

## Book Reviews\*

**Native Hawaiian Medicine. Vol III.** By Rev. David Kaluna M. Ka'aiakamanu, Translated by Malcolm Naea Chun (University of Hawaii). First People's Productions, Honolulu. 2003. vi + 93 pp. 6 × 9 in. \$15.00 (soft). Library of Congress #2003112781.

This is a translation of the third and final volume in a compilation of native Hawaiian medicinal plants commissioned in 1917 and completed in 1921, considered the last major, systematic study of traditional Hawaiian medicine. A brief introduction describes the effort to collect and catalog Hawaiian medicinal plants in the early 20th century, the individuals involved, and the general content of the three volumes.

The main body of the text consists of the original text in Hawaiian, followed by the English translation. In both cases, the plants are listed alphabetically by the Hawaiian name; the English version includes the botanical taxonomy. In some cases, the identity is not certain, and the most likely possibilities are listed. The translation is literal, and the resulting text is not smoothed or edited, preserving, as best as possible, the intended message of the original author.

The entry for kava ('awa) is quite illuminating, given its recent popularity and safety concerns. The passage describes eight different varieties of 'awa and notes that it is good for relaxing the body after long travel or hard work, and for improving sleep. The entry also suggests that constant use can damage a healthy body.

This translation provides a fascinating glimpse of the knowledge base of traditional healers in Hawai'i nearly a century ago, along with some insight into the culture of the islands at that time. The book will certainly be of interest to ethnobotanists, but it may also attract the attention of the natural products community, because there have been no systematic studies of native or endemic Hawaiian plants since Paul Scheuer's investigations in the 1950s and 1960s.

NP0682190

10.1021/np0682190

**The Fungal Community. Its Organization and Role in the Ecosystem. 3rd Edition.** Edited by John Dighton, James F. White, and Peter Oudemans (Rutgers University). Taylor & Francis Group, CRC Press, Boca Raton, FL. 2005. xx + 936 pp. 18.5 × 26 cm. \$139.95. ISBN 0-8247-2355-4.

In 1981, D. T. Wicklow and G. C. Carroll introduced *The Fungal Community. Its Organization and Role in the Ecosystem* and produced a second edition in 1992. Their objective was to gather all the fragments of ecological studies with fungi into a coherent whole within the broader framework of general ecology. In the 13 years since this book appeared, new molecular tools have become available to study fungi and fungal communities, while the ecological literature has expanded to relate the function of fungi and fungal communities at different scales of observation or measurement. This third edition volume has incorporated these recent advances in the field by soliciting chapters from many new authors and not requesting the extensive rewriting of existing chapters from earlier editions.

The book begins with the editors presenting their "thoughts behind this volume", followed by an introduction to the four sections, totaling 44 chapters and covering a broad range of topics relevant to the "Structure of fungal communities", "Function of

fungal communities", "Human impacts on fungal communities and their function", and "Preservation of fungal communities". The book also contains an effective subject and species index. Several chapters are relevant to the discovery and study of bioactive natural products. C. W. Bacon and P. Lyons (Chapter 26) examine biodefensive compounds produced by *Balansia* or *Neotyphodium/Epichloe*-infected grasses, while L. Ruess and J. Lussenhop (Chapter 28) cite examples of fungal chemical defenses in response to fungivory. Informative chapters on classical and modern methods for estimating the diversity of fungal communities, such as those fungi that cannot be cultured or induced to form fruiting bodies in culture, include "Freshwater fungal communities" by F. Barlocher (Chapter 3); "Tropical fungi" by K. D. Hyde, L. Cai, and R. Jeewon (Chapter 5); "Classical methods and modern analysis for studying fungal diversity" by J. P. Schmit and D. J. Lodge (Chapter 10); "Fungal diversity in molecular terms: profiling, identification and quantification in the environment" by M. I. Bidartondo and M. Gardes (Chapter 11); and "Fungal communities of seaweeds" by A. Zuccaro and J. I. Mitchell (Chapter 27). D. Y. Kobayashi and B. I. Hillman (Chapter 20) are to be congratulated for characterizing "Fungi, bacteria and viruses as pathogens of the fungal community". At the same time, these chapters do not emphasize research to explain patterns of fungal colonization that might be determined, in part, by the bioactivities of fungal metabolites.

In summary, this book is well written and organized, with a wealth of information, making it of value to professionals and graduate students engaged in research on fungal communities or functional attributes of ecosystems to include this book in their personal libraries. Although the editors seek to translate the activities occurring on the surface of individual hyphae into macroscale effects at the ecosystem level, this is not a book that focuses on the chemistry of fungal interactions with other organisms. It is unlikely that many natural product chemists will purchase this book for their individual collections, but those who work with fungi would find it a valuable addition to their personal or institutional libraries.

Donald Wicklow

Agricultural Research Service, USDA  
Peoria, Illinois

NP0682244

10.1021/np0682244

**Handbook of Medicinal Plants.** Edited by Z. Yaniv and U. Bachrach (Agricultural Research Center of Israel and Hebrew University-Hadassah Medical School in Jerusalem, respectively). Haworth Press, Binghamton, NY. 2005. xxii + 500 pp. 6 × 8 1/4 in. \$59.95 (soft). ISBN 1-56022-995-0.

At first glance, the title and cover of this book appear to offer the reader a compendium on the preparation and use of popular medicinal plants. However, the content assembled by the editors and 24 distinguished contributors is a comprehensive, international, and multidisciplinary collection of various topics of medicinal plant research. As the editors explain in the preface, the book is divided into five parts covering historical and modern use of medicinal plants, production and technological developments, and clinical applications.

Part I is an introduction that defines and provides examples of the major medicinal plant research areas, including quality assur-

\*Unsigned book reviews are by the Book Review Editor.

ance, the determination of bioactive compounds, and pharmacological research. Part II consists of eight chapters covering the use of medicinal plants throughout history, with a focus on China, Africa, the Amazon, and Australia. The topic of traditional Chinese medicine was particularly well described in the first three of these chapters, with introductions to historical texts, herbal drug terminology, ethnopharmacological classification, and current therapeutic chemical classes with structures.

Part III consists of four chapters devoted to technologies of medicinal plant research, including general aspects of cultivation, biological activity screening, and biotechnology. The first of these provides a historical overview of cultivation and current agrotechnologies used on various production scales. A brief overview of Good Agricultural Practice (GAP) is also included. Drug discovery from ancient times through animal models and current high-throughput screening techniques are discussed in the subsequent chapter, followed by a balanced, although limited discussion on the use of biotechnology in medicinal crop improvement.

Seven broadly focused chapters on recent medical applications are included in Part IV, including discussions of cancer therapies and the prevention of heart and metabolic diseases. An overview of botanicals with anti-infective activities provides folkloric and modern scientific evidence for several individual phytochemicals. Part V concludes the text with a single chapter on future challenges of medicinal plant research, outlining the importance of not only conducting research, but also international dissemination of the information obtained.

In conclusion, given the almost overwhelming breadth of topics covered in this text, it was disappointing that only a few pages scattered throughout the chapters were devoted to the issues of quality assurance of medicinal plants. This was a topic highlighted in the Introduction as critical, but only cursorily covered in the following chapters. Regardless of this shortcoming, the text is an excellent overview, spanning historic use and documentation of medicinal plants, current technologies, clinical applications, and future directions. The material is particularly exciting in that it clearly emphasizes medicinal plant research as global and multidisciplinary and respectfully blends traditional and current scientific knowledge.

Dean Gray

Midwest Research Institute  
Kansas City, Missouri

NP068220Z

10.1021/np068220z

**Stevia: The Genus *Stevia*.** Edited by A. Douglas Kinghorn (University of Illinois at Chicago). Taylor & Francis, London. 2002. xii + 211 pp. 7 × 10 in. \$90.00. ISBN 0-415-26830-3.

This book on the genus *Stevia* reflects the intense interest in this plant genus due to the occurrence in *Stevia rebaudiana* (Bertoni) Bertoni (Compositae) of the intensely sweet diterpene glycosides, stevioside, various rebaudiosides (A–E), and other minor glycosides. These diterpene glycosides find use as sweetening agents in foods and beverages, especially in Japan and South Korea. However, much controversy surrounds this use because of concern over the long-term safety of the glycosides for use as food additives. This has led to restrictions on *Stevia* use in the United States and Europe, where *Stevia* preparations and derivatives may be used only in products labeled as dietary supplements. This volume, in its 10 chapters, reviews extensively the various aspects of *Stevia*.

The initial chapter is a broad overview of the subject in which the editor summarizes the history of the major scientific and regulatory developments relative to the use of these diterpene glycosides as sweetening agents. The glycosides are compared to

other high-intensity natural sweeteners, and the physical properties of the glycosides are cataloged. Methods used for analysis of the glycosides are reviewed, as are the probable biosynthetic pathways of steviol and the glycosides. A discussion of the cultivation and commercial production of *S. rebaudiana* and a summary of the worldwide regulatory status of the product are provided.

Chapters 2 and 3 speak to the botany and ethnobotany of the genus with special emphasis on *S. rebaudiana*. It is interesting to note that *Stevia* is restricted to the new world and that more than 200 species have been described. Only *S. rebaudiana* has been conclusively documented to produce the sweet diterpene glycosides.

The next four chapters deal in turn with the phytochemical, chemical, and biochemical aspects of these diterpene glycoside sweeteners. Chapter 4 is a catalog of all the compounds reported to occur in *S. rebaudiana* inclusive of other phytochemical classes in addition to the diterpene glycosides. Chapter 5 summarizes the phytochemical literature on *Stevia* species other than *S. rebaudiana*. Especially relevant are the sesquiterpenes elaborated by members of this genus. The synthetic approaches taken to prepare steviol and the various attempts at glycosylation of steviol are detailed in Chapter 6. In addition, the further elaboration of stevioside to new derivatives is described. Chapter 7 deals with reported attempts to improve the taste profile of the diterpene glycosides for use as sweetening agents.

The issue of safety of the diterpene glycosides is evaluated in depth in Chapter 8. All the various compounds are discussed: glycosides as well as the aglycone steviol.

Finally, in Chapters 9 and 10 the use of commercial preparations (usually highly refined) of *S. rebaudiana* in Japan (Chapter 9) and Korea (Chapter 10) is discussed. This class of natural sweeteners has been in use in Japan for roughly 30 years and finds widespread use in the food and beverage industries.

I found this volume to be well written and informative. Each chapter provides extensive references to the primary literature, and the presentations seem to be balanced. The quality of production is good, the typeface small but readily legible, and the cost modest for a volume of this type. I recommend it to those with an interest in plant-derived natural products and especially to those working in the botanicals, nutraceuticals, or dietary supplements industries.

James D. McChesney

Tapestry Pharmaceuticals, Inc.  
Boulder, Colorado

NP068223B

10.1021/np068223b

**Anticancer Agents from Natural Products.** Edited by G. M. Cragg (National Cancer Institute), D. G. I. Kingston (Virginia Polytechnic Institute and State University), and D. J. Newman (National Cancer Institute). Taylor & Francis/CRC Press, Boca Raton, FL. 2005. xvi + 577 pp. 7 × 10 in. \$179.95. ISBN 0-8493-1863-7.

This timely edited volume is a very important addition to the biomedical literature, and the three editors of this volume, who are all extremely prominent in the field, have done the natural products community an outstanding service. Anyone skeptical about the past track record, the present value, or the future potential of cancer chemotherapeutic small molecular weight secondary metabolites of organisms will not remain so after reading this book. Such compounds, whether of microbial, terrestrial plant, or marine origin, not only have been of great help to numerous cancer patients but have enriched the working lives of numerous scientists and clinicians. The very broad array of chemical diversity represented by numerous natural product structural types of interest is showcased in this book. This is the first time this topic has been covered in an authoritative manner in a single edited volume since the

seminal *Anticancer Agents Based on Natural Product Models*, edited in 1980 by John M. Cassady and the late John D. Douros.

The present editors point out in the Introduction to this book that natural products tend to be relevant to drug discovery because they are produced for ecological roles in plants and marine organisms in the form of biologically active substances. In addition, natural products already have an extensive history of affording many useful drugs, some of which would have been inaccessible by other routes of drug discovery such as medicinal chemistry and combinatorial chemistry. The importance of natural products in serving as molecular templates for future drug design is also emphasized.

There are 25 other chapters in this volume, written in most cases by researchers with first-hand insight into the topics covered, by being involved with either or both the initial discovery or compound development. There is a considerable coverage given to compounds and their derivatives from all of higher plants, marine organisms, and microbes. These chapters comprise treatments, in turn, of camptothecin analogues; the combretastatins; homoharringtonine and related compounds; podophyllotoxin derivatives; paclitaxel (Taxol) analogues; vinca alkaloids; bryostatins; cryptophycins; discodermolides; dolastatins; ecteinascidin 743 (ET-743), aplidin and kahalalide F; the synthetic analogue E7389 of halochondrin B; HTI-286, a synthetic analogue of hemiasterlin; actinomycins; anthracyclines; ansamitocins (maytansinoids); benzoquinone ansamycins; bleomycin and analogues; (+)-CC-1065 analogues and conjugates; epothilones; enediyne; mitomycins; and staurosporine and related indolocarbazoles; the combinatorial biosynthesis of anticancer natural products; and developments and future trends in anticancer natural products drug discovery.

While the last chapter is generally very insightful, it is unfortunate that the sentiment is conveyed on page 554 that higher plants no longer tend to produce interesting new chemotypes germane to anticancer drug discovery. It is hoped that this does not dissuade future researchers from continuing to search for novel plant-derived cancer chemotherapeutic agents, since so many useful compounds of this type are already known, and others must surely be there to be found.

The book has been tightly edited, with each of the chapters of approximately equal length and covering the same general aspects (e.g., background/history, development, synthetic studies, medicinal chemistry mechanism of action, and clinical applications). Each chapter is extensively referenced, and the structures are all drawn to a standard format throughout the book. However, colored illustrations for several of the chapters are grouped together in the middle of the volume rather than being presented with the rest of the appropriate chapter in each case. There is a short General Index at the end of the volume that will be helpful to readers.

Not only may this book be given the highest possible recommendation for institutional purchase, but there is so much information of value that it should be in the personal libraries of all readers of this journal who are able to afford the price. The contributors to each chapter and the editors of this book are to be congratulated for their efforts. There seems little doubt to this reviewer that future

generations of natural products researchers will look back on *Anticancer Agents from Natural Products* as a classic text in the field.

**A. Douglas Kinghorn**

*Ohio State University  
Columbus, Ohio*

NP068222J

10.1021/np068222j

**Illicium, Pimpinella and Foeniculum.** Edited by Manuel Miro Jordal (University of Granada, Spain). CRC Press, Boca Raton, FL. 2004. xi + 232 pp. 7 × 10 cm. \$139.95. ISBN 0-415-32246-4.

This is another book in a series entitled "Medicinal and Aromatic Plants-Industrial Profile", contributed by various authors. Each volume in this series is usually dedicated to a particular plant. This volume covers three economically important genera (*Illicium*, *Pimpinella*, and *Foeniculum*) and consists of 12 chapters.

It starts with an introduction that sheds light on historical aspects of *Pimpinella* and *Illicium*. The following 10 chapters provide information on agronomy, botany, chemistry, therapeutic and pharmacological properties, marketing, metabolism, plant diseases, and geographical distribution in historic as well as present terms. There are separate chapters on cultivation and therapeutic properties of *Illicium* and *Pimpinella*. Botanical information in the first chapter could be improved. The genus *Pimpinella* has many more species than cited in the first chapter; there are more than 500 validly published names under this genus (Index Kewensis, 2001). Most importantly, the authority for the scientific names has been omitted for several species in the list provided, possibly leading to confusion on nomenclature. For example, *Pimpinella alpinum* is an incorrect taxon; the correct name should be *Pimpinella alpina*. However, there are two authorities published for this species, *Pimpinella alpina* Vest ex Schult. and *Pimpinella alpina* Koord. (Index Kewensis, 2001). Similarly, the author lists 15 species under the genus *Illicium*, but even the oldest monograph on the genus (Smith, 1947) cites 84 species.

The discussion of *Foeniculum* is confined to the last chapter and is less thoroughly detailed than the treatment of *Pimpinella* and *Illicium*.

All the chapters in this book are generally well organized and complementary to one another. This book provides much valuable scientific information on three medicinally and commercially important genera. This book would be a useful addition to the reference section of institutional libraries and also personal libraries of those involved in research related to dietary supplements.

**Ikhlas A. Khan and Aruna Weerasooriya**

*University of Mississippi  
University, Mississippi*

NP068221R

10.1021/np068221r