

Contents

Part I Animal Biotechnology for the Enhancement of Meat Quality

- 1 **Transgenic Farm Animals** 3
Morse B. Solomon, Janet S. Eastridge, and Ernest W. Paroczay
- 2 **Genetic Control of Meat Quality Traits** 21
John L. Williams
- 3 **DNA-Based Traceability of Meat** 61
G.H. Shackell and K.G. Dodds

Part II Biotechnology of Starter Cultures for Meat Fermentation

- 4 **Molecular Methods for Identification of Microorganisms
in Traditional Meat Products** 91
Luca Cocolin, Paola Dolci, and Kalliopi Rantsiou
- 5 **Characteristics and Applications of Microbial Starters in Meat
Fermentations** 129
Pier Sandro Coconcelli and Cecilia Fontana
- 6 **Genetics of Lactic Acid Bacteria** 149
Monique Zagorec, Jamila Anba-Mondoloni, Anne-Marie Crutz-Le Coq,
and Marie-Christine Champomier-Vergès
- 7 **Genetics of Yeasts** 167
Amparo Querol, M^a Teresa Fernández-Espinar, and Carmela Belloch
- 8 **Characteristics and Applications of Molds** 181
Elisabetta Spotti, Elettra Berni, and Cristina Cacchioli

Part III Biotechnology for Better Quality and Nutritional Properties of Meat Products

- 9 Biotechnology of Flavor Generation in Fermented Meats** 199
Fidel Toldrá
- 10 Latest Developments in Probiotics** 217
Frédéric Leroy, Gwen Falony, and Luc de Vuyst
- 11 Bioactive Compounds in Meat** 231
Keizo Arihara and Motoko Ohata

Part IV Biotechnology for Safer Meat and Meat Products

- 12 Biocontrol of Pathogens in the Meat Chain** 253
Catherine M. Burgess, Lucia Rivas, Mary J. McDonnell,
and Geraldine Duffy
- 13 At-Line Methods for Controlling Microbial Growth and Spoilage
in Meat Processing Abattoirs** 289
Daniel Y.C. Fung, Jessica R. Edwards, and Beth Ann Crozier-Dodson
- 14 The Detection of Genetically Modified Organisms: An Overview** 319
Jaroslava Ovesná, Kateřina Demnerová, and Vladimíra Pouchová
- 15 Biosensors for Detecting Pathogenic Bacteria in the Meat Industry** . . . 335
Evangelyn C. Alocilja
- 16 Immunology-Based Techniques for the Detection of Veterinary
Drug Residues in Foods** 361
Milagro Reig and Fidel Toldrá
- 17 Antimicrobial Activity of Bacteriocins and Their Applications** 375
Eleftherios H. Drosinos, Marios Mataragas, and Spiros Paramithiotis
- 18 Bioprotective Cultures** 399
Graciela Vignolo, Silvina Fadda, and Patricia Castellano
- 19 Smart Packaging Technologies and Their Application
in Conventional Meat Packaging Systems** 425
Michael N. O'Grady and Joseph P. Kerry
- 20 Meat Safety and Regulatory Aspects
in the European Union** 453
Ron H. Dwinger, Thomas E. Golden, Maija Hatakka, and Thierry Chalus