

Book Reviews

Ethnopharmacology of Medicinal Plants: Asia and the Pacific. By C. Wiart (University of Malay, Kuala Lumpur). Humana Press, Totowa, NJ. 2006. xii + 228 pp. 19 × 26 cm. \$160.00. ISBN 1-58829-748-9.

This book compiles data on the botanical characteristics, ethnomedical uses, and biological activities of extracts and isolates for about 100 Pacific-Rim medicinal plant species and is organized into three sections: “Anti-inflammatory Plants”, “Plants Affecting the Central Nervous System”, and “Plants for Chemotherapy of Neoplastic Diseases”. Although the intended audience is optimistically stated as “all who will participate in the field of drug discovery”, the appeal to natural product researchers will be largely restricted to those interested in the therapeutic categories and/or the mechanisms of action and/or the plant genera/families addressed in the book.

Each of the three major sections begins with a description of well-known plant compounds relevant to the section’s therapeutic category. The sections are further divided into subsections dedicated to various mechanisms of action. The section on anti-inflammatory plants includes subsections for potential inhibitors of phospholipase A₂, cyclooxygenase, lipoxygenase, elastase, and nitric oxide synthetase. The second section, CNS-affecting plants, includes subsections on potential modulators of neurotransmission mediated by serotonin, γ -aminobutyric acid, glycine, and dopamine. Last, the section on anticancer plants includes subsections on potential inhibitors of topoisomerase and modulators of apoptosis. Subsections begin with a brief, but useful, description of the mechanism, followed by a short discussion of selected medicinal plant species, which are organized by plant family. The species descriptions frequently include a line drawing of aerial parts and structures of representative or bioactive compounds. The botanical information (i.e., synonyms, habit, morphology, and distribution) and ethnomedical uses are unreferenced, but informative, whereas most of the 330 numbered references cite studies involving the biological activities of extracts and isolates. Finally, the author includes a 10-page index, which revealed several omissions when spot-checked.

A major shortcoming of this book is the presentation of chemical structures. Widespread mistakes in structural drawings include typographic errors (e.g., horsfiline, p 68), obscured, missing, and overlapping bonds (e.g., hydroxyconoduramine, p 75), incorrect names and structures (e.g., “polyacetylene”, p 30), and improper valences (e.g., hispidulin, p 99). At the same time, structures are unnumbered (a few are labeled as figures), making it difficult to discern where structures are referred to in the text and which compounds in the text are represented by structural drawings. Furthermore, structures are drawn with no consistent structural conventions or formats; no R groups are used to consolidate similar structures; and there is a great deal of redundancy of structures. For example, the structure of serotonin is shown eight times over 23 pages (pp 60–82) in four different structural styles and labeled with two different spellings of the compound’s name. Unfortunately, this lack of rigorous editing extends to the text (typographical errors and inconsistent formatting) and figures (ambiguities and omissions). These deficiencies are very distracting and are so prevalent that they significantly reduce the value of the book, particularly to readers who are more attentive to chemical structure, such as this journal’s readership.

Overall, *Ethnopharmacology of Medicinal Plants: Asia and the Pacific* provides a straightforward compilation of plants that have

potential against targets relevant to immunological, neurological, and neoplastic diseases. For those patient enough to forgive the errors and poor editing, the book may provide useful leads and stimulating reading. However, the effort required might be better spent searching available databases (such as NAPRALERT) for data on bioactivity and ethnomedical use while referring to botanical references as needed.

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Medicinal Chemistry of Bioactive Natural Products. Edited by X.-T. Liang and W.-S. Fang (Chinese Academy of Science, Beijing). Wiley-Interscience, Hoboken, NJ. 2006. xix + 460 pp. 6 × 9½ in. \$89.95. ISBN 0-471-66007-8.

This text covers the medicinal chemistry of several selected bioactive natural products and is designed to attract graduate students and spur their interests in bioactive natural products by providing illustrative examples. Furthermore, the book is designed to teach how to optimize a target molecule of interest and what kinds of techniques could be applied to address the most important issues in medicinal chemistry. The topics of the book were selected on the basis of clinically useful pharmaceuticals or leading compounds under extensive investigation and was written by a total of 22 authors. The natural products covered are epothilones, glycopeptide antibiotics including vancomycin, taxol, huperazine A, artemisinin, cembranoids, ginkgolides, *Calophyllum* coumarins, plant-derived anti-HIV agents, and Annonaceous acetogenins. The choice of compounds is somewhat curious given that there are other natural products used clinically that were not included.

This compilation reads well, but there are a number of structural errors in several of the chapters. The chapters on the chemistry and biology of epothilones, vancomycin, taxol, artemisinin, and ginkgolides include excellent discussions of the structure–activity relationships of these molecules. The chapters on cembranoids and Annonaceous acetogenins are mainly focused on the various synthetic methods used to prepare these classes of molecules and have little discussion of their structure–activity relationships. The remaining two chapters discuss recent progress in the development of anti-HIV agents. The authors discuss key medicinal chemistry principles such as bioactive conformation and generation of structure–activity relationships. However, fundamental concepts such as pharmacophore identification, conformational constraint, and rational drug design are not discussed. This oversight diminishes enthusiasm for the book as a teaching text for graduate students in medicinal and natural product chemistry. Overall, this is a good book and readers with a research interest in the natural products described may find the information in the book useful.

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Pomegranates: Ancient Roots to Modern Medicine. Edited by N. P. Seeram (University of California at Los Angeles), R. N. Schulman (Schulman Scientific Consulting), and D. Heber (University of California at Los Angeles). CRC Press/Taylor & Francis, Boca Raton. 2006. xv + 244 pp. 16 × 24 cm. \$129.95. ISBN 0-8493-9812-4.

Since our research team has a growing interest in the effects of dietary components on drug disposition, this book, which summarizes the history and modern use of pomegranate [*Punica granatum* L. (Punicaceae)], is a welcome addition to our library. The text of 15 chapters is broadly divided into four sections and a summary, covering areas as diverse as Biochemistry, Commercialization, Plant Growth and Improvement, and Health Effects, and the latter section is subdivided into cardiovascular, cancer, estrogenic, and antimicrobial areas. As with any edited book, the style of each chapter varies. However, in general, the text flows well and is written with enough scientific vernacular to maintain the interest of the research community while not dissuading the uninitiated. A clear table of contents is complemented by a 16-page index, thereby rendering this book a user-friendly reference material.

Depending on one's scientific interests, there is probably at least one chapter or section of the book that will be appealing. From the perspective of natural products chemistry, this book is well worth its reasonable price based solely on the contents of Chapter 1. This chapter begins with a table that summarizes the 122 compounds that have been isolated from pomegranate, including molecular formulas and weights, plant parts where found, and references to the primary literature. The table is complemented by Figure 1, which illustrates the chemical structures. Given that many of these

compounds are tannins and/or glycosides with somewhat odd substitution patterns, it is convenient that all of these data are distilled into these easily digestible formats. As another example, a chapter on bioavailability discusses the classes of compounds that are absorbed into the systemic circulation and illustrates the various breakdown products (some caused by gut microflora) and glucuronides that are observed in vivo. It is especially helpful to refer to this chapter when reading some of the latter chapters on the health effects, to discern those that are likely observable in vivo.

If there is a criticism to this book, it would be the lack of color figures and/or photographs. This is probably most apparent in the sections on the botany and/or the commercialization of pomegranate, particularly its growing use as a juice in the United States. The inclusion of color photographs would be a welcome addition, especially for those of us who are not from regions of the world where pomegranates are grown.

In summary, the editors and authors of this book have done the scientific community a favor by condensing this vast knowledge into 244 pages.

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