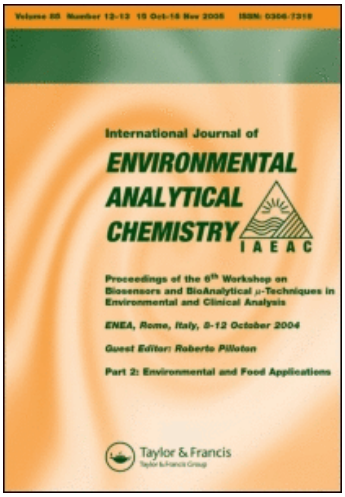

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A Review of: "Liquid Chromatography in Environmental Analysis, edited by J. F. Lawrence, Humana Press, 1984, £48.75 (xiv 374 pages) ISBN 0-89603-045-8"

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Book Review

LIQUID CHROMATOGRAPHY IN ENVIRONMENTAL ANALYSIS, edited by J. F. Lawrence, Humana Press, 1984, £48.75 (xiv + 374 pages) ISBN 0-89603-045-8

To all probability, "the environment" is one of the most popular fields of application for the analytical chemist of today. In the majority of cases, analyses must be performed at trace, or even ultra-trace levels and therefore optimization of selectivity and sensitivity is a primary aim. Since most of these analyses have to be carried out in complex matrices, an efficient sample clean-up and a powerful separation technique are almost indispensable tools in this métier. In the past, (capillary) gas chromatography has, for good and well documented reasons, generally been the preferred method of separation in organic trace analysis. The recent success of high-performance liquid chromatography (HPLC) and its rapid utilization for many analytical problems has caused many an analyst to put the question: what can HPLC do for us in the field of environmental analysis? The present book, edited by the well-known and actively publishing James Lawrence tries to provide an answer to this question. It is the first major volume to review HPLC techniques and applications used in the analysis of the environment today.

In eight chapters, eleven contributiors treat important methodological issues such as quality assurance in trace analysis (J. R. Hall), sample injection and column switching (M. C. Harvey and S. D. Stearns) and HPLC as a clean-up technique (J. J. Ryan), as well as applications in the field of polycyclic aromatic hydrocarbons (B. S. Das), pesticide residue (E. G. Cotterill and T. H. Byast), surfactant (P. Jandera), metal (I. S. Krull) and anion (E. L. Johnson and K. K. Haak) analysis. As is to be expected, a wide variety of detection modes is mentioned in more or less detail, and sample types include water, soil, plant material, animal tissue, petroleum, brine and acid rain. The number of references per chapter varies from

several tens for the more technically oriented chapters to between 100 and 200 for the chapters dealing with applications, except anion analysis by ion chromatography which has 23 references. Many quotations are from the period 1978–1981, the coverage of 1982 is rather incomplete. The book has been well produced and is easily readable, and there is an abundance of good-quality figures.

After having read the book, and especially the chapters on applications, many readers will correctly feel convinced that HPLC should seriously be considered when a probelm has to be solved in the field of environmental analysis. The topics selected by the editor present a sufficiently large number of approaches for the determination of compounds ranging from distinctly hydrophobic to purely ionic to provide the analytical chemist with some valuable ideas when he has to tackle the next problem at hand. The detailed applications in the field of pesticide residue analysis, the comprehensive discussion of trace metal analysis, and the role played by HPLC as purification procedure in the determination of dioxins are good examples here. In other words, in this respect the book certainly serves a useful purpose, and purchase can be recommended.

Two further comments are, however, appropriate. One is that the present volume is not, and was not meant to be, comprehensive. Many topics are not discussed at all, or very superficially. To quote a few examples: ion chromatography covers a much wider field than that dealt with in the chapter on anion analysis; online trace enrichment is hardly mentioned in any chapter at all; the potential of fluorescence detection for high sensitivity and selectivity is not sufficiently emphasized, and a critical comparison of liquid *versus* gas chromatography is sorely missing. This brings us to the second comment, that with techniques such as HPLC and capillary gas chromatography, *i.e.*, in fields where progress is rapid, it will always be an almost unsolvable problem to present a text that is really up-to-date; there is at least a 2-year gap between the writing of manuscripts by the contributors, and the actual use of the book by the reader. In other words, one should be content with the guidelines, general insight and applications presented, and express the hope that, in course of time, a companion volume will appear that will help to fill in some of the gaps and to update our knowledge.

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