

Circular Dichroism: Principles and Applications; Edited by K. Nakanishi, N. Berova and R.W. Woody, VCH publishers, New York, 1994. xvii + 570 pp. DM 209.00. ISBN 1-56081-618-X.

This book is dedicated to the memory of the late Günther Snatzke, who made a great and lasting contribution to our appreciation of the potential of chiroptical spectroscopy, particularly when applied to the field of natural products chemistry. The first introductory chapter is a compilation of draft chapters for a projected text by Professor Snatzke, minimally edited by R.W. Woody, that set out in simple language the basic theory of optical activity and chiroptical spectroscopy. No references are provided for this chapter. A typically eclectic review by Professor Mason on the historical development of our understanding of chiroptical behaviour follows, and Woody and Volosov supplement the basic theory of optical activity presented in the introductory chapter. In a book of this type, where the mathematical background is prominent and scattered throughout the chapters, a single Table defining the symbols and abbreviations would have been welcome.

Two excellent chapters cover the Octant Rule and the Exciton Chirality method. The account of the Octant Rule by D.A. Lightner is extremely lucid, and includes detailed discussion of data from conformationally well-defined systems and theoretical work which defines the shape on the symmetry 'planes'. In contrast, the contribution by K. Nakanishi and N. Berova on the Exciton Chirality Method is very practical and uses a wide variety of examples from the authors' work to illustrate the value of this method to the characterisation of natural products, including the chiroptical alternative to the classical methylation analysis of carbohydrate chemistry that the authors have developed.

The other major element in this book is a series of chapters describing in some detail the chiroptical properties of specific common chromophores. The review of chiral dienes by J.K. Gawronski and H.M. Walborsky is largely descriptive, emphasising data from studies of terpenes and steroids, whilst N. Harada, discussing the spectroscopy of non-planar extended π -systems, provides examples from sesquiterpene, polyketide and synthetic systems. Both chapters demonstrate the value of calculating CD spectra for model systems and the interaction of the chromophore with other groups in the molecule. The circular dichroism of native and substituted benzene chromophores

with contiguous chiral substituents is described by Howard Smith. Jan Sandström extends these ideas to the conformational analysis of other planar aromatic and heteroaromatic chromophores with attached chiral rotors. A short chapter by Chantal Andraud et al. links the themes of exciton coupling and aromatic chromophores in a discussion of synthetic cyclic systems containing three S-substituted benzene rings.

Excellent reviews of some of the lesser known chiroptical techniques are included. Laurence Barron and Lutz Hecht contribute a comprehensive review of the origin of vibrational Raman optical activity, the design of appropriate instruments and the application of the method. Two chapters describe circularly polarised luminescence spectroscopy which has the potential to produce chiroptical data from racemic mixtures. As the spectrum is produced from an electronically excited state the data obtained complements that from normal CD methods. H.P.J.M. Dekkers describes the theory of the method, artifacts and some applications in organic carbonyl chemistry. In contrast, F.S. Richardson and D.H. Metcalf extend the theory to discuss time-resolved CPL measurements and draw their examples from work on dissymmetric metal complexes.

The volume is well presented with minimal overlap in the content of the chapters, and is adequately indexed. There are few typographical errors, numerous informative figures, the bibliography is extensive and up-to-date. It has been targeted primarily for a readership of physical and natural products chemists, and for those readers it will prove a valuable and frequently-consulted work of reference. I strongly recommend them to obtain access to this book and, if possible, to have a copy in their own laboratory. Applications of electronic CD in the study of protein and nucleic acid structure and function are considered only superficially, although the review of the use of vibrational CD to the determination of protein secondary structure is valuable. I hope that the publishers will take account of this growing area of interest and produce a companion volume covering the increasing use of CD to probe biopolymer structure, function, aggregation and interactions.

Chris Jones

Peroxisomes; Edited by N. Latruffe and M. Bugaut, Springer Laboratory, Springer-Verlag, Berlin, Heidelberg, 1994; xvi + 201 pages. DM 148.00. ISBN 3-540-56860-3, ISBN 0-387-56860-3.

This book is a laboratory manual which collects the protocols employed in the experimental sessions at a FEBS advanced course. The subject was *Peroxisomes; Biochemistry, Molecular Biology and Genetic Diseases* and was held at Dijon, France, on April 19-24, 1993. The manual has four sections, each one comprising three or four experiments, preceded by a brief theoretical discussion. The experimental protocols, which could be applied by undergraduate students, are carefully described, detailing the chemicals and equipment needed. In general, each protocol discusses expected results and has a brief list of references.

The first part describes the isolation of peroxisomes and includes a good general introduction. It deals with isolation of peroxisomes and peroxisomal membranes; immunoblot of peroxisomal proteins; and, peroxisomal structure observed with light and electron microscopes.

The second part deals with molecular biology experiments. Northern blot analysis of rat liver mRNA; transient transfection of DNA to cultured cells and synthesis of oligonucleotides. This section explains in sufficient detail for those unfamiliar with the subject, how to use data bases for the analysis of DNA and protein sequences.

The third part deals with pharmacology and toxicology of drugs which induce peroxisome proliferation. Particular attention is given to induction of cytochrome P-450 and to glucuronidation of the drugs. The section also includes theoretical molecular considerations for the design of new proliferation inducing drugs.

The last part of the book deals with studies employing cells in culture and genetic disorders. Peroxisome proliferation in cells in culture is studied. And there is a protocol to obtain heterokaryons, by cell fusion employing peroxisomal mutants and normal cells, in order to do genetic analysis.

The editors of the book have also prepared a video film which includes most of the topics outlined. In conclusion, this laboratory manual is a valuable tool for laboratories working in the field, and a good compilation of methods for researchers who have only recently joined the group of peroxisomologists, or are planning to do it.

Federico Leighton