

Contents

| | |
|---|-----|
| Preface | iii |
| Contributors | v |
| 1 Biotechnology and Its Implication for the Future Design and Production of Food Ingredients <i>Carl A. Batt</i> | 1 |
| 2 Introduction to Bioreactor Engineering <i>Harvey W. Blanch</i> | 19 |
| 3 Bioreactor Considerations for Producing Flavors and Pigments from Plant Tissue Culture <i>Michael L. Shuler, Thomas J. Hirasuna, Christopher L. Prince, and V. Bringi</i> | 45 |
| 4 Membrane Bioreactors: Enzyme Processes <i>Mohamed A. Mehaia and Munir Cheryan</i> | 67 |
| 5 Food Freeze Concentration <i>Henry G. Schwartzberg</i> | 127 |

| | | |
|----|---|-----|
| 6 | Supercritical Fluid Extraction <i>Mark A. McHugh</i> | 203 |
| 7 | Drying of Foods <i>Enrique Rotstein</i> | 213 |
| 8 | Aseptic Processing of Foods <i>M. A. Rao</i> | 247 |
| 9 | Encapsulation and Controlled Release of Food Components <i>Marcus Karel</i> | 277 |
| 10 | Extrusion of Foods <i>Judson M. Harper</i> | 295 |
| 11 | Developments in Food Freezing <i>R. Paul Singh and Jatal D. Mannaperuma</i> | 309 |
| 12 | Developments in Microwave Food Processing <i>Richard E. Mudgett</i> | 359 |
| 13 | Robotics in Food Processing <i>J. Peter Clark</i> | 405 |
| 14 | Integration of Computers in Food Processing <i>Israel Saguy, Leon Levine, Stephen T. Symes, and Enrique Rotstein</i> | 415 |
| | Index | 489 |