

tubulin–microtubule system, its biological functions, and its response to tubulin-binding anticancer agents. The basis for the therapeutic effects of paclitaxel is discussed, including issues of selective cytotoxicity, cellular tubulin concentration, tubulin isotype sensitivity, and microtubule bundling. The section on the mechanisms of paclitaxel resistance reviews research into P-glycoprotein-mediated paclitaxel-resistance, its potential effects on bcl-2, and paclitaxel resistance due to alteration of α - and β -tubulin. The review ends with a discussion of paclitaxel's effect on murine macrophages.

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Medicinal and Aromatic Plants—Industrial Profiles, Vol. 1. Valerian—The Genus *Valeriana*. Edited by Peter J. Houghton. Harwood Academic Publishers, The Netherlands. 1997. xi + 142 pp. 17 × 24.5 cm. \$75.00. ISBN 90-5702-170-6.

This is the first in a series of volumes on the principal medicinal herbs of commerce. The editor-in-chief of the series is Roland Hardman, and a further 29 volumes, each with their own editor, are in progress. The prospect of thorough literature reviews on such a broad range of medicinal plants is an admirable one, and is much needed in the field.

This particular volume comprises six chapters, each with a different author(s). The volume opens with an introductory chapter by Dweck that examines some botanical aspects of the genus and the commercial plants. A chapter on the chemistry of *Valeriana* by Houghton is followed by a discussion of the pharmacology and therapeutics of *Valeriana* by Hölzl and of the cultivation by the herb by Bernáth. The final two chapters describe the quality assurance issues and the preparation of the crude drug (Woerdenbag, Bos, and Scheffer), and the volume closes with an interesting summary of the range of products containing *Valeriana* species that are sold commercially worldwide (Foss and Houghton). There is also a useful index. The literature is covered to about the Fall of 1996.

In many ways, valerian is a very difficult monograph because, as is mentioned in each chapter, the active principle is (supposedly) not known. Implications for the active principle(s) to be the valepotriates (a standardized preparation of which is sold in Germany), valerenic acid, baldrrinal, the essential oil, the volatile oil, etc. are made based on the available literature. However, for reasons that are not clear, a significant patent describing the active principle of the ammoniated tincture of valerian was ignored. U.S. Patent 5,506,268 discusses the determination that isovaleramide is the anxiolytic component of the tincture and, thus, that isovaleric acid is the probable active constituent of the normal root preparation. The commercial implications of such a discovery are quite apparent. "Isovaleramide" and "anxiolytic" are not indexed in the volume.

The whole answer to the issue of the active ingredient is presented (unknowingly!) on page 3 of the book in two *almost* concurrent sentences, "...there is a growing body of evidence to show that the odour of valerian alone is sufficient to have a sedative effect." and "It is now known that the major part of the odour is due to the isovaleric acid released by enzyme hydrolysis from some of the compounds present in the plant."

Although this is a very serious omission from a book of this type, there is also another series of errors: for the most part, the editing of the chapters is poor. A few examples will suffice. Frequently, the genus name *Valeriana* is not italicized, while other words are; there are typographical errors, words omitted, and typesetting errors; on page 18 an "echo" is heard *before* the initial retort; and the last phrase on p 17 is not a sentence! None of the "Alkaloids" in Figure 12 on page 42 are alkaloids, and the compounds **104** and **105** (p 43) are misnamed. Quite surprisingly, there is absolutely no consistency of style to the references in Chapter 2. The other chapters are better than this, although one can find errors of some description on almost every page. I would suspect that if subsequent volumes in the series perpetuate the same attributes of this volume, the series will not be well received. Many issues relate to a lack of proofreading and editing, and thus, perhaps other editors will raise the standard of the series. It has certainly not started very auspiciously.

In summary, this is a flawed volume, which nevertheless contains much useful information and is well referenced. It is recommended for libraries hoping to keep up with the burgeoning literature on herbal products, although unfortunately its relatively high price (50¢/page!) will keep it out of the hands of the individual scientist.

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Medicinal Natural Products: A Biosynthetic Approach. By Paul M. Dewick (University of Nottingham, U.K.). John Wiley & Sons, Ltd., West Sussex, England. 1997. ix + 466 pp. 19 × 25 cm. Hardback, \$160.00. ISBN 0-4719-7477-3. Paperback, \$59.90. ISBN 0-4719-7478-1.

It is refreshing to read a current natural products textbook that embraces a biosynthetic approach to instruction, which allows for the application of basic chemical principles. This text is invaluable for both undergraduate and graduate students with interests in natural products chemistry. It provides a comprehensive examination of natural products used in medicine from a biosynthetic point of view, rather than the more usual natural product class or activity viewpoint. There is an extensive use of biosynthetic schemes and mechanisms including detailed mechanistic explanations as annotations and outline discussions in the text. Exten-

sive cross-referencing has been implemented to accentuate links and similarities. Extended detailed information is provided as short monographs, covering sources, production methods, principal components, drug use, mode of action, and synthetic and semisynthetic derivatives, as appropriate. The book includes a vast array of natural products currently used in medicine.

The first chapter (better suited as a forward by author), "How to Use This Book", is subdivided under the headings "The Subject", "The Aim", "The Approach", "The Topics", "Be Selective", "To learn or To Understand", "Conventions Regarding Acids, Bases, and Ions", and "Some Common Abbreviations". This chapter focuses on Dewick's mission and design of the textbook. As Dewick states, "Rationalization based on mechanistic reasoning is paramount. The sequences themselves are not important; the mechanistic explanations for the processes used are the essence."

The remaining six chapters logically follow traditional biosynthetic textbook flow, and including the following: Chapter 2, "Secondary Metabolism: The Building Blocks and Construction Mechanisms"; Chapter 3, "The Acetate Pathway: Fatty Acids and Polyketides"; Chapter 4, "The Shikimate Pathway: Aromatic Amino Acids and Phenylpropanoids"; Chapter 5, "The Mevalonate Pathway: Terpenoids and Steroids"; Chapter 6, "Alkaloids"; Chapter 7, "Peptides, Proteins, and Other Amino Acid Derivatives"; and Chapter 8, "Carbohydrates". The structures and biosynthetic pathways are extremely well illustrated and organized within each chapter. Each chapter ends with a Further Reading Section, containing a total of over 400 references to the primary and secondary literature. The Table of Contents and the Index are superbly fashioned and sufficiently detailed and are easy to use and follow. The cost of the paperback is extremely reasonable for students (and faculty!). The textbook is essentially error-free (except for a few structural and typographical oversights) and is highly recommended for use in the classroom, equally suited as either a supplemental or a stand-alone textbook.

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Supplements to the 2nd Edition of Rodd's Chemistry of Carbon Compounds, Vol. IV. Heterocyclic Compounds, Part B. Five-membered Heterocyclic Compounds: Alkaloids, Dyes, Pigments. Edited by

M. Sainsbury. Elsevier Science, V.B., Amsterdam, The Netherlands. 1997. xvi + 509 pp. 15 × 22.5 cm. \$324.25. ISBN 0-444-827587.

This volume comprises eight chapters that update the corresponding volume in the series on the basis of information published in the period from 1985 to the end of 1995. The chapters are devoted to the following: pyrrolidine alkaloids, pyrrolizidine alkaloids (both by R. J. Robins, 19 and 47 pages), indole alkaloids (G. W. Gribble, 96 pages), Amaryllidaceae alkaloids (J. R. Lewis, 85 pages), tropane alkaloids (G. Fodor, 26 pages), pyrrole pigments (K. M. Smith, 81 pages), indigo group dyes (M. Sainsbury, 22 pages), and cyanine dyes and related compounds (G. Bach and S. Dähne, 99 pages). There is an index of compounds.

The editor is to be congratulated on assembling a group of exceptional authors for these chapters, each of whom is an authoritative expert in their respective field. When considering one word to describe this book I thought of either "terse" or "succinct". The former has a somewhat negative connotation these days, although its original derivation refers to being polished and refined. Succinct would be applied in the context of clarity of presentation of a vast amount of information. So perhaps both words apply. For this is indeed a polished volume of briefly presented information covering some very large areas of alkaloid and synthetic chemistry. The styles and contents of the various alkaloid chapters are reasonably equivalent. Each of these chapters deals with the isolation of new alkaloids, and most of the alkaloid chapters deal with recent synthetic strategies (not the indole alkaloid chapter). Fodor also covers the biosynthesis of tropanes. As one might imagine, very little attention is paid to the biological activity of the isolates. The last two chapters on the indigo and cyanine dyes, respectively, are very well-presented, and the section on the present divergent industrial uses of cyanine dyes was most illuminating.

Overall these are excellent reviews. There were very few errors noted, and the structures are well-proportioned. Unfortunately, the very high price means that this volume is not intended for the bookshelf of the typical academic. However, as a part of maintaining a library collection of the series, it is an essential acquisition.

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