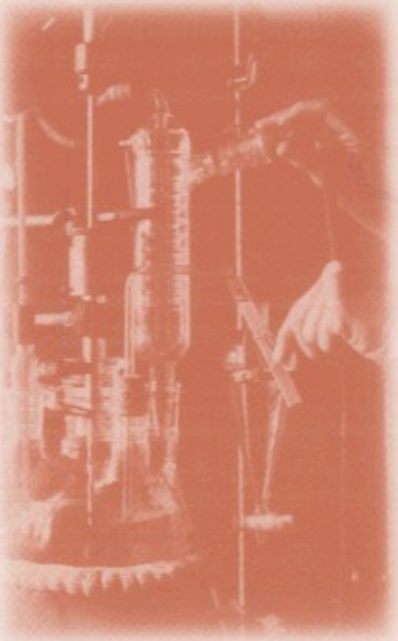
Extraction Optimization in Food Engineering



edited by
Constantina Tzia
George Liadakis

Contents

Preface *iii*
Contributors *ix*

1. Introduction: Fundamental Notes on Chemical Thermodynamics 1
   Petros Tzias

2. Solid–Liquid Extraction 35
   José Miguel Aguilera

3. Supercritical Fluid Extraction in Food Engineering 57
   Nurhan Turgut Dunford, Jerry W. King, and Gary R. List

4. Extraction Systems 95
   Rudolf Eggers and Philip T. Jaeger

5. Optimization 137
   Constantina Tzia

6. Fats and Oils from Plant Materials 181
   Lei Xu and Levente L. Diosady

7. Proteins from Plant Materials 217
   Lei Xu and Levente L. Diosady

8. Sugars and Carbohydrates 235
Pascal Christodoulou

9. Flavor and Aroma Substances 305
Youn-Woo Lee and Youn Yong Lee

10. Extraction of Natural Antioxidants 329
Vassiliki Oreopoulou

11. Extraction of Alkaloids from Natural Plants Using Supercritical Fluids 347
Marleny D. A. Saldaña and Rahoma S. Mohamed

12. Removal of Cholesterol from Food Products Using Supercritical Fluids 369
Rahoma S. Mohamed, Marleny D. A. Saldaña, Alvaro B. A. de Azevedo, and Uiram Kopcak

13. Solvent Extraction: Safety, Health, and Environmental Issues 391
Phillip J. Wakelyn and Peter J. Wan

Index *429*