

Contents

Preface	vii
Part I. Overview	
1 Techniques and Applications in Lipid Analysis <i>Nils Hinrichsen and Hans Steinhart</i>	3
Part II. Mass Spectral Techniques/Lipidomics	
2 An Overview of Modern Mass Spectrometry Methods in the Toolbox of Lipid Chemists and Biochemists <i>R. Moreau</i>	29
3 Global Cellular Lipidome Analyses by Shotgun Lipidomics Using Multidimensional Mass Spectrometry <i>X. Han and R.W. Gross</i>	51
4 LC/MS and Chiral Separation <i>A. Kuksis and Y. Itabashi</i>	73
5 LC/MS and Lipid Oxidation <i>A. Kuksis and O. Sjovall</i>	109
6 Structural Analysis of Unsaturated Fatty Acid Methyl Ester Isomers with Acetonitrile Covalent Adduct Chemical Ionization (CACI) <i>J.T. Brenna</i>	157
Part III. Chromatographic Techniques	
7 Recent Advances in Silver-Ion HPLC Utilizing Acetonitrile in Hexane as Solvent: Temperature Effects on Lipid Elution Orders/Resolution <i>R.O. Adlof</i>	175
8 Analysis of <i>trans</i>-18:1 Fatty Acids by Silver Ion HPLC <i>P. Delmonte, J.K.G. Kramer and M.P. Yurawecz</i>	191
9 High-Performance Size-Exclusion Chromatography for Lipid Analysis in Organic Media <i>G. Márquez-Ruiz and M.C. Dobarganes</i>	205
10 Lipid Separations Using Packed-Column Supercritical Fluid Chromatography <i>D.G. Hayes</i>	239

- 11 **TLC-FID with Special Reference to Marine Lipids and Other High-Molecular-Weight Organic Compounds**
R.G. Ackman and A. Timmins 261
- 12 **Fast GC for Cellular FAME Analysis of Bacteria**
J.S. Buyer 271

Part IV. Vibrational Spectroscopic Techniques

- 13 **Use of Cellular Fatty Acids to Identify Food-Borne Pathogens by Infrared Spectroscopy and Capillary Gas Chromatography**
M.M. Mossoba and S.F. Al-Khalidi 287
- 14 **Application of FT-NIR for Rapid Determination of the *Trans* Fatty Acid Composition in Fats and Oils**
H. Azizian and J.K.G. Kramer 303
- 15 **Infrared Spectroscopy and Partial Least Square Calibration in the Simultaneous Quantification of Isolated *trans* and Conjugated Linoleic Acids**
A.A. Christy 335
- 16 **Investigation of Protein-Lipid Interactions by Vibrational Spectroscopy**
G. Meng, N.K. Howell, and E.C.Y. Li-Chan 355

Part V. Applications

- 17 **Fat Replacers: An Overview**
W.E. Artz, S.M. Mahungu, and S.L. Hansen 379
- 18 **Phospholipids: Structures and Physicochemical Activities**
M.C. Erickson 399
- 19 **Waxes and Sterols: Structures and Chemistry**
E.J. Parish and A.D. Bell 421
- Index** 433