

## Book Reviews \*

**Protein Glycosylation: Cellular, Biotechnological, and Analytical Aspects.** *GBF Monographs Volume 15.* Edited by H. S. Conradt (Gesellschaft für Biotechnologische Forschung mbH). VCH: New York. 1991. xii + 294 pp. \$104.00 (paperback). ISBN 1-56081-184-6.

This book was developed from the International Workshop on Protein Glycosylation held in Braunschweig, Germany, on June 28–30, 1990. After a preface by the editor and a list of authors, there are 31 chapters in typescript form organized under the following headings: Cellular Aspects; Glycosylation in Non-mammalian Cells; Analytical Aspects; Biotechnological Aspects I (Glycosyltransferases); and Biotechnological Aspects II (Recombinant Glycoproteins). There is also a short subject index.

**Bioactive Volatile Compounds From Plants.** *ACS Symposium Series 525.* Edited by Roy Teranishi (U.S. Department of Agriculture), Ron G. Buttery (U.S. Department of Agriculture), and Hiroshi Sugisawa (Kagawa University). American Chemical Society: Washington, DC. 1993. x + 310 pp. \$89.95. ISBN 0-8412-2639-3.

This book was developed from a symposium sponsored by the Division of Agricultural and Food Chemistry at the 203rd National Meeting of the American Chemical Society held in San Francisco on April 5–10, 1992. After a preface by the editors, there are 20 chapters organized under the following headings: Biogenesis and Biochemistry; Essential Oils; and Flowers. There are also author, affiliation, and subject indexes.

**Metal Ions in Biological Systems. Volume 28: Degradation of Environmental Pollutants by Microorganisms and Their Metalloenzymes.** Edited by Helmut Sigel (University of Basel, Switzerland) and Astrid Sigel. Marcel Dekker, Inc.: New York. 1992. xxxii + 582 pp. \$165.00. ISBN 0-8247-8639-4.

This 28th volume of the excellent series edited by Sigel and Sigel addresses an overall theme of growing importance and interest to a wide variety of scientists: Degradation of Environmental Pollutants by Microorganisms and Their Metalloenzymes.

The 14 chapters, written by experts in the field, are well chosen and representative of the wide range that the overall topic encompasses. Chapter subjects include: "General strategies in the biodegradation of pollutants" (a well-written overview and introduction to the area); lignin-degrading fungi and their extracellular peroxidases; biodegradation of tannins; biodegradation of celluloses; several chapters covering aerobic and anaerobic degradation of aromatic, halogenated aromatic, and halogenated aliphatic compounds; chapters on structure and mechanisms of oxidoreductive enzymes, peroxidases, dihydroxybenzoate dioxygenases, cellulases, and metalloproteases; and finally, "Metal-dependent conversion of inorganic nitrogen and sulfur compounds".

The book is very well-edited, with nicely done figures and tables. The references are generally both up-to-date and thorough. The text includes an author index as well as a subject index.

Given both the increasing interest and availability of funding in this area, this book should be useful to a variety of investigators. Either the book as a whole or specific chapters would be valuable in organization and presentation of special topics courses and seminars.

Laura A. Andersson, *Kansas State University*

**Enantioselective Synthesis. Natural Products from Chiral Terpenes.** By Tse-Lok Ho (National Taiwan University). John Wiley & Sons, Inc.: New York. 1992. xii + 324 pp. \$69.95. ISBN 0-471-54819-7.

This book attempts to catalogue the variety of ways in which chiral centers or fragments from optically active terpenes can be utilized in the synthesis of complex natural products. As such, it is a valuable resource for practitioners contemplating using the terpenoid chiral pool. Of the

nine substantive chapters (Chapters 2–10) the first eight are devoted to monoterpenes while Chapter 10 considers a variety of higher terpenes as starting materials.

The chapters are organized in a logical and useful manner. Chapter 2 is devoted to the acyclic citronellane type terpenes. Chapters 3–6 deal with monocyclic terpenes related to limonene, menthone, pulegone, and carvone, respectively. Chapter 7 is devoted to bicyclic monoterpenes containing cyclopropanes (caranes and thujone); chapter 8 deals with bicyclic terpenes containing a cyclobutane (pinanes); chapter 9 considers bicyclic terpenes related to camphor and its congeners. Finally, chapter 10 discusses the use of terpenes such as santonin, other mono- and sesquiterpenes, as well as several diterpenes.

Individual chapters are presented in useful ways. For instance the chapter on limonene (Chapter 3) deals first with annulation approaches to higher terpenes and then moves on to various side chain extensions before ending with a number of routes which involve ring fragmentation processes. The chapter on camphor and its congeners (Chapter 9) first discusses modifications of the existing carbon framework, followed by various carbon-carbon bond cleavages (C1/C2, C1/C7, C2/C3, etc.), before moving on to a multitude of rearrangement routes.

There are a few shortcomings of the book which detract somewhat from its overall impact. For instance, it would have been helpful if the author had collected the structures of the starting terpenes under discussion at the beginning of each chapter. Although most synthetic organic chemists are familiar with these terpenes, not everyone has committed their structures to memory. An additional improvement would have included yields for the various key manipulations involving the subject terpenes so that the reader might get a sense for the efficiencies that would be expected in the major terpene modification sequences. Finally, a collection of charts which show how individual terpenes have been incorporated into the various natural products, indicating the terpene-derived portion, would have been particularly interesting.

On balance, however, this is an important monograph which should be valuable to virtually all synthetic organic chemists. The focus is less on the "art" of synthesis than it is on being a resource for people planning synthetic programs. The book also contains a great deal of solid organic chemistry that should prove useful to students of the discipline.

Steven W. Baldwin, *Duke University*

**Food Flavor and Safety. Molecular Analysis and Design.** *ACS Symposium Series 528.* Edited by A. M. Spanier (U.S. Department of Agriculture), H. Okai (Hiroshima University), and M. Tamura (Kowa Company). American Chemical Society: Washington, D.C. 1993. xiv + 352 pp. \$89.95. ISBN 0-8412-2665-2.

This book was developed from a symposium sponsored by the Division of Agricultural and Food Chemistry of the American Chemical Society (203rd National Meeting) held in San Francisco, CA, on April 5–10, 1992. After a preface by the editors and an introduction, there are 25 chapters organized under the following headings: Flavor Perception and Compounds Affecting Flavor; Quality Analysis and Research Applications Toward Production of Quality Foods; and Food Microbiology and Safety Issues. There are also author, affiliation, and subject indexes.

**Chromatography in Biotechnology.** *ACS Symposium Series 529.* Edited by Csaba Horvath and Leslie S. Ettre (Yale University). American Chemical Society: Washington, D.C. 1993. x + 190 pp. \$49.95. ISBN 0-8412-2669-5.

This book was developed from two symposia sponsored by the Division of Analytical Chemistry of the American Chemical Society at the Fourth Chemical Congress of North America (202nd National Meeting of the American Chemical Society) held in New York on August 25–30, 1991. After a preface by the editors, there are 12 chapters organized under the following headings: Novel Operational Modes in Preparative Chromatography; Chromatography of Glycoconjugates; and Advances in Column Engineering. There are also author, affiliation, and subject indexes.

\*Unsigned book reviews are by the Book Review Editor.