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The Book Corner

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THE BOOK CORNER

FOOD ANALYSIS BY HPLC, Edited by L. M. L. Nollet, Marcel Dekker, Inc, New York, 776 pages, 1992. Price: \$199.00

High performance liquid chromatography (HPLC) is a qualitative and quantitative technique which is found in almost every analytical laboratory, and used for the analysis of various compounds in different fields. One of these is the food industry.

Applications of HPLC in food technology involve, on one hand, an analytical and qualitative testing of the product composition and, on the other hand, an assurance of product quality with an increase of productivity. HPLC is used in the food industry for the analysis of components in both raw and processed products. In a new food product, analysis of the raw materials, the intermediates, and the final products is necessary. Changes during processing or storage are to be followed as well. Foods and beverages may be tested on contaminants or additives, so that governmental regulations may be followed.

A large number of food components may be separated with HPLC. Although several books on HPLC separation methods of amino acids, vitamins, and carbohydrates have been published, there is no up-to-date, practical manual available. This book fulfills such a need, covering all major topics of food compounds for the food analyst or engineer. Chapters are written on amino acids, peptides, proteins, lipids, carbohydrates, vitamins, organic acids, organic bases, toxins, additives, antibacterials, pesticides residues, brewery products, nitrosamines, PAHs, and anions and cations.

Special attention is paid to reversed phase separations without neglecting the other mentioned HPLC techniques. Specialists describe in detail sample preparation and separation conditions. The applications to food chemistry are directly usable.

This book will find a large audience in the fields of chromatography, analytical chemistry, and especially, food chemistry and food technology. The book is free of errors, well written, and should be of interest to analytical chemists in the food industry and outside it.

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PRACTICE OF THIN LAYER CHROMATOGRAPHY, by J. C. Touchstone, 3rd Edition, John Wiley and Sons, Inc., New York, 1992, 377 pages.

Thin layer chromatography is a popular and simple analytical technique. In this corner we reviewed several books on TLC which were published recently. Practice of Thin Layer Chromatography is an updated edition. It is written by Professor Touchstone who is well known in this area of analytical chemistry. The advantages of a single author book are the excellent and continuous flow of subject matter and little repetition. This book meets this criteria. The author's purpose in writing this book as he states it, "A number of texts on the subject have appeared. These do not cover the subject in such depth that the novice will be able to perform the experiments which are described with confidence and success. Practicing chromatographers are continually searching for newer methodology with which to make this task more efficient. With these considerations in mind, we have tried to update what is pertinent in the practice of thin layer chromatography." What is pertinent is a matter of opinion.

The author states, "The book has thus been expanded somewhat. The inclusion of some of the newer techniques and instruments should give the reader a broader overview of what really can be done. A more complete description of the new scanners both for isotopes and densitometry should be considered necessary in view of the more recent advances in this area. Furthermore, the discussions on sample preparation have been greatly expanded because poor sample preparation can negate any improvements in the chromatography. Also, the advent of solid phase extraction devices since the last edition has greatly enhanced the ease of sample preparation."

Overall the book is well written in a concise manner. Some of the chapters are too concise to be useful and some cover the subject well. For example, Chapters 18 and 20 are a case in point. The discussion of over-pressured TLC, TLC/MS, TLC/IR, and chiral separations are too concise and give a limited number of references. Also, multimodal separations using cyano, phenyl and amino plates are ignored in this book. The theoretical discussion is too concise to be of value to the reader. However, the book is acceptable and meets the criteria stated by Professor Touchstone.

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INTRODUCTION TO MICELLAR ELECTROKINETIC CHROMATOGRAPHY, Johan Vindevogel and Pat Sandra, Chromatographic Methods Series, Huthig Buch Verlag, Heidelberg, 231 pages, 1992.

Micellar electrokinetic chromatography is a variant of capillary zone electrophoresis. It was first popularized by S. Terabe. Since then many papers have been published using MECC for the separation of neutral as well as charged compounds. The technique of MECC is still evolving, however, there is enough material to warrant the publication of a book devoted to MECC. This book is just the right size and it is intended for those who have a background in chromatography but not in electrophoresis, the basic principles of electrophoresis in general but also, more specifically, of capillary zone electrophoresis are included. As such, it can also be used as a short introduction to the latter, although topics like protein analysis and capillary gel electrophoresis are not included.

The material in this book is organized into four parts. The first part deals with fundamental aspects of electrokinetic analysis: analytical formats (Chapter 1) and the principles governing electrophoretic and electroosmotic mobility (Chapter 2). The application of those principles to obtain separation is described for different techniques: Capillary Zone Electrophoresis (Chapter 3), Capillary Electrochromatography (Chapter 4) and Micellar Electro-kinetic Chromatography (Chapter 5). The second part focuses on instrumental aspects, covering thermal effects (Chapter 6), columns (Chapter 7), injection techniques (Chapter 8) and detection methods (Chapter 9). The third part describes the resolution optimization in Micellar Electrokinetic Chromatography. Of the three traditional parameters: capacity factor, selectivity and efficiency only the latter is treated in a separate chapter (Chapter 10). Given the peculiarities of resolution optimization in Micellar Electrokinetic Chromatography, the role of the capacity factor and of selectivity are discussed together (Chapter 11). Finally, a review of published applications has been collected in the fourth part: one chapter is devoted to general applications (Chapter 12) while the other deals specifically with chiral separations (Chapter 13). This part is not intended as a manual of analysis but serves to demonstrate the possibilities of Micellar Electrokinetic Chromatography. Therefore, the sections in it cover groups of compounds that are chemically or functionally related, whatever are considered most appropriate.

The book is well written, clear and we recommend it to all those interested in CE, in general and MECC, in particular.

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