

Contents

Part I Biological Hazards in Meat and Processed Meats

1 Main Concerns of Pathogenic Microorganisms in Meat	3
Birgit Nørrung, Jens Kirk Andersen, and Sava Buncic	
2 Fate of <i>Escherichia coli</i> O157:H7 in Meat	31
Angela Laury, Alejandro Echeverry, and Mindy Brashears	
3 Insights into Fresh Meat Spoilage	55
Spiros Paramithiotis, P.N. Skandamis, and George-John E. Nychas	
4 Mycotoxins in Meat and Processed Meat Products	83
Jean- Denis Bailly and Philippe Guerre	
5 Transmissible Spongiform Encephalopathy and Meat Safety	125
Hester J. T. Ward and Richard S.G. Knight	

Part II Decontamination and/or Protection Technologies for Meat Processing

6 Strategies for On-Line Decontamination of Carcasses	149
Oleksandr A. Byelashov and John N. Sofos	
7 Advanced Decontamination Technologies: High Hydrostatic Pressure on Meat Products	183
Margarita Garriga and Teresa Aymerich	
8 Advanced Decontamination Technologies: Irradiation	209
Eun Joo Lee and Dong U. Ahn	
9 Control of Thermal Meat Processing	229
Carl L. Griffis and Tareq M. Osaili	

10 Antimicrobials Treatment 255
 Eleftherios H. Drosinos, Panagiotis N. Skandamis,
 and Marios Mataragas

11 Biopreservation 297
 Bruna C. Gomes, Lizziane K. Winkelströter, Fernanda B. dos Reis,
 and Elaine C. P. De Martinis

**12 Oxidative Changes and Their Control in Meat
 and Meat Products** 313
 Karl-Otto Honikel

**Part III Non-Biological Residues and Contaminants in Meat
 and Processed Meats**

13 Polycyclic Aromatic Hydrocarbons in Smoked Meats 343
 Peter Šimko

**14 Veterinary Drugs and Growth Promoters Residues in Meat
 and Processed Meats** 365
 Milagro Reig and Fidel Toldrá

15 Priority Environmental Chemical Contaminants in Meat 391
 Gianfranco Brambilla, Annalaura Iamiceli,
 and Alessandro diDomenico

**Part IV Current Methodologies for the Detection of Contaminants
 in Meat and Processed Meats**

**16 Real-Time PCR Methods for Detection of Foodborne Bacterial
 Pathogens in Meat and Meat Products** 427
 Marta Hernández, Flemming Hansen, Nigel Cook,
 and David Rodríguez-Lázaro

**17 Detecting and Tracking Emerging Pathogenic and Spoilage
 Bacteria from Farm to Fork** 447
 Geraldine Duffy

18 Molecular Analysis of Pathogenic Bacteria and Their Toxins 461
 Catherine M. Logue and Lisa K. Nolan

**19 Methodologies for the Detection of BSE Risk Material in Meat
 and Meat Products** 499
 Ernst Lücker

20 GMO Detection 515
Jaroslava Ovesná, Kateřina Demnerová,
and Vladimíra Pouchová

Part V Risk Assessment and Regulations on Meat Safety

21 Principles of Predictive Modeling 535
Marie Laure Delignette-Muller

22 Predictive Modeling of Pathogen Growth in Cooked Meats. 559
Harshavardhan Thippareddi, Jeyamkondan Subbiah,
Nageswara Rao Korasapati, and Marcos X. Sanchez-Plata

23 Microbiological Quantitative Risk Assessment 591
Silvia Dominguez and Donald W. Schaffner

**24 Quantitative Risk Assessment of Bovine Spongiform
Encephalopathy 615**
Toshiyuki Tsutsui and Fumiko Kasuga

**25 Regulations on Meat Hygiene and Safety in the European
Union 631**
Ron H. Dwinger, Thomas E. Golden, Maija Hatakka,
and Thierry Chalus

26 Regulations on Meat Hygiene in the USA 649
Robert (Skip) A. Seward

Index 685