

following chapters deal with various aspects of gas chromatography for lipid analysis including packed columns, capillary columns and gas chromatography-mass spectrometry. Thin-layer chromatography and high performance liquid chromatography are covered in Chapter 6, and the analysis of the positional distribution of fatty acids in triglycerides is discussed in the following chapter. The book is completed by chapters on applications of wide-line and high resolution nuclear magnetic resonance spectroscopy.

This book is clearly aimed at scientists working in industrial laboratories. Theory is almost completely excluded, and the reader is expected to consult the references given for details of the theoretical principles of the techniques. Practical details of the analytical procedures are also not included, but the book achieves a very valuable function in providing a discussion of the vast majority of analytical procedures and techniques used in the analysis of oils and fats, together with supplying copious references.

The text appears to be extremely accurate and typographical errors are almost completely absent. The main criticism of the book is that it does not include discussion of procedures based on techniques other than gas chromatography that are used for analyses relevant to the nutritional properties of fatty foods. Procedures for the determination of fat content, *trans* unsaturated fatty acids and polyunsaturated fatty acids are either omitted or only mentioned by means of a reference with no discussion of the relative accuracy of the different techniques. Inconsistencies of nomenclature are also regrettable with fatty acids being referred to as C<sub>18:2</sub> or 18:2, and the position of double bonds being specified by *n*-6, *n*6 or 6.

However, despite these minor reservations, the book fills a gap in the literature, and it is highly recommended for purchase by all scientists involved in the analysis of oils and fats.

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**Immunoassays in Food Analysis.** By B. A. Morris and M. N. Clifford, Elsevier Applied Science Publishers, London. 1985. xxi + 222 pp. Price: £25.00.

This book is based on the Proceedings of a Symposium entitled 'Immunoassays in Food Analysis', organised by Clifford and Morris, which was held at the University of Surrey in 1983.

Although the specificity of the antibody/antigen agglutination reaction has been recognised and exploited in analysis for many decades, it is only

in the last twenty-five years that immunoassays have been developed which use a labelled form of the antibody or antigen to quantify the reaction. The original labels used, the radioisotopes  $^{131}\text{I}$  and  $^{125}\text{I}$ , suffer from a number of disadvantages. The development of alternative labels has led to the development of immunoassays which are more readily transferable to the routine laboratory. This has resulted in a rapid increase in interest in the application of immunoassays. This book, and the symposium from which it is derived, is a reflection of this increasing interest.

The early chapters 'Principles of Immunoassays', 'Principles of Enzyme Immunoassays' and 'Alternative Labels in Non-isotopic Immunoassay' provide a useful background to immunoassay techniques. The inclusion of a glossary is particularly welcome.

The remainder of the book is divided into sections covering the application of immunoassay to macromolecules and to small molecules. It also becomes rather more apparent in these sections that the book is the proceedings of a symposium. The topics included are the species identification of meat, the determination of soya and milk protein, ELISA assay of amyloglucosidase in beer and the estimation of staphylococcal enterotoxins in foods. In the section on small molecules four topics are examined; analysis of mycotoxin ochratoxin in food, monitoring anabolic hormones in meat, comparison of the analysis of potato glycoalkaloids by immunoassay and conventional procedures, and cross-reactions in immunoassays for small molecules. The topics included do not provide a comprehensive coverage of immunoassay application in food analysis but are good examples of possible applications.

Overall, the papers are well written and well referenced. Although the book has only been recently published the symposium was held in September, 1983, so the book does not quite represent the present state of the art. It does, however, still give a good introduction to the subject, showing much of its potential.

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