

Book Reviews

Stereoselective Synthesis. A Practical Approach. By M. Nógrádi. VCH: Weinheim, 1994, 368 pp., hardback. £ 59. DM 148. paperback £ 27. DM 68. ISBN 3-527-29242-X.

This is the second edition of "Stereoselective Synthesis", which was first published in 1986. The contents are thoroughly revised and more than 800 new references covering up to December 1992 have been added.

Stereoselective synthesis continues to be one of the major themes in modern organic synthesis, and great advances have been made to realize high chemo-, regio-, diastereo-, and enantioselectivities in this decade. Although it is an enormous task to review and summarize these huge efforts, this book provides a comprehensive overview of this field.

This book is divided into eight chapters and covers the field from reduction and oxidation to carbon-carbon and carbon-heteroatom bond forming reactions. In the first section, the general concept of stereoselective synthesis is discussed. Almost all important and fundamental matters of stereochemistry are included in this part. This chapter will be useful not only for laboratory researchers but also for graduate students. In the following chapters, details of recent advances in stereoselective synthesis are described. Chapters 2, 3, and 4 deal with stereoselective reduction and oxidation reactions. Catalytic and non-catalytic reductions, diastereo- and enantioselective epoxidations, etc. are discussed in these chapters. In the following three chapters, stereoselective carbon-carbon bond forming reactions, the most important theme in modern organic synthesis, are discussed. In chapter 5, stereoselective reactions related to nucleophilic addition to carbonyl compounds, such as alkylation, allylation, and aldol reactions, are discussed. While the allylation reactions are classified by allylating reagents (allylmetals), the aldol reactions are discussed based on the reaction types: i.e. reactions

of chiral enolates with achiral aldehydes; achiral enolates with chiral aldehydes; achiral enolates with achiral aldehydes under chiral catalysis, etc. Other stereoselective carbon-carbon bond forming reactions are described in the next chapter (chapter 6), including the reactions of olefins, α,β -unsaturated carbonyl systems, enolates and carbanions, etc. In chapter 7, stereoselective carbon-carbon bond formation by pericyclic reactions including cycloadditions, carbene additions, sigmatropic rearrangements, ene reactions, etc., are discussed. Finally, stereoselective formation of carbon-heteroatom bonds, such as carbon-nitrogen, carbon-phosphorus, carbon-oxygen, carbon-sulfur, and carbon-halogen bonds, are reviewed. Enzymatic transformations are omitted in this book according to the author's policy.

One of the most active topics in this field is asymmetric reactions, which control both relative and absolute stereochemistry. This book emphasizes this theme in many parts. The appendix, which lists the prices of some chiral reagents per mole relative to that of (R,R)-tartaric acid, is unique and helpful for laboratory researchers.

There are many figures, equations, schemes, and tables in this book, which are simple, well polished, and help the readers to survey and comprehend the contents of this book. The readers are also aided by suitable reviews in every chapter. Moreover, the *General References* section, a rather arbitrary list of important reviews, which does not fit into any single chapter, is noted.

Overall, this book provides a well-balanced overview of stereoselective synthesis and is very useful for synthetic chemists to survey recent advances in synthetic organic chemistry. It is also recommended for graduate students who can review the hottest topics in organic synthesis.

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