

Book review

Chiral Separations: Applications and Technology, Satinder Ahuja, editor, American Chemical Society, 1998. ISBN 0-8412-3407-8, 349 pages; US\$99.95

It is well recognized that many pharmaceutical compounds contain centers of dissymmetry, and are therefore capable of existing as different enantiomers or diastereomers. In many older situations, a dissymmetric chemical entity would be manufactured as the racemic mixture, but the modern trend is to market a separated enantiomer or diastereomer. This emerging trend has created an important need for information and technology suitable for such purposes. In the present volume, the editor has attempted to assemble chapters that treat a wide variety of topics that relate to dissymmetric molecules.

After a very brief overview by the editor, one encounters three chapters that cover various methods to manufacture large quantities of enantiomerically pure compounds. Chapters in this section are entitled, 'Commercial Manufacture of Chiral Pharmaceuticals' (P. van Eikeren), 'Studies on Enantioselective Synthesis' (E.J. Corey), and 'Enzyme-Catalyzed Reactions' (D.L. Coffen). Leading authors in their respective areas contributed each chapter, and they have uniformly succeeded in presenting an informative introduction to each area. One chapter which is located later in the volume, but which is philosophically connected with this grouping is, 'Chromatography as a Separation Tool for the Preparative Resolution of Racemic Compounds' (E.R. Francotte).

No volume dealing with chiral separations could escape the field of enantiomeric analysis, and the present is no exception. The chapters which cover this particular subset are, 'Stereoselective Analysis in Crop Protection' (H.-P. Buser and E.R. Francotte), 'Chiral Separation Methods' (S. Ahuja), 'Development of Chiral Methods' (T.D. Doyle, C.A. Brunner, and R.L. Hunt), and 'Stereochemical Analyses of Food Components' (K.H. Ekborg-Ott and D.W. Armstrong). The two chapters dealing with the development of methods for enantiomer and diastereomer separation are particularly strong, and highly useful to those in the analysis community.

Two other chapters are contained in this book, which are of general interest. The first of these, 'Stereoselective Renal Elimination of Drugs' (R.J. Ott and K.M. Giacomini) discusses some of the very area that led to the original interest in drug entities containing centers of dissymmetry. The other chapter, 'Enantioselective Transport Through Liquid Membranes' (L.J. Brice and W.H. Pirkle) provides a fascinating examination of the use of crown ether molecules and chiral recognition phenomena.

This volume is not a handbook categorizing all of the methods to develop large-scale preparative methods for the separation of enantiomers or diastereomers, and neither is it a comprehensive presentation of all known analytical methodologies to quantitate the degree of such separations. What is present is an overview of each area, which provides a decent introduction to these fields.

Fortunately, each chapter is liberally annotated with literature references that lead readers as deep as they need to go into each topic. The book is less useful for individuals seeking to learn about the pharmaceutical consequences of molecular dissymmetry, but is quite useful to those seeking

to separate and analyze dissymmetric chemical entities.

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