩色图鉴》是2005年版《中华人民共和国药典》一部的配套丛书之一。该书信息量大、数据翔实，所用样品全部为最新收集和制作，所有中药材的组织与粉末特征图谱全部为作者依据显微鉴别实验所得的原图，应用先进的数码显微摄影技术采集和Adobe Photoshop等图像处理软件处理编辑，因而该书又是一部中药材显微鉴定科研成果的专著。本书图谱逼真、清晰、显微特征明显，大大提高了中药材显微鉴别的水平，它必将对推动中医药事业的健康发展，提升我国中药监管水平发挥很好的作用，并产生深远的影响。

本书对从事药品检验、教学、科研、药材、饮片、中成药生产、供应、使用及国际贸易等方面的机构和有关人员是一部很有价值的工具书。同时本书的中英文对照编排，也将有助于推动中医药走向世界。有感于此，乐为之序。

中国工程院院士  
中国医学科学院  
药用植物研究所名誉所长

**肖培根 教授**

2008年7月29日



# FOREWORD

Traditional Chinese medicine is the excellent Chinese cultural treasure and has contributed greatly to the prosperity of our nation. Till now, it is still the important force in the health care system in China. Since Chinese Crude Drugs (CCDs) are the principal substance basis for preventing and treating diseases of Chinese medicine, the quality of CCDs will, with no doubt, influence the efficacy of Chinese medicine.

The Chinese Pharmacopoeia (*ChP*) is a national standard to assure the quality of drugs in the country. As one of the members of the Chinese Pharmacopoeia Commission, I often think it over that how the Pharmacopoeia could better reflect the idea of “people foremost”. After reading the book “An Illustrated Handbook on Microscopic Identification of Chinese Crude Drugs for Chinese Pharmacopoeia” compiled and organized by the Chinese Pharmacopoeia Commission, I was greatly enlightened. The book embraced the vivid picture, scientific descriptions and detailed illustrations of the microscopic characteristics of those CCDs recorded in the Pharmacopoeia, which makes it much easier for the species authentication and quality evaluation of CCDs, hence to safeguard the people’s health. I should say that this is an excellent practice for the idea of “people foremost”.

The authenticity of CCDs species, or origins, is directly related to the scientificity of research, efficacy of clinic and safety of the people’s life. Microscopic identification is one of the important means for the authentication of CCDs, with characteristics as rapidness, simplicity and accuracy. And the microscopic powder identification of Chinese patent medicine is a great contribution of our country to the world. Therefore the Pharmacopoeias of developed countries like the United States, Europe and Japan also recorded the contents of microscopic identification, which was received wide application in practice. In the drug testing practice, the inspectors have to draw a conclusion on the species identification by comparing the microscopic characteristics of tested samples with those of authentic CCDs species, therefore the colored pictures of the microscopic characters of correct crude drugs would be helpful for the accurate identification of CCDs samples.

This book entitled “An Illustrated Handbook on Microscopic Identification of Chinese Crude Drugs for Chinese Pharmacopoeia” compiled by the Chinese Pharmacopoeia Commission is one of the supplementary series of books to the *ChP* Volume I of 2005 edition. The book contained detailed and accurate data with vast information. All the samples used for compiling the book were newly collected and prepared, and the microscopic pictures of tissues and powders of CCDs were all the original pictures based on the first hand microscopic identification experiment and prepared by the advanced digital photographing technology and then processed by imaging software such as Adobe Photoshop, etc. Therefore the book is also a monograph of scientific research achievement on microscopic identification. The pictures of the book are lifelike with clear and obvious microscopic characteristics, hence it greatly enhanced the level of CCDs microscopic identification. It will definitely play a crucial role in promoting the development of CCDs cause and enhancing the level of our CCDs monitoring.

This book could be a valuable reference book for those engaged in drug testing, teaching, research, production, provision, application of CCDs and international trade. It would also help to promote the globalization of traditional Chinese medicine due to its bilingual illustration both in Chinese and English. Motivated by these ideas, I am pleased to write the foreword for this book.

**Academician of Chinese Academy of Engineering  
Honorary Director of Institute for Medicinal Plant Research,  
Chinese Academy of Medical Sciences**

**Professor Xiao Pei-gen**

*July 29, 2008*





# 前 言

显微鉴别(microscopical identification)是指利用显微镜对药材及成方制剂组成药味的组织、细胞或细胞后含物等特征进行鉴别,以确定其真伪的一种方法,是中药鉴别的重要手段之一,具有简便、快速、直观等特点。美国药典、欧洲药典、日本药局方等在一些植物药项下收载有显微鉴别内容。《中华人民共和国药典》自1977年版开始在一些品种鉴别项下收载显微鉴别内容,随着中药显微鉴别研究的不断深入,各版药典收载的显微鉴别品种不断增加。2005年版《中华人民共和国药典》一部收载中药材551种、成方制剂564种,其中有显微鉴别项分别为335种和97种,占全部品种的61%和17%。

鉴于药典收载的显微鉴别特征均为文字描述,在药品检验工作中难以准确、快捷的做出判断,中华人民共和国药典委员会组织了长期从事中药鉴定工作并富有显微鉴别经验的专家、学者,对2005年版《中华人民共和国药典》一部收载显微特征的中药材进行收集、选材、制片和实验观察,编著了这部2005年版《中华人民共和国药典》一部的配套丛书,命名为《中华人民共和国药典中药材显微鉴别彩色图鉴》。这是迄今为止首部与《中华人民共和国药典》配套的中药材显微特征原创彩色图谱。

本书分总论和各论两部分。总论主要介绍显微鉴定的发展简史、中药显微鉴定的依据、中药显微鉴定的方法。各论按2005年版《中华人民共和国药典》一部的品名目次即药材中文名称笔画顺序,记载各种药材的显微特征文字描述和图谱。

本书各论收载品种为2005年版《中华人民共和国药典》一部具有显微鉴别项目的品种。其中组织显微特征115种;粉末显微特征169种;兼有组织和粉末显微特征51种。

文字描述均同2005年版《中华人民共和国药典》一部相应品种,采用中英文对照。显微特征图谱全部是根据药材显微镜检结果,应用数码显微摄影技术采集、Adobe Photoshop等图像处理软件处理编辑的原图。本书共收载药材组织特征图362幅,粉末特征图232幅。

在编写过程中,对2005年版《中华人民共和国药典》一部个别品种(详见本书附录)的显微特征作了修订,修订结果拟收载于《中华人民共和国药典》(2005年版)2008年增补本。

全书图像逼真、清晰、色彩真实,显微特征典型、齐全,文字说明为中英文对照,有重要的实用价值,可供从事药品检验、教学、科研、药材生产、供应及使用等有关人员参考。

本书由国家药典委员会策划和协调,并与中国药科大学共同作为主编单位,中国药品生物制品检定所、广东省药品检验所、上海市药品检验所、河北省药品检验所、江苏省药品检验所、北京市药品检验所、浙江省药品检验所、黑龙江省药品检验所为主要参加单位,山西省药品检验所也参加了部分工作。中国药科大学对成书发挥了重要作用,特别是全书承蒙我国著名生药学家徐璐珊教授主审,周富荣、刘午霞、李萍、肖新月、季申和林惠蓉等专家对全书进行了统一审校。谨此一并致谢。

享誉国内外的药用植物学资深专家、中国工程院院士、中国医学科学院药用植物研究所肖培根教授对本书的隆重出版十分关注,给予高度评价,并欣然为本书提笔作序,在此表示衷心的感谢。

国家药典委员会

2008年3月



# PREFACE

Microscopic identification is a method using a microscope to identify the characteristics of tissue, cells and ergastic substances in Chinese Crude Drugs (CCDs) samples and their preparations, so as to determine the authenticity of CMM. As one of the most important methods for CCDs identification, the microscopic identification, which possesses such characteristics as easy and fast operation with audiovisuality, is also included in Pharmacopoeias of US, Europe and Japan for some botanical medicines. The Pharmacopoeia of the People's Republic of China (*ChP*) started to record the microscopic identification under the identification items ever since the 1977 edition. With more research done in this field, more and more CCDs species were added with the microscopic identification items in the following editions, up to 335 out of 551 CCDs and 97 out of 566 Chinese patent medicines (CPM) included in the 2005 edition, comprising 61% and 17% of all species, respectively.

Since the microscopic identification is only verbally recorded in the pharmacopoeia, which is hard to make a quick and accurate judgement in the drug testing process, a group of experts and scholars who are competent in microscopic identification were, therefore, organized by the Pharmacopoeia Commission of PRC to conduct a series of experiments on the CCDs species recorded in *ChP* including collection of the samples, material selection, preparation of slice specimen and experimental observations, etc. Their endeavors led to the publication of this original colored atlas supplementary to *ChP* for the first time, which is accordingly entitled as "An Illustrated Handbook on Microscopic Identification of Chinese Crude Drugs for Chinese Pharmacopoeia".

This publication is divided into two sections-General Introduction and Individual Descriptions. The brief developmental history, basis and methods of microscopic identification were mainly introduced in the General Introduction. The verbal description and pictures of microscopic characteristics of each CCD were recorded in the Individual Descriptions section, which is arranged by the list order of CCDs species in *ChP* Volume I, i.e., the number of strokes of the first Chinese character of the CCDs's names.

All the species with microscopic identification items recorded in *ChP* Volume I (2005 edition) were documented in this supplementary book, including 115 microscopic characteristics of tissues, 169 of powders and 51 of both tissues and powders.

The verbal description for the CCDs's 3. species are the same as those of corresponding species recorded in *ChP* volume I of 2005 edition written in both Chinese and English. The published microscopic pictures were all original ones presenting the first-hand photographs of authentic CCDs species observed under a microscope taken with digital photographing technique and then processed by some imaging software such as Adobe Photoshop, etc. Totally 362 pictures of characteristics of tissues and 232 of powders were documented in this publication.

During the course of compiling this book, the microscopic characteristics of a few species which are different from those recorded in *ChP* 2005 edition were revised and recorded in the 2008 enlarged edition of *ChP* 2005 edition.

Since the pictures are vivid, clear, true colored, with complete microscopic characteristics and bilingual illustration in Chinese and English, this publication is of great practical value, and could be an excellent reference book for those engaged in drug inspecting, teaching, investigating, manufacturing, supplying and using.

Chinese Pharmacopoeia Commission takes the leading role in organization and coordination of this book. Together with China Pharmaceutical University, they are the two institutions to take the co-editorship of this book. Other institutions to participate in compiling the book include the National Institute for the Control of Pharmaceutical and Biological Products, the provincial institutes for drug control of Guangdong, Shanghai, Hebei, Jiangsu, Beijing, Zhejiang, Heilongjiang, as well as Shanxi. China Pharmaceutical University played a crucial role in the accomplishment of this book. In addition, Prof. Xu Luoshan, a well-known expert in the field of pharmacognosy in China, as the major examiner of this book and many other experts like Zhou Furong, Liu Wuxia, Li Ping, Xiao Xinyue, Ji Shen and Lin Huirong etc. had checked and approved it before publication. Here we would like to greatly acknowledge those institutions and experts for their contributions to this book.

Our great acknowledgement also goes to Prof. Xiao Peigen, an honored leader of the Institute of Medicinal Plant Research of Chinese Academy of Medical Sciences, a well-known medicinal botanist home and abroad and an academicians of Chinese Academy of Engineering, for his highly praised comment on the publication of this book and his generosity to write a foreword for the book.

Chinese Pharmacopoeia Commission





# 编写说明

1. 本书分总论与各论两部分。各论收载品种为2005年版《中华人民共和国药典》一部具有显微鉴别项目的品种。其中收载有组织特征的115种；有粉末特征的169种；兼有组织和粉末特征的51种。
2. 本书实验样品全部由作者收集，显微特征图也全部是作者制作的原图，并应用数码显微摄影技术采集，Adobe Photoshop等软件处理编辑而成。图版均附有标尺。全书共收载药材组织特征图362幅，粉末特征图232幅。
3. 本书目录按2005年版《中华人民共和国药典》一部的品名目次即药材中文名称笔画顺序排序。
4. 每品种项下收载的内容包括：品名（包括中文名、汉语拼音名、拉丁名）、来源〔包括科名、植（动）物名、拉丁学名及药用部位〕、显微特征（含中英文描述、彩图、中英文图注）。文字描述同2005年版《中华人民共和国药典》一部相应品种。在编写过程中，对2005年版《中华人民共和国药典》一部个别品种（详见本书附录）的显微特征作了修订，修订结果已收载于《中华人民共和国药典》（2005年版）2008年增补本。
5. 本书附有索引，分别按汉语拼音索引、药材拉丁名索引及拉丁学名索引顺序排列。
6. 药典收载的药材有多种来源的，凡显微特征相同者，本书只收录其中一种，在图注中以加注拉丁学名表示。
7. 凡药典涉及到的有关显微化学鉴别内容，本书未收录。如：儿茶、牛黄、体外培植牛黄等。
8. 同一药材的炮制品，凡显微特征相同者，本书未收录，以附注的形式说明。如：法半夏。
9. 鉴于本书属《中华人民共和国药典》的配套丛书，显微鉴别项下出现的习用药材名请注意参见图注中拉丁学名溯源。如：葶苈子项下，北葶苈子图注中标出拉丁学名*Lapidium apetalum*；南葶苈子标出拉丁学名*Descurainia sophia*。
10. 部分多来源品种或多个药用部位品种项下未附彩图者，仍保留有药典相应文字。



# EDITORIAL NOTES

1. The book includes two parts-General Introduction and Individual Descriptions, the latter of which documented all the species of Chinese Crude Drugs (CCDs) with the microscopic identification items in “the Pharmacopoeia of People’s Republic of China” (2005 edition) (hereinafter abbr. *ChP*). Among them, there are 115 species with tissue characteristics, 169 with powder characteristics and 51 with both characteristics of tissue and powder.
2. The experimental samples used were all newly collected and prepared, and the microscopic characteristic pictures were the digital ones, processed and edited with some image processing software (e.g. Adobe Photoshop) by the authors. The magnification of the published photograph is specified with a measuring scale. Altogether 362 pictures of tissue characteristics and 232 powder characteristics of CCDs were compiled in this book.
3. The table of contents of this book are arranged in accordance with *ChP*, and ordered by the number of strokes of the first characters of the CCDs’s Chinese names.
4. For each documented CCDs, the recorded items include: the species name (including Chinese name, Chinese phonetic name and Latin name), source (including family name, plant or animal name, Latin scientific name and used part), microscopic characteristics (including descriptions, colored pictures and figure legends both in Chinese and English). The descriptions were in accordance with those of the corresponding species written in *ChP*. During the compiling process, the microscopic characteristics of some special species recorded in *ChP* volume I were revised (see the appendix for detail) and recorded in the 2008 supplement of *ChP* 2005 edition.
5. This book is appended with several indexes and arranged in order by Chinese phonetic name index, Latin name index and Latin scientific name index.
6. For the multiple sourced species of CCDs in *ChP*, this book only recorded the characteristics of one species with the Latin name in the figure legend if their microscopical characteristics are the same.
7. This book does not documented the contents regarding the micro-chemical identification recorded in *ChP*, but only appended with foot notes, such as Catechu, Semen Myristicae, Fructus Arctii, in vitro cultured Calculus Bovis etc.
8. This book does not documented the processed CCDs, sourced from of the same species if they are the same in microscopical characteristics, such as Rhizoma Pinelliae Preparatum.
9. As this publication belong to one of the supplementary series of books to the *ChP*, the habitually used names under the item of microscopical identification should be refered to the Latin scientific name in the figure legend. For example, under the item of Semen Lepidii, the Latin name of *Lapidium apetalum* was given in the figure of North Semen Lepidii and *Descurainia sophia* was given in the South Semen Lepidii.
10. The corresponding verbal descriptions in *ChP* were retained for those species with multiple resources or multiple used parts, which have no colored pictures.



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