

BOOK REVIEWS

Topics in Antibiotic Chemistry, Volume 2, edited by P. G. SAMMES, The City University, London. Ellis Horwood Limited, Market Cross House, Cooper Street, Chichester, Sussex, England, 1978. 283 pp. 15.5 x 23.5 cm. \$42.50.

The volume reviewed here, the 2nd in the series "Topics in Antibiotic Chemistry," edited by Professor P. G. Sammes, is concerned with chemical and biological aspects of antibiotics from marine sources and with oligosaccharide and anthracycline antibiotics.

The first chapter, by D. J. Faulkner, has wide coverage of biologically active compounds isolated from a variety of marine sources, including microorganisms, sponges, coelenterates, molluscs, worms, tunicates and algae. The discussion includes biological activity, structural determination, and synthesis, and in some cases the intriguing questions as to the biological role of these metabolites are considered.

Most of the chapter on oligosaccharides, by A. K. Ganguly, is a discussion of the data leading to the structural elucidation of everninomicins D, B, C and Z. Some structure-activity relationships are mentioned, and bioactivity data for everninomicin D and related compounds are given. Flambamycin, curamycin and avilamycin are also briefly discussed.

Anthracycline antibiotics are covered in the last part of the book in two complementary chapters.

The chapter by F. Arcamone on daunomycin and related antibiotics is large and thorough; all aspects of the subject are discussed including synthesis, reactions of the antibiotics, physico-chemical and analytical studies including structure and conformation data, behavior in aqueous solutions, complexes with small ions and molecules and with biological molecules, and assay in biological material. There is a section on biochemical and microbiological transformation and, finally, a discussion of structure-activity relationships.

The last chapter deals with "Interaction of daunomycin and related antibiotics with biological receptors" (by S. Neidle) and covers biological action, nucleic acid binding and molecular models for adriamycin-DNA binding, the effects of daunomycin modifications and a brief consideration of potential receptors other than DNA.

It is easy to criticize any review for what has been omitted, but antibiotic biogenesis is not discussed anywhere even in places where it may have been enlightening. In addition, while there is a brief discussion of the role of antibiotics in marine organisms, there is not a great deal of information in the book directly concerning the role of antibiotics in nature, despite the editor's statement that this is a feature of the volume. However, these are minor criticisms, and there is no doubt that this is a useful book which contains a large volume of information.

What is presented is well written and clear. The usual small number of clerical errors is present, but none present insoluble problems. Parts of this volume should appeal to all workers in the antibiotic field, and in particular to organic chemists, biochemists, pharmacologists and biologists.

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The Organic Constituents of Higher Plants, 4th edition, TREVOR ROBINSON, Department of Biochemistry, University of Massachusetts, Cordus Press, P. O. Box 587, North Amherst, MA. 1980. iv+352 pp. 22 x 28.6 cm. \$13.75.

Have you ever wanted a nice, single-volume referenced text that you could turn to for a quick overview of the types of organic materials isolated from higher plants without having to spend hours searching through multivolume or multiauthored works to answer your questions? If so, then this is the book for you.

This text's use of nontechnical chemistry will be appreciated by natural scientists, and its "classical" approach to the description of higher plant constituents will be appreciated by natural product chemists.

The book is divided into fifteen chapters, fourteen of which discuss the major classes of organic compounds found in higher plants, i.e., carbohydrates, water-soluble organic acids, aromatic compounds, etc. Each chapter begins with a discussion on the chemistry of the

important compounds in its class, showing many of them with large, clearly readable chemical structures. Next, the methods used for isolation and characterization are discussed. (The section on characterization leans more toward chemical methods of characterization as opposed to more modern instrumental methods of analysis.) This is followed by a discussion on the metabolic pathways involved in the metabolism of each chapter's class of compounds.

Although the book is fairly well indexed, subjects (compounds, plant species, etc.) are not referenced in the text, in many cases, which makes it difficult to pursue an interesting topic back to its primary reference. In addition, there are several important references which could have been included as well as others which could have been replaced with more recent references.

The book should be an important part of any undergraduate course covering secondary plant constituents as well as an important reference book for research libraries concerned with the organic constituents of higher plants. With the exception of E. A. Bell and B. V. Charlwood's book on Secondary Plant Products, also published in 1980, it is the only single-volume book to address the matter of organic structures encountered in the plant kingdom, and its price of \$13.75 makes it a good value.

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