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The Book Corner

Haleem J. Issaq

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The Book Corner

Chiral Separations Methods and Protocols, Gerald Gübitz and Martin G. Schmid, Eds.; Humana Press, Totowa, NJ, 2003, 432 pp. Price: \$125.00.

Chiral Separations, Methods and Protocols is Volume 243 of *Methods in Molecular Biology*. This volume contains 25 chapters, written by 43 scientists, who are experts in this area of analytical chemistry. It is well written and presented. Chiral separations are an important area of analytical chemistry, which gained a lot of interest in the last 20 years. Why? As the editors state in the preface of the book, many compounds of biological and pharmacological interest are asymmetric and show optical activity. Approximately 40% of the drugs in use are known to be chiral and only about 25% are administered as pure enantiomers. It is well established that the pharmacological activity is mostly restricted to one of the enantiomers (eutomer). In several cases, unwanted side effects, or even toxic effects, may occur with the inactive enantiomer (distomer). Even if the side effects are not very drastic, the inactive enantiomer has to be metabolized, which represents an unnecessary burden for the organism. The administration of pure, pharmacologically active enantiomers is, therefore, of great importance.

The ideal way to obtain pure enantiomers is by enantioselective synthesis. However, this approach is usually expensive and not often practical. Usually, the racemates are obtained from a synthesis, and the separation of the enantiomers on a preparative scale is necessary. On the other hand, there is also a great demand for methods of enantiomer separation on an analytical scale for controlling synthesis, checking for racemization processes, controlling enantiomeric purity, and for pharmacokinetic studies.

Conventional methods for enantiomer separation on a preparative scale are fractional crystallization, i.e., the formation of diastereomeric pairs

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followed by repeated recrystallization, and enzymatic procedures. In recent years, chromatographic methods such as gas chromatography, and especially, liquid chromatography, have attracted increasing interest for chiral separation, both on analytical and preparative scales. More recently, capillary electrophoresis and electrochromatography have also proven useful for chiral separation on an analytical scale.

Chiral Separations: Methods and Protocols focuses on chromatographic and electroseparation techniques for chiral separation on an analytical scale. It is not the aim of this book to give a comprehensive overview of all applications of chiral separation principles. Because there are several thousand publications on this topic, this would require a series of books.

The book begins with an excellent introduction to the different techniques, principles, and mechanisms of chiral separation, and includes a historical background (Chapter 1). Chapters 2–4 review some special techniques and include practical advice for users. The remainder of the book is devoted to articles describing typical procedures for enantiomer separation by chromatographic and electromigration techniques, applying different chiral separation principles. These procedures may be of general character, or are otherwise presented by means of applications to substance classes or special compounds. These chapters differ from conventional articles, because primary emphasis is set on giving reliable procedures for users. Special attention is given to important experimental data, and practical hints in the “Notes” section enable the reader to adapt these procedures to one’s separation problems.

This book is recommended to all those interested in chiral separations.

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Haleem J. Issaq, Ph.D.
Editor, The Book Corner



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