Book Reviews

Studies in Natural Products Chemistry. Volume 6. Stereoselective Synthesis, Part D. Edited by Atta-ur-Rahman (University of Karachi). Elsevier: Amsterdam and New York. 1990. x + 606 pp. $189.75. ISBN 0-444-88566-8.

This book is the sixth in a series of volumes covering various aspects of natural products chemistry and it is the fourth dedicated to stereoselective synthesis. The purpose of this series, as stated by the author in the preface to the first volume, is to provide state-of-the-art overviews of specific fields of research in natural products chemistry. To do this, the editor has assembled comprehensive accounts written by leading scientists involved in various specific research areas related to natural products. Although the areas covered include isolation, structure elucidation (primarily via new spectroscopic techniques), and biosynthesis, the major focus to date has been in recent advances in stereoselective synthesis.

In the present volume, as in the previous volumes, a diverse range of topics in natural product synthesis, from total synthesis to synthetic reagents, is presented. The depth of coverage varies from author to author and in most of the 13 chapters the research contributions of the authors are highlighted, although references to reviews and reports from other laboratories are provided. Three chapters deal with the synthesis of natural products of widely varied structural types: i.e., the various polycyclic terpenes of marine origin, carbohydrate analogs (mainly monosaccharides) incorporating C–P bonds and chiral synthesis of selected semiochemicals and bioregulators (phermones, plant hormones and sesquiterpenes including periplanone-B, phoracantholide I and J, sirenin, sclerosporin, eremophilanes, epijasmonate, and phaseic acid). Six chapters describe total syntheses and/or synthetic advances toward more specific structural types: e.g. spongian diterpenes and scalarane sesterterpenes, allenic and acetylenic carotenoids, gibberellins and antheridiogens, trichothecene-derived secondary metabolites of *Fusarium*, peptidoglycan analogs, and isoquinoline derived alkaloids. A chapter on defensive substances in ants focuses on poison gland alkaloids, mainly piperidines, pyrrolidines, pyrrolizidines, indolizidines, and tetraponerines. One chapter is devoted entirely to synthetic efforts toward amphotericin B and, more than any other chapter, provides an in-depth analysis and critical evaluation of the status of research in the field. Alkaloids isolated from *Strychnos dinklagei* which include appariciné, ellipticine, iridolactam, cantleyine, and gentianine derived alkaloids are discussed in one chapter and with the exception of the ellipticine alkaloids, the focus here is mainly on isolation and structure determination rather than synthesis. Finally, the chemistry of dithioacetal *S*-oxides and *S*,*S*-dioxides as synthetic reagents is covered in a separate chapter. Each of the chapters is well-written with a generous number of references and with individual bibliographies. An extensive, useful subject index is also provided.

Overall, this volume fits nicely into the series. Taken as a whole, the series provides a useful collection of concise summaries of various currently active fields in natural products chemistry, albeit mainly synthesis. All major institutional libraries should obtain the series. Synthetic organic and natural products chemists will find this series to be a good reference source for the specialized topics covered and individual chapters should be readily incorporated into advanced organic synthesis and special topics courses. Unfortunately, in many cases the cost will discourage individuals from acquiring the series.

Thomas A. Engler, *University of Kansas*

Sulphur-Containing Drugs and Related Organic Compounds. Chemistry, Biochemistry and Toxicology. Volume 1. Part B. Metabolism of Sulphur-Functional Groups. Edited by L. A. Damani (King's College London, University of London). John Wiley & Sons: New York. 1989. 324 pp. $89.95. ISBN 0-470-21258-6.

Volume 1, Part B of this series is comprised of chapters which review the metabolism of phosphorothioates (26 pages with 99 references), thioamides (14 pages with 74 references), thiocarbamides (46 pages with 237 references), carbamothioates and carbamodithioates (46 pages with 141 references), sulfoxides and sulfones (22 pages with 72 references), sulfonium salts (22 pages with 83 references), sulfonamides (14 pages with 45 references), sulfamates, sulfonates, and sulfate esters (22 pages with 78 references), sulfur heterocycles (52 pages with 149 references), glucosinolates, allins and cyclic disulfides (48 pages with 186 references). Each chapter begins with a concise summary. The chapters are clearly written with enough structures and tabulated data for convenient reading and ready appreciation of the studies reported. A possible shortcoming is that the coverage is limited to metabolic studies, and there is only an occasional reference to purely chemical model studies of the metabolic processes. The objective for this series of books is to "collate and critically review current knowledge concerning the chemical mechanisms of biotransformations and drug toxicity". In the opinion of this reviewer, the objective has been met.

Norman Heimer, *University of Mississippi*

Polymer Yearbook. Volume 6. Edited by R. A. Pethrick (University of Strathclyde). Harwood Academic Publishers: New York. 1990. ix + 373 pp. $190.00. ISBN 3-7186-4997-7.

The 6th volume of this annual publication contains information in a variety of formats helpful to the polymer scientist. A short section at the beginning of the book presents data on several common polymers, including written descriptions and tables. This information is not intended to replace large compilations but rather to provide *some* data on *some* polymers.

The reviews follow in two sections. The first contains extensive reviews on selected topics, e.g., Mechanical and Dielectric Relaxations of Guest Polymer Molecules in Networks. The reviews are well-written without being overly long, and thus provide a good starting point for individuals with little knowledge of the subject.

The second review section, "Progress of Polymer Science in Japan", constitutes an important contribution to the literature in that it covers material, in short reviews, from the polymer community in Japan which is not always available in English. A sampling of the topics includes Functional Membranes from L–B Films, Photosensitive Polymers, Biomaterials, Electroactive Polymers, and Immobilized Enzymes and Polymer Catalysts. "Progress of Polymer Science in Japan" contains the most notable reviews of papers presented at the Spring and Fall 1987 meetings of the Society of Polymer Science Japan. References are given to the open polymer literature and to the conference proceedings, although some of the reviews refer only to the proceedings.

The volume concludes with several useful sections. These include a conference report on degradation and stabilization of polymers, 1987 books from the USSR, new books, thesis titles, a meetings calendar, and an index to Volume 6.

The varied format and wide subject range of this book make it an excellent reference source which many polymer scientists will find useful.

Robert V. Honeychuck, *George Mason University*

Packings and Stationary Phases in Chromatographic Techniques. Edited by Klaus K. Unger (Johannes Gutenberg University). Marcel Dekker, Inc.: New York and Basel. 1990. vii + 836 pp. $150.00. ISBN 0-8247-7940-1.

This is the 47th volume of the Chromatographic Science Series from Marcel Dekker. This volume consists of thirteen chapters each written by an expert in the specific area covered. The editor, K. Unger, is also the author of three of the chapters. The first two chapters are introductory: Chapter 1 is a history review and Chapter 2 is a survey of packing materials with some theory. Chapter 3 is devoted to gas chromatography. Chapter 4 concerns liquid–liquid chromatography, and Chapter 5 covers thin-layer chromatography. The rest of the book covers the various techniques of column chromatography. Topics covered include the following: adsorption (Chapter 6), size exclusion (Chapter 7), donor–acceptor complexation (Chapter 8), ligand exchange (Chapter 9), ion exchange (Chapter 10), ion-pairing (Chapter 11), affinity (Chapter 12), and chiral separations (Chapter 13). All of the chapters are well-written and provide enjoyable reading.

If there is a weakness to this volume, it is that its scope is too broad. In order to ensure thorough coverage of each topic, two volumes may have been more appropriate. In particular, although the longest chapter of the book, even more detail could well have been provided on packing materials for gas chromatography. The chapter on chiral stationary phases could also be expanded based on the current importance of this topic. The inclusion of a discussion on microcolumn techniques for liquid chromatography, particularly with regard to stationary phases, would have also strengthened this volume. This is an excellent contribution to the chromatographic literature and deserves a place in every chromatographer's library. While the editor indicates it could be used as a graduate level textbook, its real place is as a comprehensive reference for chromatographers.

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