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THE BOOK CORNER

ADVANCES IN CHROMATOGRAPHY, Volumes 38 and 39, “A Tribute to J. Calvin Giddings,” P. R. Brown, E. Grushka, eds., Marcel Dekker, Inc., 1998, 347 pp. \$175.00.

These two volumes of *Advances in Chromatography* are a tribute to the founder of this series, Professor J. Calvin Giddings, who died on October 24, 1996 at the age of 66. Professor Giddings was a wonderful human being, a great scientist, and a dear friend.

Both volumes start with a tribute to Professor Giddings written by his son, Professor Steven B. Giddings. It is a wonderful and moving account. Drs. Brown and Grushka, the current editors of the series, did a very nice job in assembling two high quality volumes befitting of Professor Giddings. The two volumes total 750 pages, containing fourteen chapters dealing with different aspects of separation science, from the theoretical to the practical. As usual, the quality is very high, the topics are interesting, and the editing is superb.

Table of Contents - Volume 38

Chapter 1. Band Spreading in Chromatography: A Personal View, J. H. Knox, (1).

Chapter 2. The Stochastic Theory of Chromatography, F. Dondi, A. Cavazzini, M. Remelli, (51).

Chapter 3. Solvating Gas Chromatography Using Packed Capillary Columns, Y. Shen, M. L. Lee, (75).

Chapter 4. The Linear-Solvent-Strength Model of Gradient Elution, L. R. Snyder, J. W. Dolan, (115).

Chapter 5. High-Performance Liquid Chromatography-Pulsed Electrochemical Detection for the Analysis of Antibiotics, W. R. LaCourse, C. O. Dasenbrock, (189).

Chapter 6. Theory of Capillary Zone Electrophoresis, H. Poppe, (233).

Chapter 7. Separation of DNA by Capillary Electrophoresis, A. Guttman, K. J. Ulfelder, (301).

Table of Contents - Volume 39

Chapter 1. Theory of Field Flow Fractionation, M. Martin, (1).

Chapter 2. Particle Simulation Methods in Separation Science, M. R. Schure, (139).

Chapter 3. Mathematical Analysis of Multicomponent Chromatograms, A. Felinger, (201).

Chapter 4. Determination of Association Constants by Chromatography and Electrophoresis, D. W. Armstrong, (239).

Chapter 5. Method Development and Selectivity Optimization in High-Performance Liquid Chromatography, H. A. H. Billiet, G. Rippel, (263).

Chapter 6. Chemical Equilibria in Ion Chromatography: Theory and Applications, P. Hajós, O. Horváth, G. Révész, (311).

Chapter 7. Fundamentals of Simulated Moving Bed Chromatography Under Linear Conditions, G. Zhong, G. Guiochon, (351).

Haleem J. Issaq, Ph.D.

Editor

The Book Corner

SUPERCritical FLUID CHROMATOGRAPHY WITH PACKED COLUMNS. Techniques and Applications, K. Anton, C. Berger, eds., Marcel Dekker, Inc., New York, 1997, 483 pp. \$165.00.

This book is Volume 75 of the Chromatographic Science Series, edited by Jack Cazes. Supercritical fluid chromatography (SFC) is a separation technique which did not find widespread acceptance, as did high performance liquid chromatography (HPLC) or capillary electrophoresis (CE), among separation

scientists. This is probably due to its limited applicability, i.e., primarily compounds that cannot be separated by GC, HPLC, or CE, may be analyzed by SFC. This volume contains 15 chapters dealing with basic principles and applications of packed column SFC (pSFC). Solubility is a key parameter in pSFC.

The reader will find, in the first chapter, a comprehensive method to determine solubility data prior to developing a new application. The second chapter discusses some basic principles that have been decisive for the development of today's high-performance instrumentation. The third chapter reflects the state of the art regarding instrumentation, combined with various applications in different fields.

SFC on packed columns was first developed with UV-visible detection and was, therefore, assumed to be unsuitable for molecules without UV chromophores.

This problem can now be circumvented by using evaporative light-scattering detection, as demonstrated in the fourth chapter. The fifth chapter deals with packed capillary columns as an innovative way to expand the frontiers of pSFC toward cSFC. As in cSFC, high efficiencies are achieved and universal flame ionization detection (FID) can be used. The numerous ways to adjust selectivity are characteristic for pSFC.

The authors of the sixth chapter show how an intelligent coupling of different stationary phases can be used to resolve complex mixtures containing compounds covering a broad polarity range. Another innovative way to expand the application field of pSFC is to use subcritical mobile phases. This technique, discussed in the seventh chapter, is particularly attractive for high molecular weight, thermolabile compounds. SFC on packed columns has been shown to have a huge potential for separation of drugs and, in particular, chiral molecules. The reader will find, in the eighth and ninth chapters, comprehensive reviews on chiral packed subcritical (SubFC) and SFC. A special focus on applications of pSFC in the pharmaceutical industry is given in the tenth chapter.

The potential of pSFC in the development of polymer additives is shown in the eleventh chapter, where real-world examples, as well as an extended review of pSFC separations, including a table with references for more than 50 commonly used polymer additives, are presented. SFC on packed columns was applied for separation of polymers and oligomers since the very beginning. pSFC still appears to be a powerful method for the analysis of polymers and oligomers.

The twelfth chapter describes the use of pSFC as a fractionation method. Supercritical fluids possess excellent characteristics for application in environmental analysis. They are used both in sample preparation and in chromatographic analysis, as illustrated in the thirteenth chapter. The benefits of pSFC for the resolution of complex mixtures can also be used at a process scale as

described in the two final chapters. The authors emphasize the economic and ecological parameters in the breakthrough of industrial preparative scale chromatography. Finally, a detailed compound and subject index lists all the important keywords in text, including figures, and figure captions.

The editors sum up their preface by the following, "We believe that the significance of pSFC for industrial separations will grow in the next years under the strong pressure of regulatory policies regarding environmental issues (in particular the use of solvents) and as a consequence of the ongoing rationalization efforts in every field of the industry. Therefore, it is our goal, in presenting the information in a collected form, to help readers in their practical daily work by giving an updated, praxis-oriented overview of recent developments and applications of pSFC."

The book is a useful reference on SFC.

Table of Contents

Chapter 1. Determination of Solubility Data for On-Line Packed Column Supercritical Fluid Chromatography, M. Johannsen, G. Brunner, (1).

Chapter 2. Chemical Basis for the Instrumentation used in Packed Column Supercritical Fluid Chromatography, T. A. Berger, (19).

Chapter 3. Analytical and Preparative Carbon Dioxide Chromatography with Automated Pressure Control and Different Detectors, F. Vérellon, K. Coleman, (59).

Chapter 4. Packed Column Supercritical Fluid Chromatography - Evaporative Light-Scattering Detection, J. Thompson, B. Strode III, L. T. Taylor, K. Anton, N. Periclès, M. Bach, (97).

Chapter 5. Packed Capillary Column Supercritical Fluid Chromatography using Neat Carbon Dioxide, Y. Shen, M. L. Lee, (125).

Chapter 6. Selectivity Tuning in Packed Column Supercritical Fluid Chromatography, P. Sandra, A. Medvedovici, A. Kot, F. David, (161).

Chapter 7. Subcritical Fluid Chromatography with Organic Modifiers on Octadecyl Packed Columns: Recent Developments for the Analysis of High Molecular Organic Compounds, E. Lesellier, A. Tchaplà, (195).

Chapter 8. Chiral Chromatography Using Sub- and Supercritical Fluids, R. M. Smith, (223).

Chapter 9. Enantiomer Separation by Sub- and Supercritical Fluid Chromatography on Rationally Designed Chiral Stationary Phases, C. Wolf, W. H. Pirkle, (251).

Chapter 10. Applications of Packed Column Supercritical Fluid Chromatography in the Development of Drugs, O. Gyllenhaal, A. Karlsson, J. Vessman, (273).

Chapter 11. Packed Column Supercritical Fluid Chromatography in the Development of Polymer Additives, C. Berger, (301).

Chapter 12. Fractionation of Polymer Homologs with Packed Column Supercritical Fluid Chromatography, K. Ute, (349).

Chapter 13. The Use of Supercritical Fluids in Environmental Analysis, A. Medvedovici, A. Kot, F. David, P. Sandra, (369).

Chapter 14. Preparative Supercritical Fluid Chromatography: Grams, Kilograms, and Tons!, P. Jusforgues, M. Shaimi, D. Barth, (403).

Chapter 15. Production of High Purity n-3 Fatty Acid-Ethyl Esters by Process Scale Supercritical Fluid Chromatography, P. Lembke, (429).

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

IMPURITIES EVALUATION OF PHARMACEUTICALS, by S. Ahuja, Marcel Dekker, Inc., New York, 1998, 304 pp., \$135.00.

According to the author, "The subject of impurities evaluation of pharmaceutical compounds has been insufficiently addressed in the scientific literature up to this time. Reasons for this shortcoming are many and varied." The above book is supposed to be a guide which will fill this gap by addressing the methodologies required to monitor impurities in pharmaceutical products. The book does just that — and more!

Impurities Evaluation of Pharmaceuticals introduces techniques for isolating and characterizing impurities. Impurities are defined, by Dr. Ahuja, as any extraneous material present in the drug substance, even if it is totally inert or has superior pharmacological properties. Simply put, if it is not the drug substance, it is an impurity. The book discusses various sources of impurities, methods utilized to isolate and characterize them (including those methods that do not require pre-separation, such as GC/MS and HPLC/MS), analytical methods used for evaluation and control, and applications to various classes of drug products (marketed products as well as those under development). Chiral impurities are also discussed, from the standpoint of their origin, analytical methodology, and regulatory perspectives.

The book is comprised of nine chapters dealing with different aspects of impurities, isolation, characterization and sources. In chapter 1, the author, when discussing analytical methodologies, neglected to mention, under spectroscopic methods, atomic absorption and emission for trace metal impurities detection and quantification.

Also, on page 11, the author discusses capillary electrophoresis and writes, "the primary difficulty is relatively lower reproductivity." I am assuming the author means lower than HPLC, which is not totally true these days. What might be a problem is the detection which is lower than in HPLC, using UV detection.

The book is well illustrated and the material is presented in a simple and easy to follow format. The price of \$135.00 is a little high for such a book, which is supposed to be a guide for daily use. However, it seems that most book prices are extremely high these days. The book is recommended for all those involved in the pharmaceutical industry, analysts, regulators, and quality control personnel.

Table of Contents

Chapter 1. An Overview, (1).

Chapter 2. Regulations and Requirements for Controlling Impurities, (17).

Chapter 3. Isolation and Characterization, (42).

Chapter 4. Analytical Methodology, (60).

Chapter 5. Synthesis-Related Impurities, (85).

Chapter 6. Pharmaceutical Formulation-Related Impurities, (109).

Chapter 7. Kinetic Studies, (133).

Chapter 8. Stability Studies, (167).

Chapter 9. Applications, (193).

Haleem J. Issaq, Ph.D.

Editor

The Book Corner

VIDEO MICROSCOPY: The Fundamentals, 2nd Ed., S. Inoué, K. R. Spring, Plenum Press, New York, 1997, 741pp.

Note:

The Journal, from time to time, receives a book which is not related directly to separation science. In such a case, an informative writeup is presented in The Book Corner for the benefit of our readers. Video Microscopy The Fundamentals is one of these books.

The authors, in the Preface to the book, state that the objective of the second edition, which has been totally revised is "to reflect the advances in the tools for electronic imaging, processing, recording, and analysis, as well as applications that are being made in video microscopy and related modes of electronic imaging."

The book is made up of thirteen chapters. Chapter 1 reviews the history of video and briefly summarizes present applications and developments in video microscopy. A vastly expanded and updated Chapter 2 reviews the physical optics and basics of microscope image formation, including point spread functions, contrast transfer functions, major modes of contrast generation, and scanning microscopy. Chapter 3 covers practical aspects of microscopy, including selection, use, and care of the components. Chapter 4 characterizes the eye as a detector and covers the fundamentals of color vision. Chapter 5 deals with the fundamentals of the video signal as well as current video standards. Chapter 6 introduces a new section on the electronic detection of light and covers vidicon tube cameras.

Chapters 7-9, which are completely new, deal with solid-state detectors, both video rate and slow scan (Chapter 7); image intensification (Chapter 8); and the color video signal and color video cameras (Chapter 9). An updated and expanded Chapter 10 covers video monitors, projectors, and printers. Chapter 11 reviews

devices for recording the video signal by both analog and digital means and includes advice on creating, editing, and presenting video data. An overview of digital image processing relevant to microscopy is presented in Chapter 12. The last chapter, Chapter 13, deals with system integration, including component selection, setup, troubleshooting, and computer interfacing. Principles of perfusion chamber design and temperature regulation have also been included. The chapter ends with selected examples of complex video microscopy systems that push performance to the present-day limits of the field. Updated appendixes include a Glossary and a List of Manufacturers.

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

THE SCIENTIST AS CONSULTANT Building New Career Opportunities, C. J. Sindermann and T. K. Sawyer, Plenum Trade, New York, NY, 1997, 341 pages, \$29.95.

The Scientist as Consultant is a very interesting and useful book which is a joy to read and, at the same time, is very affordable. The authors should be commended on writing an honest view of consulting both at the scientific level and the business level as well. Consultants are scientific entrepreneurs, who market and sell technical and scientific expertise and advice for a price. They are scientists who must maintain professional competence and credibility in their own technical specialities. So, in short the scientific consultant should be a good scientist and a good marketing person. The authors define what is a scientific consultant as follows:

One who provides, for a fee, scientific data and/or scientific analyses, one who provides, for a fee, advice and opinions on matters with scientific content, based on his previous training and experience, and on available information, one who provides, for a fee, evaluations of the scientific merit of specific proposals, or of the probable scientific effects of such proposals, one who provides, for a fee, recommendations concerning proposed action, based on scientific examination, one who contributes, for a fee, the scientific credibility associated with a reputation in a specific professional subdiscipline.

The obvious constant in all of these descriptors of a scientific consultant is "for a fee." The scientific consultant is clearly an *entrepreneur*, selling his expertise, experience, and judgement for a stated price.

The authors, who obviously wrestled with the definition of a scientific consultant, write, "if we are forced to make a one-sentence response to the question "What is a scientific consultant?" our answer would be something like this: "The scientific consultant is a technically trained entrepreneur who makes available for a stated price his expertise, data, data analyses, evaluations, and recommendations relevant to a client's needs." I agree.

This book is an examination of the phenomenon of scientists functioning as consultants. It attempts to describe the successful scientific consultant and his professional activities. Structurally, the book is partitioned into three major sections. The first contains chapters providing a broad perspective on scientific consulting as a career, the second reviews specific operational considerations for scientific consultants, and the third examines an array of special topics in scientific consulting. Part One - the broad view - has chapters on "The Prospective Scientific Consultant," "Early Phases in the Evolution of a Scientific Consultant," "Distinguishing Characteristics of Successful Scientific Consultant," and "The transition from Solo Practitioner to Business Executive." Part Two - the nitty-gritty areas of consulting - considers "Organizing a Scientific Consulting Organization," "Managing a Scientific Consulting Group," "Ethics for Scientific Consultants," "Marketing and Selling Scientific Expertise," "Completing the Consulting Assignment," and "Maintaining Professional Competence." Part Three - a potpourri of special topics in consulting - delves into "The Legal Side of Scientific Consulting Practice," "The Downside of Scientific Consulting," "Possible Escape Routes, if Consulting Should Not Work Out," "Megaconsulting Organizations," "International Consulting", "Junior Professional Members of Scientific Consulting Organizations," "University Faculty Members as Scientific Consultants," "Retirees as Scientific Consultants," and "The Future of Scientific Consultants."

The authors write, "We think this book will be very useful to those contemplating a career in scientific consulting, and to those who are already committed to it. Parts of it may even be instructive for those who must interact with scientific consultants, as it offers a small window on a demanding but rewarding occupation." I wholeheartedly agree with their assessment. This book is highly recommended.

Haleem J. Issaq, Ph.D.

Editor

The Book Corner