Book Reviews

Interactions Between Chinese Herbal Medicinal Products and Orthodox Drugs. By Kelvin Chan (Liverpool John Moores University, UK) and Lily Cheung Chung (San School of Acupuncture, London, UK). Harwood Academic Publishers, Amsterdam, The Netherlands. 2000. xi + 214 pp. 17 × 24.5 cm. $67.00. ISBN 90-5702-413-6.

This book is composed of three sections and three appendices. Section One, entitled "General Principles" is subdivided into five chapters. Chapter One describes different categories of drug interactions (DIs), definitions, diversities, and differences between Chinese herbal medicine (CHM) and orthodox medicine (OM) and literature availability and interpretation of DIs. Chapters Two and Three briefly review concepts of pharmacokinetics and pharmacodynamics and mechanisms of orthodox DIs, respectively. Chapters Four and Five describe CHM concepts of using herbs and using CHM prescriptions, respectively. These chapters may be too brief for newcomers to the field, but references are given for both general and specific topics in each chapter. Section Two is titled "Interactions Between Chinese Herbal Medicinal Products and Orthodox Drugs" and has two chapters. Chapter Six describes observations of the use of CHM products and OM drugs in the East and the West. Chapter Seven is divided into two parts; Part I summarizes examples (10 case studies involving more than 1000 patients) leading to beneficial effects, and Part 2 deals with interactions leading to adverse effects. The examples cited in the book were translated from Chinese texts originating from literature and clinical journals available in China. Section Three is titled "Training, Research and Documentation" and contains two chapters. Chapter Eight emphasizes the importance of "training professionals qualified in both OM and Traditional Chinese Medicine (TCM) practice", and Chapter Nine proposes areas for "Research and Documentation". The book ends with three appendices, which list commonly used CHM herbs classified according to 18 TCM concepts (Appendix 1), the same herbs but classified according to 16 published pharmacological actions (Appendix 2), and 101 commonly available ready-made CHM products from TCM prescriptions (Appendix 3). Each chapter has its own references, with many published in Chinese.

More than 100 years of modern scientific research have proved that Chinese herbal medicines contain potent chemical substances and that these substances have the power to benefit patients, as well as occasionally cause adverse effects depending on the circumstances. It would therefore not be surprising to find that CHM and OM can interact occasionally to produce both adverse effects and clinical benefit. However, Western readers usually cannot readily access most literature on CHM, which is published in Chinese. This book has provided a comprehensive text to approach this subject from a modern scientific point of view. It is written to draw the attention of both OM and TCM practitioners and other health care professionals and urge them to be cautious about the likelihood of potential benefits, therapeutic failure, or life-threatening adverse effects when CHM products and orthodox drugs or medicinal products are coadministered intentionally or unintentionally. It is commonly known that patients in some Chinese communities may self-medicate CHM products as food supplements while taking OM drugs. Alternatively, few practitioners use both OM and CHM products to obtain benefits from the combination of both therapies. Coadministration requires expert knowledge of both practices, which have a different basis of diagnosis and treatment methods. At present, not many examples are documented in the English-language literature because insufficient research has been done in these areas in the West. Such a text will help practitioners of both disciplines to be aware of the problems of unusual adverse effects in patient responses after drug treatments that may be due to CHM and OM interactions.

The book will help the following health professionals in their practices: TCM and OM practitioners who prescribe CHM products, community pharmacists and health care professionals who stock CHM medications, hospital pharmacists and toxicological units staff, and medical herbalists. Undergraduates and postgraduates who are studying TCM as a new discipline and researchers in the CHM fields will find this book useful.

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Drugs from the Sea Edited by Nobuhiro Fusetani (Graduate School of Agricultural and Life Sciences, The University of Tokyo, Tokyo, Japan). Karger, Basel. 2000. vi + 158 pp. 17.5 × 24.5 cm. $79.24. ISBN 3-8055-7098-8.

In 1967, the U.S. Marine Technology Society sponsored the Symposium "Drugs from the Sea", at which the attendees discussed approaches toward the future development of marine-derived pharmaceuticals. Nobuhiro Fusetani's book *Drugs from the Sea* provides an account of how the subject has developed in the 33 years since this symposium. It recounts highlights of research on marine natural products chemistry and pharmacology, with an emphasis on recent and important achievements of drug discovery from marine organisms. The introductory chapter is written by the editor and is a brief overview of the book.

Marine Microorganisms and Drug Discovery: Current Status and Future Potential by Paul R. Jensen and William Fenical deserves its place as the first chapter. Marine microorganisms (bacteria and fungi) are perhaps the last barely tapped source of novel bioactive compounds, including antitumor, antibacterial, antiviral, antifungal, anti-inflammatory, and other compounds. The structural novelty of these compounds is potentially infinite, but a significant number of known compounds are frequently isolated from marine microbial organisms. The authors discuss the problems associated with the isolation and culturing of marine microorganisms, as well as their taxonomic identification. Several examples of bioactive compounds isolated from marine microbials are presented.

Yuzuru Shimizu's chapter on Microalgae as a Drug Source is complementary to the preceding one, both on the

importance of many of the bioactive compounds isolated from cyanobacteria, dinoflagelates, and diatoms, as well as on the endeavors associated with the isolation and culturing of these microorganisms. Emphasis is placed on the screening and isolation of cytotoxic molecules, but toxins and antifungal agents are also discussed.

The chapter Search for Biologically Active Substances from Marine Sponges by Motomasa Kobayashi focuses on the author's achievements in the isolation of the extremely cytotoxic polyketide-derived altohyrtins, the peptide-derived arenastatin A, the polyketide-derived callystatin A, and agosterol. The chapter also discusses the total synthesis of the natural products and their respective derivatives, as well as their bioactivity data.

Cytotoxic Substances from Opistobranch Mollusks by Kiyoyuki Yamada and collaborators has a coverage similar to the previous one. It discusses in detail the isolation and bioactivity data of the polyketide-derived aplyronines and the peptide-derived dolastatins, doliculide, and aurilide. The chapter is interesting not only because of the structural novelty and cytotoxic activity of the compounds but also because of the complex isolation schemes required in each case to isolate tiny amounts of pure compounds from several kilograms of marine molluscs.

The enjoyable chapter ω-Conotoxin MVIIA: from Marine Snail Venom to Analgesic Drug by Baldomero M. Olivera reports the amazing story of a drug discovery by a high-school student. The pharmacological investigation of *Conus* spp. molluscs venoms is an important example of how discovery of a toxin can be a step to development of a useful drug. The chapter provides a clear and well-presented explanation of calcium channel inhibitors, the discovery of new Ca channel subtypes, and the development of ω-conotoxin MVIIA as an analgesic drug.

In the chapter KRN7000 as a New Type of Antitumor and Immunostimulatory Drug, Takenori Natori and collaborators show a surprising example of a member of a well-known structural class, glycosphingolipids, being very active as an antitumor compound with in vivo activity. The biological activity depends on a change of stereochemistry of a single carbon and on the nature of the long-chain base. Detailed cytotoxic and immunostimulatory bioactivity data, as well as mode of action studies and in vivo toxicity, are discussed.

The chapter by Makoto Muramoto and his collaborators on Zonthamines, Antiosteoporotic Alkaloids is a brief account on the rediscovery of a known class of structurally complex alkaloids, as a consequence of the development of well-devised bioassays for measuring changes in bone mass. Extensive bioactivity data are discussed in this chapter.

The chapter Symbiotic Bacteria in Sponges: Sources of Bioactive Substances, by D. John Faulkner and collaborators, addresses the subject of symbiosis between sponges and microorganisms. The isolation of small amounts of structurally complex bioactive compounds from marine sponges has frequently raised the question of their true origin. The authors discuss the topic in depth, providing a comprehensive overview of the subject and presenting a strategic approach for determining the cellular location of different bioactive compounds.

In the chapter Aquacultural Production of Bryostatin 1 and Ecteinascidin, Dominick Mendola describes aquaculture research on the bryozoan *Bugula neritina* and on the ascidian *Ecteinascidia turbinata*, for the production of two of the most promising drug leads isolated from marine invertebrates. The challenge of culturing invertebrates on a large scale is an awesome adventure, but the scientific and economic investment in the development of aquaculture technologies can be a useful alternative way to provide an adequate supply of marine-derived drug leads.

The last chapter, The Halichondrins: Chemistry, Biology, Supply and Delivery, is a detailed account presented by James B. Hart and collaborators on the discovery and development of the halichondrins, potent cytotoxic polyether macrolides. As in the preceding chapter, a meaningful discussion of the production of halichondrins by aquaculture shows the importance of a strong collaborative effort among scientists in order to solve the problem associated with the supply of adequate quantities of biologically active marine-derived compounds for drug development.

The book is completely free of typographic errors, and the pictures and photographic presentations are refreshingly clear. Although the chapters are rather concise, and only selected subjects were chosen to be included, *Drugs from the Sea* is a very good book for researchers and students who are interested in being aware of the current development of marine-derived natural products in drug discovery.

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Medicinal and Aromatic Plants−Industrial Profiles. Ergot, The Genus *Claviceps*. Edited by Vladimír Kren (Institute of Microbiology, Academy of Sciences of the Czech Republic) and Ladislav Cvak (Galena Pharmaceutical Company). Harwood Academic Publishers, Amsterdam, The Netherlands. 1999. xiv + 519 pp. 17 × 24.5 cm. $120.00. ISBN 90-5702-375-X.

This is the sixth volume in a series dealing with the history, chemistry, isolation and production, biosynthesis, biology, and pharmacology of important medicinal and aromatic plants. Each volume provides a comprehensive examination of one plant genus, with the previous volumes having dealt with valerian, perilla, poppy, cannabis, and neem. There is a total of 20 contributing authors (including the editors) who have written the 18 chapters that comprise this book. These chapters include the following subjects: history, biology, taxonomy and phylogeny, genetics, biosynthesis, production (parasitic, saprophytic, industrial) (five chapters), chemistry, analytical chemistry, chemical modifications, biotransformations, pharmacology (three chapters), and toxicology. The long history of European expertise in the field of ergot alkaloid science is reflected by the fact that 18 of the 20 contributing authors are European.

Following the Preface, page xi introduces the subject nicely by presenting a list of the names of ergot in some 30 countries of the world. This is followed by the opening chapter dealing with the history of ergot. This chapter is exceptionally well-written and is pivotal to understanding the isolation and structure determination of the early alkaloids in the first half of the 20th century. This chapter also describes the genesis and evolution of the fermentation era in the middle of the century, as well as the key differences in the ergotamine, ergoxine, and ergotoxine groups of alkaloids. It ends with a discussion of the recent

isolation of ergot alkaloids from higher plants and ponders the question of the biosynthetic complexity of ergot alkaloids, now that these compounds are known to occur as both microbial and plant metabolites. Succeeding chapters flow nicely and in a logical, well-organized, and well-written manner. Chapter 5 is a particularly excellent and comprehensive offering by Ulrich Keller that details the biosynthesis of these alkaloids.

As a "non-ergot" scientist, but one who has held a 40-year love of alkaloids as special compounds, I was particularly impressed with the comprehensive, logical, and methodical development of each chapter, as well as the book in its entirety. This book is not for the generalist, but I would strongly recommend it to any individual or institution involved in one or more of the various aspects of ergot alkaloid science, including chemistry, biology, pharmacology, production, and biosynthesis.

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