Contents

Part I  Introduction and Overview

The Microbiological Safety of Spices and Low-Water Activity Foods: Correcting Historic Misassumptions .................................. 3
Joshua B. Gurtler, Michael P. Doyle, and Jeffrey L. Kornacki

Challenges in the Control of Foodborne Pathogens in Low-Water Activity Foods and Spices ...................................................... 15
Sofia M. Santillana Farakos and Joseph F. Frank

Part II  Pathogen Persistence and Control in Low a_w Foods and Processing Plants

Adaptation of Pathogenic Microorganisms to Dry Conditions ............... 37
Pieter Breeuwer

Transcriptomic Responses of Salmonella Species to Desiccation and Low-Moisture Environments: Extending Our Knowledge of How Bacteria Cope with Low-Moisture Stress ........................................ 49
Sarah Finn, Peter McClure, Alejandro Amézquita, and Séamus Fanning

Processing Plant Investigations: Practical Approaches to Determining Sources of Persistent Bacterial Strains in the Industrial Food Processing Environment ...................................................... 67
Jeffrey L. Kornacki

Dry Cleaning, Wet Cleaning, and Alternatives to Processing Plant Hygiene and Sanitation ......................................................... 85
Scott L. Burnett and Robert Hagberg
Contents

Part III  Low $a_w$ Food Commodities of Interest

Spices ................................................................. 99
Joan M. Pinkas and Susanne E. Keller

Dried Dairy-Based Products .................................................. 115
Jeffrey L. Kornacki and Greg Desautels

Low-Water Activity Meat Products ........................................... 127
Peter J. Taormina and John N. Sofos

Dried Ready-to-Eat Cereal Products ........................................ 165
Scott K. Hood

Powdered Infant Formula .................................................... 177
Stephen Forsythe

Nuts and Nut Pastes .............................................................. 213
John C. Frelka and Linda J. Harris

Flour and Meal ................................................................. 245
Deann Akins-Lewenthal

Chocolate and Confectionary .................................................. 269
David C. Bean and Laurie S. Post

Salty Snack Foods ............................................................... 295
Jeff Kuehm and Diana Casas

Pet Foods ............................................................................. 315
Bradley A. Stawick and Jeffrey L. Kornacki

Dried Teas and Herbs ............................................................ 329
Li Maria Ma, Shefali Dobhal, and Chris Timmons

Part IV  Product Testing

Regulatory Testing Guidelines and Recommendations .............. 347
Warren E. Stone

Methodological and Sampling Challenges to Testing Spices and
Low-Water Activity Food for the Presence of Foodborne Pathogens .................................................................. 367
Jean-Louis Cordier
Contents

Part V  Low $a_w$ Food Decontamination

Irradiation, Microwave, and Alternative Energy-Based Treatments for Low-Water Activity Foods ........................................................... 389
Brendan A. Niemira

Heat and Steam Treatments ........................................................................... 403
Elizabeth M. Grasso, Christina N. Stam, Nathan M. Anderson,
and Kathiravan Krishnamurthy

Part VI  Research Needs

Research Gaps and Needs Pertaining to Microbial Pathogens in Spices and Low-$a_w$ Foods ................................................................. 427
Margaret Hardin

Index ............................................................................................................... 441
The Microbiological Safety of Low Water Activity Foods and Spices
Gurtler, J.B.; Doyle, M.P.; Kornacki, J.L. (Eds.)
2014, VII, 444 p. 40 illus., 34 illus. in color., Hardcover
ISBN: 978-1-4939-2061-7