Hong Kong
Chinese Materia Medica Standards

Department of Health
Hong Kong Special Administrative Region
The People's Republic of China
PREFACE

This is the third volume of a series of publications for the Hong Kong Chinese Materia Medica (HKCMM) Standards. The current publication not only covers monographs of an additional 60 CMM, but also witnesses the work of HKCMM Standards Office stepping into its tenth year.

In the past decade, our effort in setting up standards for commonly used HKCMM continue to generate fruitful outcomes for the development of Traditional Chinese Medicine (TCM). Not only do such standards closely tie in with regulation of the Chinese medicines in Hong Kong, they are increasingly being recognized and used by those engaged in the teaching, research, trading and clinical work as reference standards.

I am particularly pleased to see that research teams of the six universities, namely City University of Hong Kong, the Chinese University of Hong Kong, the Hong Kong Baptist University, the Hong Kong Polytechnic University, the Hong Kong University of Science and Technology and the University of Hong Kong (in alphabetical order) and the Government Laboratory work in unity to promote standards of TCM. Through the platform provided by the Scientific Committee of the International Advisory Board (IAB), they are able to share experience and expertise with overseas experts. The HKCMM Standards project creates unique opportunities for them to jointly foster scientific growth and ultimately achieves protection of public health.

Nevertheless, we should not be complacent. Collection of authenticated and representative samples for analysis still presents as a major challenge. Rapid environmental changes and human activities occurred in past years lead to increasing loss of biodiversity, affecting CMM of botanical, animal or mineral origins. Conservation of herbs or botanical resources has already become a global agenda. Such impact on future CMM standard development should not be overlooked.

Nor should we underestimate the difficulties in the development and validation of robust and reliable analytical methods for each and every CMM. While technological advances continue to provide handy tools for CMM researchers to tackle past technical hurdles, each CMM poses a special challenge with its own identity. We are also closely observing any breakthroughs in genetic mapping which could be a future spotlight as a monograph item.

To address the above challenges, the Department of Health (DH) is closely working with the World Health Organisation and actively contributing to development of strategies on traditional medicines for the next decade in the region.
In the 2009/10 Policy, the Chief Executive of Hong Kong Special Administrative Region has committed to expedite the setting of standards for HKCMM. Our aim is to extend the coverage to about 200 CMM by 2012. We will enhance collaboration with other economies on the regulation, development as well as harmonization of herbal medicine standards. In particular, more partners in this region will be invited to join the project of HKCMM standards.

Last but not least, I would like to thank all members of the IAB and the Editorial Board, the Government Laboratory of the HKSAR, as well as the research teams of the six aforementioned universities for their unfailing support and invaluable contributions to this project. I am greatly indebted to the State Administration of Traditional Chinese Medicine, the State Food and Drug Administration and the Chinese Pharmacopoeia Commission of the People’s Republic of China for their advice on the development of CMM standards, as well as their permission to adopt information from the Chinese Pharmacopoeia.

Dr P Y LAM
Director of Health
November 2010
## Members of the International Advisory Board

<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. David BRIGGS</td>
<td>Adjunct Professor, Centre for Complementary Medicine Research, University of Western Sydney, Australia</td>
</tr>
<tr>
<td>Prof. Nuntavan</td>
<td>Professor in Pharmacognosy, BUNYAPRAPHATSARA Faculty of Pharmacy, Mahidol University, Thailand</td>
</tr>
<tr>
<td></td>
<td>Consultant on medicinal plants at Thailand Research Fund</td>
</tr>
<tr>
<td>Prof. Kelvin K. C. CHAN</td>
<td>Joint Chair Professor of Traditional Chinese Medicine, Centre for Complementary Medicine Research, University of Western Sydney and Herbal Medicine Research &amp; Education Centre, Faculty of Pharmacy, University of Sydney, Sydney, New South Wales, Australia</td>
</tr>
<tr>
<td>Dr. Peter CHAN</td>
<td>Director General, Health Evaluation Directorate, Pest Management Regulatory Agency, Health Canada, Canada</td>
</tr>
<tr>
<td>Prof. Chun-tao CHE</td>
<td>Director, School of Chinese Medicine, The Chinese University of Hong Kong</td>
</tr>
<tr>
<td>Prof. Norman R. FARNSWORTH</td>
<td>Research Professor of Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, U.S.A.</td>
</tr>
<tr>
<td>Prof. Harry H.S. FONG</td>
<td>Professor Emeritus of Pharmacognosy, Program for Collaborative Research in the Pharmaceutical Sciences, Department of Medicinal Chemistry and Pharmacognosy; and WHO Collaborating Center for Traditional Medicine; College of Pharmacy, University of Illinois at Chicago, U.S.A.</td>
</tr>
<tr>
<td>Prof. em. Dr. Gerhard FRANZ</td>
<td>Chairman of the European TCM Working Party, EDQM-Strasbourg (France), University of Regensburg, Department of Pharmacy, 93040 Regensburg (Germany)</td>
</tr>
<tr>
<td>Dr. Yukihiro GODA</td>
<td>Head, Division of Pharmacognosy, Phytochemistry and Narcotics, National Institute of Health Sciences, Japan</td>
</tr>
<tr>
<td>Prof. Shiu-ying HU</td>
<td>Honorary Professor of Chinese Medicine, School of Chinese Medicine, The Chinese University of Hong Kong</td>
</tr>
</tbody>
</table>
Dr. Ping-yan LAM  
Director of Health, Hong Kong SAR  
(Chairman of IAB)

Dr. Gerard LEE  
Group Manager, BP & Laboratory Services,  
Inspection & Standards Division,  
Medicines and Healthcare Products Regulatory Agency (MHRA),  
United Kingdom

Prof. Rui-chao LIN  
Director, Division of Chinese Materia Medica and Natural Products,  
National Institute for the Control of Pharmaceutical and Biological Products, State Food and Drug Administration (SFDA),  
The People’s Republic of China

Prof. Zhi-xiang SHEN  M. D.  
President of China Association of Research and Development of Traditional Chinese Medicine, The People’s Republic of China

Dr. Gloria TAM  
Deputy Director of Health, Hong Kong SAR

Dr. Tai-lun TING  
Government Chemist, Government Laboratory, Hong Kong SAR

Prof. Hildebert WAGNER  
Professor, Department of Pharmacy,  
Center of Pharma Research, Ludwig-Maximilians-University, Germany

Prof. Pei-gen XIAO  
Honorary Director, Institute of Medicinal Plant Development (IMPLAD)  
Director, Research Centre on Utilization and Conservation of Chinese Materia Medica, State Administration of TCM,  
The People’s Republic of China

Prof. Zhong-zhen ZHAO  
Professor, Course Director-Bachelor of Pharmacy (Hons) in Chinese Medicine, School of Chinese Medicine,  
Hong Kong Baptist University

(Remark: The list is arranged in alphabetical order of last name)


**Members of the Scientific Committee**

(including those overseas and mainland IAB members who participated in the Scientific Committee meetings during their visits to Hong Kong)

**Prof. Kelvin K. C. CHAN**
Joint Chair Professor of Traditional Chinese Medicine, Centre for Complementary Medicine Research, University of Western Sydney and Herbal Medicine Research & Education Centre, Faculty of Pharmacy, University of Sydney, Sydney, New South Wales, Australia

**Prof. Chun-tao CHE**
Director, School of Chinese Medicine, The Chinese University of Hong Kong

**Dr. Hon-yeung CHEUNG**
Associate Professor, Research Group for Bioactive Products, Department of Biology and Chemistry, City University of Hong Kong

**Prof. Harry H.S. FONG**
Professor Emeritus of Pharmacognosy, Program for Collaborative Research in the Pharmaceutical Sciences, Department of Medicinal Chemistry and Pharmacognosy; and WHO Collaborating Center for Traditional Medicine; College of Pharmacy, University of Illinois at Chicago, U.S.A.

**Mr. Robert LAW**
Senior Pharmacist, Department of Health, Hong Kong SAR (Chairman of Scientific Committee)

**Prof. Rui-chao LIN**
Director, Division of Chinese Materia Medica and Natural Products, National Institute for the Control of Pharmaceutical and Biological Products, State Food and Drug Administration (SFDA), The People’s Republic of China

**Prof. Ricky Y.K. MAN**
Chair Professor, Department of Pharmacology and Pharmacy, The University of Hong Kong

**Prof. Karl W.K. TSIM**
Professor and Head, Department of Biology, Director, Center for Chinese Medicine R&D, The Hong Kong University of Science and Technology
Prof. Kwok-yin WONG
Dean of the Faculty of Applied Science and Textiles,
The Hong Kong Polytechnic University

Prof. Zhong-zhen ZHAO
Professor, Course Director-Bachelor of Pharmacy (Hons) in Chinese Medicine, School of Chinese Medicine,
Hong Kong Baptist University

Government Chemist and/or his representatives
Government Laboratory, Hong Kong SAR

(Remark: The list is arranged in alphabetical order of last name)

**Members of the Editorial Board**

Prof. Chun-tao CHE
Director, School of Chinese Medicine,
The Chinese University of Hong Kong

Dr. Hon-yeung CHEUNG
Associate Professor, Research Group for Bioactive Products,
Department of Biology and Chemistry, City University of Hong Kong

Mr. Robert LAW
Senior Pharmacist,
Department of Health, Hong Kong SAR
(Chairman of Editorial Board)

Prof. Guo-an LUO
Director, Modern Research Center of Traditional Chinese Medicine,
Institute of Biomedicine, Tsinghua University,
The People’s Republic of China
Chinese Medicine Officer, Department of Health, Hong Kong SAR

Prof. Ricky Y.K. MAN
Chair Professor, Department of Pharmacology and Pharmacy,
The University of Hong Kong

Prof. Karl W.K. TSIM
Professor and Head, Department of Biology,
Director, Center for Chinese Medicine R&D,
The Hong Kong University of Science and Technology

Prof. Bao-qin WANG
Professor, Division of Chinese Materia Medica and Natural Products,
National Institute for the Control of Pharmaceutical and Biological Products, State Food and Drug Administration (SFDA),
The People’s Republic of China
Chinese Medicine Officer, Department of Health, Hong Kong SAR
Prof. Kwok-yin WONG  Dean of the Faculty of Applied Science and Textiles, The Hong Kong Polytechnic University

Prof. Zhong-zhen ZHAO  Professor, Course Director-Bachelor of Pharmacy (Hons) in Chinese Medicine, School of Chinese Medicine, Hong Kong Baptist University

(Remark: The list is arranged in alphabetical order of last name)