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BOOK REVIEWS

Cocaine: An Annotated Bibliography, Volumes I and II. C.E. TURNER, B.S. URBANEK, G.M. WALL, and C.W. WALLER, University Press of Mississippi, 3825 Ridgewood Road, Jackson, MS 39211. 1988. xxi + 1364 pp. 18.5 × 26 cm. $125/set. ISBN 0-87805-382-4.

In this two-volume set, Volume I (819 pp.) contains a brief (21 pp.) introduction to the history, structure, metabolism, and stereochemistry of cocaine and related alkaloids found in *Erythroxylum* species. The pre-1950 citations (1128) are non-annotated references that are representative (but not complete) of the period from 1855 through 1949. The annotated section includes 4055 references from 1950 through 1986. The references in these two sections are arranged alphabetically by the first author of the publication (including patents, proceedings of scientific meetings, and references to Dissertation Abstracts), which are numbered consecutively. The annotations vary in length from a single sentence to quite long abstracts of the content of the publication. This long list of citations becomes valuable on reference to Volume II (565 pp.) which consists of an author index (66 pp.) and a subject index, both referenced to the numbered publications in Volume I.

This subject index is extensively cross-referenced with numerous entries and sub-entries. For example, there are 65 pages devoted to the pharmacology of cocaine, with entries such as metabolism and neuronal reuptake (which is further sub-indexed with such items as catecholamines, norepinephrine). Because my own specialty is biosynthesis, I naturally checked the citations under this heading. It seems to be almost complete, although an early reference from this Journal [P. Tampatreep, E.H. Taylor, and E. Ramstad, *Lloydia*, **26**, 203 (1963)] was omitted. Some of the entries under biosynthesis do not relate to the biosynthesis of cocaine, but to the effect of cocaine on the biosynthesis of other compounds, such as serotonin in animals.

There are numerous references to the analysis and detection of cocaine and its metabolites in a variety of species, especially humans. (−)-Cocaine, the alkaloid found in coca, has seven other stereoisomers: (+)-cocaine, (+)- and (−)-pseudococaine, (+)- and (−)-allococaine, and (+)- and (−)-pseudoallococaine. I used the subject index to track down what is known about their pharmacology. I was surprised to discover that not too much work has been published on their pharmacology and effects on humans. This is obviously an area of research which needs more investigation.

One does not usually expect a list of references to make exciting reading. These volumes are an exception. For example, I was intrigued to read that Sigmund Freud's addiction to cocaine apparently delayed by some ten years his work on the interpretation of dreams and the Oedipus complex. I also learned of some rather bizarre methods used for smuggling cocaine. Besides the numerous sad reports on death due to cocaine abuse, there are several citations describing the beneficial effects of cocaine. These include increased resistance to cold, high altitudes, and hunger and improved athletic performance.

The authors have produced a very useful list of references on cocaine and related tropane alkaloids, and I believe this book will be widely cited. The authors promise periodic supplements updating the information in this work. Like all good reviewers, I was able to detect one error. On p. xvi of the Introduction the structure of one of the truxillines (bottom structure on this page) is incorrect. The authors have depicted the two tropane moieties in this alkaloid as mirror images of each other, which of course they are not.

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Chemistry of Heterocyclic Compounds. J. KOVÁČ and P. ZÁLUPSKY, Elsevier Science Publishing. 1988. xx + 600 pp. 17.5 × 24 cm. $223.75. ISBN 0-444-98917-X.

This book is a collection of the plenary lectures and short papers delivered at the IXth Symposium on Chemistry of Heterocyclic Compounds held at Bratislava in August 1987. There are eleven plenary lectures occupying the first 138 pages. This is followed by a section devoted to crystallographic studies of heterocyclic molecules which spans 50 pages; finally there are about 120 contributions of 3–4 pages which were presented as short papers or posters. Both the longer and shorter papers contain references.

The range of the papers includes synthesis, studies of reactivity and mechanisms, and several spectroscopic and/or structural studies. Very few of the papers deal directly with natural products, although the reported synthetic methods might be applicable to natural product synthesis. One expects that the majority of the short papers will appear elsewhere in the literature in more complete form. Most of the plenary lectures are also reports of current work, rather than being broad reviews. The role of this book is primarily to record the specifics of this Symposium.

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Natural Products Isolation, Separation Methods for Antimicrobials, Antivirals and Enzyme Inhibitors. Edited by GERALD H. WAGMAN and RAYMOND COOPER. Elsevier Science Publishing Company, 655 Avenue of the Americas, New York, NY 10010. 1989. 619 pp. 16 × 24 cm. $139.00. ISBN 0-444-87147-0.

This well written text is Volume 43 of the Journal of Chromatography Library series, and represents an extension of three earlier volumes, "The Chromatography of Antibiotics" (Volume 1, 1973, and Volume 26, 1978) and "Antibiotics. Isolation, Separation and Purification" (Volume 15, 1978). The present volume maintains the high standards of clarity and content found in the earlier volumes.

The first two chapters are quite general in nature, dealing with application of countercurrent chromatography and hplc detection methods to the separation of an assortment of natural products types, primarily from microbial sources. These two chapters are followed by twelve chapters describing the application of many kinds of separation techniques to the isolation of specific groups of compounds, such as glycopeptide antibiotics, nikkomycins, polyoxins, saframycins, carbapenems, avermectins, and a host of others. This arrangement is, in my opinion, one of the major shortcomings of the volume. I would have preferred to see a volume organized either completely from a methodological standpoint or along the lines of chemical classes, rather than a mixture of the two.

As the individual chapters are written by different groups of authors, there are the inevitable typos, discontinuity, and uneven treatment of subject matter that one comes to expect in this kind of book. The chapters are, however, well written, offsetting these drawbacks, at least in part. I found it rather easy to read. The authors and editors have provided sufficient detail to give the reader a true feeling for the subject but not so much as to become bogged down in the minutiae. Drs. Wagman and Cooper should be commended for striking such an even balance. On the down side, the book is the product of direct photoreproduction, so the typeface also changes from chapter to chapter.

This book should be a welcome addition to the library of anyone actively engaged in the isolation of microbial products and should also be of interest to those working with higher plants or marine organisms (although only a small portion of the book deals with either of these topics). It provides a reasonable entry point into the literature of the various groups of compounds covered and may be an appropriate text for an advanced course in the isolation of microbial products.

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Phytochemical Methods (2nd Edition). J.B. HARBORNE. Chapman & Hall, 29 West 35th Street, New York, NY 10001. 1988. xii + 288 pp. 15.5 × 23 cm. $39.50 (paper). ISBN 0-412-34330-4.

One aspect of chemistry that is often lacking in monographs devoted to a particular area is the practical aspect of how to carry out a particular technique. This reissue of the 1984 hardcover edition attempts to address this lack through the use of references to particular procedures and, more important, through the inclusion of practical experiments. While the experiments included are not particularly useful for a graduate student as a learning tool, they would be admirably suited for use in an undergraduate laboratory course. On the other hand, the information contained in these experiments, particularly the thin-layer chromatography systems for particular classes of natural products, would be very useful as a reference for a graduate student working on a natural product isolation project. There is also a strong emphasis on paper chromatography as a method for separating and identifying components of an extract. This is a technique often overlooked by students, even when it is an appropriate technique, because it is not well covered in most introductions to chromatographic techniques. The references to spray reagents for detection of particular classes of natural products are also very useful.

Because this book was originally published in 1973 and then revised in 1984, there are a number of omissions in the area of separation techniques. As noted above, there is an emphasis on tlc and paper chromatography. Very useful information on glc and hplc separations is also included. However, there is no reference to other techniques such a flash chromatography, counter current distribution, or gel permeation chromatography for the separation of natural products. The book is organized with an introductory chapter describing general phytochemical methods followed by individual chapters on natural products classes such as phenolic compounds, terpenoids, nitrogen compounds, and sugars. The section of the introductory chapter on spectroscopic techniques for identification of new natural products is somewhat dated and very brief, and more detail is not available in the individual chapters. However, this is obviously not the main focus of the book. The main strength of this book is in the attention paid to chromatographic separations. This detail does make the book a good reference for the researcher in the laboratory. However, the price of the book is high for a paperbound edition, which will undoubtedly discourage students from including it in their personal libraries.

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