The Microbiological Safety Of Low Water Activity Foods And Spices Food Microbiology And Food Safety

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Microbiological Safety and Quality of Food - Anthony C. Baird-Parker 2000
This authoritative two-volume reference provides valuable, necessary information on the principles underlying the production of microbiologically safe and stable foods. The work begins with an overview and then addresses four major areas: 'Principles and application of food preservation techniques' covers the specific techniques that defeat growth of harmful microorganisms, how those techniques work, how they are

used, and how their effectiveness is measured. 'Microbial ecology of different types of food' provides a food-by-food accounting of food composition, naturally occurring microflora, effects of processing, how spoiling can occur, and preservation. 'Foodborne pathogens' profiles the most important and the most dangerous microorganisms that can be found in foods, including bacteria, viruses, parasites, mycotoxins, and 'mad cow disease.' The section also looks at the economic aspects and long-term consequences of foodborne disease. 'Assurance of the microbiological safety and quality of foods' scrutinizes all aspects of quality assurance, including HACCP, hygienic factory design, methods of detecting organisms, risk assessment, legislation, and the design and accreditation of food microbiology laboratories. Tables, photographs, illustrations, chapter-by-chapter references, and a thorough index complete each volume. This reference is of value to all academic, research, industrial and laboratory libraries supporting food programs; and all institutions involved in food safety, microbiology and food microbiology, quality assurance and assessment, food legislation, and generally food science and technology.

Water Activity and Food - John Troller 2012-12-02

Water Activity and Food explores the role of water activity in the water relations of microorganisms and in food processing, packaging, and storage. It reviews the literature and provides numerous examples demonstrating the use of water activity to predict the reactions of microorganisms or the stability of food components. It also highlights cases where water activity is not a reliable predictor of events and considers some interesting interactions with other environmental parameters. Comprised of 11 chapters, this volume begins with an overview of water in foods and

solutions, water activity values for foods, and water relations of enzyme activity. It then discusses lipid oxidation, enzyme reactions and non-enzymatic browning, and several other food-related factors. The reader is also introduced to water relations of microbial growth; the effects of water on microbial survival; the spoilage and preservation of foods at various levels of water activity; the water relations of food-borne pathogens such as Salmonella and toxigenic molds; the importance of water activity in non-microbiological aspects of food processing and storage; and the influence of atmospheric relative humidity on sanitation and the protection of food products. This book is an important source of information for researchers in food microbiology and microbial water relations.

Olives and Olive Oil in Health and Disease Prevention - Victor R. Preedy 2020-12-02

Olives and Olive Oil in Health and Disease Prevention, Second Edition expands the last releases content and coverage, including new sections on materials in packaging, the Mediterranean diet, metabolic syndrome, diabetic health, generational effects, epigenetics, glycemic control, ketogenic diet, antioxidant effects, the use of olive oil in protection against skin cancer, oleuropein and ERK1/2 MAP-Kinase, oleocanthal and estrogen receptors, and oleocanthal and neurological effects. The book is a valuable resource for food and health researchers, nutritionists, dieticians, pharmacologists, public health scientists, epidemiologists, food technologists, agronomists, analytical chemists, biochemists, biologists, physicians, biotechnologists and students. Continues the tradition of exploring olives and olive oil from general aspects down to a detailed level of important micro-and micronutrients Explains how olive oil compares to other oils Details the many implications for

human health and disease, including metabolic health, cardiovascular health and effects on tissue and body systems

Water Activity - Rockland 2017-11-22

This book presents the proceedings of the Tenth Basic Symposium sponsored by the Institute of Food Technologists and the International Union of Food Science and Technology. The key aim of the Symposium was to explore some basic principles relating to the influences of water activity on food quality.

Intermittent and Nonstationary Drying Technologies - Azharul Karim 2017-09-18

The first comprehensive book on intermittent drying, Intermittent and Nonstationary Drying Technologies: Principles and Applications demonstrates the benefits of this process and covers key issues, including technologies, effect of operating parameters, mathematical modelling, energy-efficiency, and product quality. It discusses such topics as periodic drying, conventional and intermittent food drying processes and food quality, relationship among intermittency of drying, microstructural changes, and food quality, microwave assisted pulsed fluidized and spouted bed drying, and cellular level water distribution. Aimed at food engineers, chemical product engineers, pharmaceutical engineers and technologists, plant design engineers, and researchers and students in these areas, this useful reference helps readers:

Introduction to Food Engineering - R. Paul Singh 2001-06-29

Food engineering is a required class in food science programs, as outlined by the Institute for Food Technologists (IFT). The concepts and applications are also required for professionals in food processing and manufacturing to attain the highest standards of food safety and quality. The third edition of this successful textbook succinctly presents the engineering concepts and

unit operations used in food processing, in a unique blend of principles with applications. The authors use their many years of teaching to present food engineering concepts in a logical progression that covers the standard course curriculum. Each chapter describes the application of a particular principle followed by the quantitative relationships that define the related processes, solved examples, and problems to test understanding. The subjects the authors have selected to illustrate engineering principles demonstrate the relationship of engineering to the chemistry, microbiology, nutrition and processing of foods. Topics incorporate both traditional and contemporary food processing operations.

Food Spoilage Microorganisms - Clive de W Blackburn 2006-03-21

The control of microbiological spoilage requires an understanding of a number of factors including the knowledge of possible hazards, their likely occurrence in different products, their physiological properties and the availability and effectiveness of different preventative measures. Food spoilage microorganisms focuses on the control of microbial spoilage and provides an understanding necessary to do this. The first part of this essential new book looks at tools, techniques and methods for the detection and analysis of microbial food spoilage with chapters focussing on analytical methods, predictive modelling and stability and shelf life assessment. The second part tackles the management of microbial food spoilage with particular reference to some of the major food groups where the types of spoilage, the causative microorganisms and methods for control are considered by product type. The following three parts are then dedicated to yeasts, moulds and bacteria in turn, and look in more detail at the major organisms of significance for food spoilage. In each chapter the taxonomy,

spoilage characteristics, growth, survival and death characteristics, methods for detection and control options are discussed. Food spoilage microorganisms takes an applied approach to the subject and is an indispensable guide both for the microbiologist and the non-specialist, particularly those whose role involves microbial quality in food processing operations. Looks at tools, techniques and methods for the detection and analysis of microbial food spoilage Discusses the management control of microbial food spoilage Looks in detail at yeasts, moulds and bacteria

The Microbiological Safety of Food - Great Britain. Committee on the Microbiological Safety of Food 1990

Handbook of Food Preservation - Mohammad Shafiur Rahman 2020-06-10 The processing of food is no longer simple or straightforward, but is now a highly inter-disciplinary science. A number of new techniques have developed to extend shelf-life, minimize risk, protect the environment, and improve functional, sensory, and nutritional properties. Since 1999 when the first edition of this book was published, it has facilitated readers' understanding of the methods, technology, and science involved in the manipulation of conventional and newer sophisticated food preservation methods. The Third Edition of the Handbook of Food Preservation provides a basic background in postharvest technology for foods of plant and animal origin, presenting preservation technology of minimally processed foods and hurdle technology or combined methods of preservation. Each chapter compiles the mode of food preservation, basic terminologies, and sequential steps of treatments, including types of equipment required. In addition, chapters present how preservation method affects the products, reaction kinetics and selected prediction models related to food stability, what

conditions need be applied for best quality and safety, and applications of these preservation methods in different food products. This book emphasizes practical, cost-effective, and safe strategies for implementing preservation techniques for wide varieties of food products. Features: Includes extensive overview on the postharvest handling and treatments for foods of plants and animal origin Describes comprehensive preservation methods using chemicals and microbes, such as fermentation, antimicrobials, antioxidants, pH-lowering, and nitrite Explains comprehensive preservation by controlling of water, structure and atmosphere, such as water activity, glass transition, state diagram, drying, smoking, edible coating, encapsulation and controlled release Describes preservation methods using conventional heat and other forms of energy, such as microwave, ultrasound, ohmic heating, light, irradiation, pulsed electric field, high pressure, and magnetic field Revised, updated, and expanded with 18 new chapters, the Handbook of Food Preservation, Third Edition, remains the definitive resource on food preservation and is useful for practicing industrial and academic food scientists, technologists, and engineers.

Food Safety Management - Yasmine Motarjemi 2013-11-01 Food Safety Management: A Practical Guide for the Food Industry with an Honorable Mention for Single Volume Reference/Science in the 2015 PROSE Awards from the Association of American Publishers is the first book to present an integrated, practical approach to the management of food safety throughout the production chain. While many books address specific aspects of food safety, no other book guides you through the various risks associated with each sector of the production process or alerts you to the measures needed to mitigate those risks. Using practical examples of incidents and their

root causes, this book highlights pitfalls in food safety management and provides key insight into the means of avoiding them. Each section addresses its subject in terms of relevance and application to food safety and, where applicable, spoilage. It covers all types of risks (e.g., microbial, chemical, physical) associated with each step of the food chain. The book is a reference for food safety managers in different sectors, from primary producers to processing, transport, retail and distribution, as well as the food services sector. Honorable Mention for Single Volume Reference/Science in the 2015 PROSE Awards from the Association of American Publishers Addresses risks and controls (specific technologies) at various stages of the food supply chain based on food type, including an example of a generic HACCP study Provides practical guidance on the implementation of elements of the food safety assurance system Explains the role of different stakeholders of the food supply

Microbial Contamination and Food Degradation - Alexandru Mihai Grumezescu 2017-11-03 Microbial Contamination and Food Degradation, Volume 10 in the Handbook of Food Bioengineering series, provides an understanding of the most common microbial agents involved in food contamination and spoilage, and highlights the main detection techniques to help pinpoint the cause of contamination. Microorganisms may cause health-threatening conditions directly by being ingested together with contaminated food, or indirectly by producing harmful toxins and factors that can cause food borne illness. This resource discusses the potential sources of contamination, the latest advances in contamination research and strategies to prevent contamination using key methods of analysis and evaluation. Presents modern alternatives for avoiding microbial spoilage and food degradation using preventative and intervention technologies

Provides key methods for addressing microbial contamination and preventing food borne illness through research and risk assessment analysis Includes detailed information on bacterial contamination problems in different environmental environments and the methodologies to help solve those problems

Emerging Technologies for Food Processing - Da-Wen Sun 2005-07-19

Emerging Technologies for Food Processing presents a comprehensive review of innovations in food processing, stresses topics vital to the food industry today, and pinpoints the trends in future research and development. This volume contains 27 chapters and is divided into six parts covering topics such as the latest advances in non-thermal processing, alternative technologies and strategies for thermal processing, the latest developments in food refrigeration, and current topics in minimal processing of vegetables, fruits, juices and cook-chill ready meals and modified atmosphere packaging for minimally processed foods. * Each chapter is written by international experts presenting thorough research results and critical reviews * Includes a comprehensive list of recently published literature * Covers topics such as high pressure, pulsed electric fields, recent developments in microwave heating, and vacuum cooling

Water Activity in Foods - Gustavo V. Barbosa-Cánovas 2020-05-12

This second edition of Water Activity in Foods furnishes those working within food manufacturing, quality control, and safety with a newly revised guide to water activity and its role in the preservation and processing of food items. With clear, instructional prose and illustrations, the book's international team of contributors break down the essential principles of water activity and water–food interactions, delineating water's crucial impact upon

attributes such as flavor, appearance, texture, and shelf life. The updated and expanded second edition continues to offer an authoritative overview of the subject, while also broadening its scope to include six newly written chapters covering the latest developments in water activity research. Exploring topics ranging from deliquescence to crispness, these insightful new inclusions complement existing content that has been refreshed and reconfigured to support the food industry of today.

The Microbiology of Safe Food - Stephen J. Forsythe 2008-04-15

The book will provide an overview of the important issues in food safety, which shows no sign of diminishing as a topic of huge concern from industry to consumer. The book does not set out to compete with large standard food microbiology titles that are well established, but will be a companion text with less scientific background detail and more information for those actually going into jobs where a practical knowledge of food safety issues is necessary. The companion website for this book can be found at: http://www.foodmicrobe.com/info.htm Practically oriented Author has wide experience of teaching cutting edge food safety information Topic of great and growing concern Succinct, core, vital information for food industry personnel

Water Stress in Biological, Chemical, Pharmaceutical and Food Systems - Gustavo F. Gutiérrez-López 2015-07-23

Water Stress Management contains the invited lectures and selected oral and poster presentations of the 11th International Symposium on the Properties of Water (ISOPOW), which was held in Queretaro, Mexico 5-9 September 2010. The text provides a holistic description and discussion of state-of-the-art topics on the role of water in Biological, Chemical, Pharmaceutical and Food systems within a frame of an integrated approach and future

trends on the subject. Different points-of-view about the state of water and phase transitions in a variety of substrates are presented. ISOPOW is a non-profit scientific organization whose activities aim at progressing the understanding of the properties of water in food and related biological systems and the exploitation of this understanding in improved raw materials, products and processes in the food, agro food or related industries. The first Symposium was organized in Glasgow, Scotland in 1974. Since then, ISOPOW meetings have promoted the exchange of knowledge between scientists involved in the study of food materials and scientists interested in water from a more basic point of view and the dialogue between academic and industrial scientists/technologists.

Micro-facts - Peter Wareing 2010

Micro-facts has proved to be a useful ready reference for practising food microbiologists and others concerned with ensuring the microbiological safety of foods.

Microbiological Examination Methods of Food and Water - Neusely da Silva 2018-11-13

Microbiological Examination Methods of Food and Water (2nd edition) is an illustrated laboratory manual that provides an overview of current standard microbiological culture methods for the examination of food and water, adhered to by renowned international organizations, such as ISO, AOAC, APHA, FDA and FSIS/USDA. It includes methods for the enumeration of indicator microorganisms of general contamination, indicators of hygiene and sanitary conditions, sporeforming, spoilage fungi and pathogenic bacteria. Every chapter begins with a comprehensive, in-depth and updated bibliographic reference on the microorganism(s) dealt with in that particular section of the book. The latest facts on the taxonomic position of each group, genus or species are given, as well as clear

guidelines on how to deal with changes in nomenclature on the internet. All chapters provide schematic comparisons between the methods presented, highlighting the main differences and similarities. This allows the user to choose the method that best meets his/her needs. Moreover, each chapter lists validated alternative quick methods, which, though not described in the book, may and can be used for the analysis of the microorganism(s) dealt with in that particular chapter. The didactic setup and the visualization of procedures in step-by-step schemes allow the user to quickly perceive and execute the procedure intended. Support material such as drawings, procedure schemes and laboratory sheets are available for downloading and customization. This compendium will serve as an up-to-date practical companion for laboratory professionals, technicians and research scientists, instructors, teachers and food and water analysts. Alimentary engineering, chemistry, biotechnology and biology (under)graduate students specializing in food sciences will also find the book beneficial. It is furthermore suited for use as a practical/laboratory manual for graduate courses in Food Engineering and Food Microbiology.

The Microbiological Safety of Low Water Activity Foods and Spices - Joshua B. Gurtler 2016-09-22

Low water activity (aw) and dried foods such as dried dairy and meat products, grain-based and dried ready-to-eat cereal products, powdered infant formula, peanut and nut pastes, as well as flours and meals have increasingly been associated with product recalls and foodborne outbreaks due to contamination by pathogens such as Salmonella spp. and enterohemorrhagic E. coli. In particular, recent foodborne outbreaks and product recalls related to Salmonella-contaminated spices have raised the level of public health concern for spices as agents of foodborne illnesses. Presently,

most spices are grown outside the U.S., mainly in 8 countries: India, Indonesia, China, Brazil, Peru, Madagascar, Mexico and Vietnam. Many of these countries are under-developed and spices are harvested and stored with little heed to sanitation. The FDA has regulatory oversight of spices in the United States; however, the agency's control is largely limited to enforcing regulatory compliance through sampling and testing only after imported foodstuffs have crossed the U.S. border. Unfortunately, statistical sampling plans are inefficient tools for ensuring total food safety. As a result, the development and use of decontamination treatments is key. This book provides an understanding of the microbial challenges to the safety of low aw foods, and a historic backdrop to the paradigm shift now highlighting low aw foods as vehicles for foodborne pathogens. Up-to-date facts and figures of foodborne illness outbreaks and product recalls are included. Special attention is given to the uncanny ability of Salmonella to persist under dry conditions in food processing plants and foods. A section is dedicated specifically to processing plant investigations, providing practical approaches to determining sources of persistent bacterial strains in the industrial food processing environment. Readers are guided through dry cleaning, wet cleaning and alternatives to processing plant hygiene and sanitation. Separate chapters are devoted to low aw food commodities of interest including spices, dried dairy-based products, low aw meat products, dried ready-to-eat cereal products, powdered infant formula, nuts and nut pastes, flours and meals, chocolate and confectionary, dried teas and herbs, and pet foods. The book provides regulatory testing guidelines and recommendations as well as guidance through methodological and sampling challenges to testing spices and low aw foods for the presence of foodborne pathogens. Chapters also

address decontamination processes for low aw foods, including heat, steam, irradiation, microwave, and alternative energy-based treatments.

Strategies to Reduce Sodium Intake in the United States - Institute of Medicine 2010-11-14

Reducing the intake of sodium is an important public health goal for Americans. Since the 1970s, an array of public health interventions and national dietary guidelines has sought to reduce sodium intake. However, the U.S. population still consumes more sodium than is recommended, placing individuals at risk for diseases related to elevated blood pressure. Strategies to Reduce Sodium Intake in the United States evaluates and makes recommendations about strategies that could be implemented to reduce dietary sodium intake to levels recommended by the Dietary Guidelines for Americans. The book reviews past and ongoing efforts to reduce the sodium content of the food supply and to motivate consumers to change behavior. Based on past lessons learned, the book makes recommendations for future initiatives. It is an excellent resource for federal and state public health officials, the processed food and food service industries, health care professionals, consumer advocacy groups, and academic researchers.

The Microbiological Safety of Low Water Activity Foods and Spices - Joshua B. Gurtler 2014-12-08

Low water activity (aw) and dried foods such as dried dairy and meat products, grain-based and dried ready-to-eat cereal products, powdered infant formula, peanut and nut pastes, as well as flours and meals have increasingly been associated with product recalls and foodborne outbreaks due to contamination by pathogens such as Salmonella spp. and enterohemorrhagic E. coli. In particular, recent foodborne outbreaks and product recalls related to Salmonella-contaminated spices have raised the level of public health

concern for spices as agents of foodborne illnesses. Presently, most spices are grown outside the U.S., mainly in 8 countries: India, Indonesia, China, Brazil, Peru, Madagascar, Mexico and Vietnam. Many of these countries are under-developed and spices are harvested and stored with little heed to sanitation. The FDA has regulatory oversight of spices in the United States; however, the agency's control is largely limited to enforcing regulatory compliance through sampling and testing only after imported foodstuffs have crossed the U.S. border. Unfortunately, statistical sampling plans are inefficient tools for ensuring total food safety. As a result, the development and use of decontamination treatments is key. This book provides an understanding of the microbial challenges to the safety of low aw foods, and a historic backdrop to the paradigm shift now highlighting low aw foods as vehicles for foodborne pathogens. Up-to-date facts and figures of foodborne illness outbreaks and product recalls are included. Special attention is given to the uncanny ability of Salmonella to persist under dry conditions in food processing plants and foods. A section is dedicated specifically to processing plant investigations, providing practical approaches to determining sources of persistent bacterial strains in the industrial food processing environment. Readers are guided through dry cleaning, wet cleaning and alternatives to processing plant hygiene and sanitation. Separate chapters are devoted to low aw food commodities of interest including spices, dried dairy-based products, low aw meat products, dried ready-to-eat cereal products, powdered infant formula, nuts and nut pastes, flours and meals, chocolate and confectionary, dried teas and herbs, and pet foods. The book provides regulatory testing guidelines and recommendations as well as guidance through methodological and sampling challenges to testing spices and low aw foods for the

presence of foodborne pathogens. Chapters also address decontamination processes for low aw foods, including heat, steam, irradiation, microwave, and alternative energy-based treatments.

Control of Salmonella and Other Bacterial Pathogens in Low-Moisture Foods - Richard Podolak 2017-09-05

The first and only comprehensive reference/solutions manual for managing food safety in low-moisture foods The first book devoted to an increasingly critical public health issue, Control of Salmonella and Other Bacterial Pathogens in Low-Moisture Foods reviews the current state of the science on the prevalence and persistence of bacterial pathogens in low-moisture foods and describes proven techniques for preventing food contamination for manufacturers who produce those foods. Many pathogens, such as Salmonella, due to their enhanced thermal resistance in dry environments, can survive the drying process and may persist for prolonged periods in low-moisture foods, especially when stored in refrigerated environments. Bacterial contamination of low-moisture foods, such as peanut butter, present a vexing challenge to food safety, and especially now, in the wake of widely publicized food safety related events, food processors urgently need up-to-date, practical information on proven measures for containing the risk of contamination. While much has been written on the subject, until now it was scattered throughout the world literature in scientific and industry journals. The need for a comprehensive treatment of the subject has never been greater, and now this book satisfies that need. Discusses a wide variety of foods and evaluates multiple processing platforms from the standpoint of process validation of all food safety objectives for finished food products Takes a practical approach integrating the latest scientific and technological advances in a handy working

resource Presents all known sources and risk factors for pathogenic bacteria of concern in the manufacturing environment for low-moisture/water activity products Characterizes the persistence and thermal resistance of bacterial pathogens in both the environment and most low-moisture food products Control of Salmonella and Other Bacterial Pathogens in Low-Moisture Foods is a much-needed resource for food microbiologists and food industry scientists, as well as managers and executives in companies that produce and use low-moisture foods. It also belongs on the reference shelves of food safety regulatory agencies worldwide.
Compendium of Methods for the Microbiological Examination of Foods - Yvonne Salfinger 2015-06

Antimicrobials in Food - P. Michael Davidson 2020-11-10
Fifteen years have passed since the 3rd edition of Antimicrobials in Food was published. It was arguably considered the "must-have" reference for those needing information on chemical antimicrobials used in foods. In the years since the last edition, the food industry has undergone radical transformations because of changes on several fronts. Reported consumer demands for the use of "natural" and "clean-label" antimicrobials have increased significantly. The discovery of new foodborne pathogen niches and potentially hazardous foods, along with a critical need to reduce food spoilage waste, has increased the need for suitable antimicrobial compounds or systems. Novel natural antimicrobials continue to be discovered, and new research has been carried out on traditional compounds. These and other related issues led the editors to develop the 4th edition of Antimicrobials in Food. In the 4th edition, the editors have compiled contemporary topics with information synthesized from internationally recognized

authorities in their fields. In addition to updated information, new chapters have been added in this latest release with content on the use of bacteriophages, lauric arginate ester, and various systems for antimicrobial encapsulation and delivery. Comprehensive revisions of landmark chapters in previous editions including naturally occurring antimicrobials from both animal and plant sources, methods for determining antimicrobial activity, new approaches to multifactorial food preservation or "hurdle technology," and mechanisms of action, resistance, and stress adaptation are included. Complementing these topics is new information on quantifying the capability of "clean" antimicrobials for food preservation when compared to traditional food preservatives and industry considerations when antimicrobials are evaluated for use in food manufacture. Features Covers all food antimicrobials, natural and synthetic, with the latest research on each type Contains 5,000+ references on every conceivable food antimicrobial Guides in the selection of appropriate additives for specific food products Includes innovations in antimicrobial delivery technologies and the use of multifactorial food preservation with antimicrobials

Quantitative Microbiology in Food Processing - Anderson de Souza Sant'Ana 2016-12-15 Microorganisms are essential for the production of many foods, including cheese, yoghurt, and bread, but they can also cause spoilage and diseases. Quantitative Microbiology of Food Processing: Modeling the Microbial Ecology explores the effects of food processing techniques on these microorganisms, the microbial ecology of food, and the surrounding issues concerning contemporary food safety and stability. Whilst literature has been written on these separate topics, this book seamlessly integrates all these concepts in a unique and comprehensive guide. Each chapter includes

background information regarding a specific unit operation, discussion of quantitative aspects, and examples of food processes in which the unit operation plays a major role in microbial safety. This is the perfect text for those seeking to understand the quantitative effects of unit operations and beyond on the fate of foodborne microorganisms in different foods. Quantitative Microbiology of Food Processing is an invaluable resource for students, scientists, and professionals of both food engineering and food microbiology.

Foodborne Pathogens - Joshua B. Gurtler 2017-06-14 Foodborne illnesses continue to be a major public health concern. All members of a particular bacterial genera (e.g., Salmonella, Campylobacter) or species (e.g., Listeria monocytogenes, Cronobacter sakazakii) are often treated by public health and regulatory agencies as being equally pathogenic; however, this is not necessarily true and is an overly conservative approach to ensuring the safety of foods. Even within species, virulence factors vary to the point that some isolates may be highly virulent, whereas others may rarely, if ever, cause disease in humans. Hence, many food safety scientists have concluded that a more appropriate characterization of bacterial isolates for public health purposes could be by virotyping, i.e., typing food-associated bacteria on the basis of their virulence factors. The book is divided into two sections. Section I, “Foodborne Pathogens and Virulence Factors,” hones in on specific virulence factors of foodborne pathogens and the role they play in regulatory requirements, recalls, and foodborne illness. The oft-held paradigm that all pathogenic strains are equally virulent is untrue. Thus, we will examine variability in virulence between strains such as Listeria, Salmonella, Campylobacter, Cronobacter, etc. This section also examines known factors

capable of inducing greater virulence in foodborne pathogens. Section II, “Foodborne Pathogens, Host Susceptibility, and Infectious Dose” , covers the ability of a pathogen to invade a human host based on numerous extraneous factors relative to the host and the environment. Some of these factors include host age, immune status, genetic makeup, infectious dose, food composition and probiotics. Readers of this book will come away with a better understanding of foodborne bacterial pathogen virulence factors and pathogenicity, and host factors that predict the severity of disease in humans.

Bad Bug Book - Mark Walderhaug 2014-01-14

The Bad Bug Book 2nd Edition, released in 2012, provides current information about the major known agents that cause foodborne illness.Each chapter in this book is about a pathogen—a bacterium, virus, or parasite—or a natural toxin that can contaminate food and cause illness. The book contains scientific and technical information about the major pathogens that cause these kinds of illnesses.A separate “consumer box” in each chapter provides non-technical information, in everyday language. The boxes describe plainly what can make you sick and, more important, how to prevent it.The information provided in this handbook is abbreviated and general in nature, and is intended for practical use. It is not intended to be a comprehensive scientific or clinical reference.The Bad Bug Book is published by the Center for Food Safety and Applied Nutrition (CFSAN) of the Food and Drug Administration (FDA), U.S. Department of Health and Human Services.

Water activity applications in the pharmaceutical industry - Anthony J. Fontana 2009

Control of Salmonella and Other Bacterial Pathogens in Low-Moisture Foods - Richard Podolak 2017-07-03

The first and only

comprehensive reference/solutions manual for managing food safety in low-moisture foods The first book devoted to an increasingly critical public health issue, Control of Salmonella and Other Bacterial Pathogens in Low-Moisture Foods reviews the current state of the science on the prevalence and persistence of bacterial pathogens in low-moisture foods and describes proven techniques for preventing food contamination for manufacturers who produce those foods. Many pathogens, such as Salmonella, due to their enhanced thermal resistance in dry environments, can survive the drying process and may persist for prolonged periods in low-moisture foods, especially when stored in refrigerated environments. Bacterial contamination of low-moisture foods, such as peanut butter, present a vexing challenge to food safety, and especially now, in the wake of widely publicized food safety related events, food processors urgently need up-to-date, practical information on proven measures for containing the risk of contamination. While much has been written on the subject, until now it was scattered throughout the world literature in scientific and industry journals. The need for a comprehensive treatment of the subject has never been greater, and now this book satisfies that need. Discusses a wide variety of foods and evaluates multiple processing platforms from the standpoint of process validation of all food safety objectives for finished food products Takes a practical approach integrating the latest scientific and technological advances in a handy working resource Presents all known sources and risk factors for pathogenic bacteria of concern in the manufacturing environment for low-moisture/water activity products Characterizes the persistence and thermal resistance of bacterial pathogens in both the environment and most low-moisture food products Control of Salmonella and Other

Bacterial Pathogens in Low-Moisture Foods is a much-needed resource for food microbiologists and food industry scientists, as well as managers and executives in companies that produce and use low-moisture foods. It also belongs on the reference shelves of food safety regulatory agencies worldwide.

Food Safety Management - Anett Winkler 2013-11-01

Food safety management in cocoa and chocolate focuses mainly on incoming hazards and their controls at different stages of processing, as well as prevention of recontamination during further processing. Due to the nature of the products (low moisture, high fat) some specifics need to be taken into account in order to ensure efficient and successful food safety management. The risks associated with these products had been recognized by European industry organizations for chocolate, confectionery and biscuits. In the 1990s, the IOCCC published two codes of practice: one based on the HACCP, and one for specific GMPs for the cocoa, chocolate and confectionery industry [(Caobisco) Brochures available from CAOBISCO (Association of Chocolate, Biscuit and Confectionery Industry of the EU).(accessed 02.06.11)]. The microbiological safety of chocolate products can be ensured by consequent application of the HACCP concept and adherence to prerequisite programs to ensure good manufacturing and agricultural practices, throughout the whole processing chain. This includes not only the final processing steps of making chocolate, but starts at the level – and sourcing – of raw agricultural materials used in chocolate making like cocoa and nuts. Microbial data can play an important role in the verification of implemented controls, but their validity and limitations need to be understood (Kvenberg, J.E., Schwalm, D.J., 2000. Use of microbial data for hazard analysis and critical control point verification – Food and

Drug Administration perspective. J. Food Prot. 63 (6), 810 -814; Swanson, K.M.J., Anderson, J.E., 2000. Industry perspective on the use of microbial data for hazard analysis and critical control point validation and verification. J. Food Prot. 63 (6), 815–818; Kornacki, J.L., 2006. Microbiological sampling in the dry foods processing environment. Food Safety. Mag., pp.66).

Microbiology Laboratory Guidebook - United States. Food Safety and Inspection Service. Microbiology Division 1998

Ranking of low-moisture foods in support of microbiological risk management: Meeting report and systematic review - Food and Agriculture Organization of the United Nations 2022-07-22

Low-moisture foods (LMF) are foods that are naturally low in moisture or are produced from higher moisture foods through drying or dehydration processes. These foods typically have a long shelf life and have been perceived for many years to not represent microbiological food safety risk hazards. However, in recent years, a number of outbreaks of foodborne illnesses linked to LMF has illustrated that despite the fact that microorganisms cannot grow in these products, bacteria do have the possibility to persist for long periods of time in these matrices. Responding to a request from the Codex Committee on Food Hygiene (CCFH), the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) implemented a series of activities aimed at collating and analysing the available information on microbiological hazards related to LMF and ranking the foods of greatest concern from a microbiological food safety perspective. Seven categories of LMF which were ultimately included in the ranking process, and the output of the risk ranking, in descending order was as follows: cereals and grains; dried protein products; spices

and dried herbs; nuts and nut products; confections and snacks; dried fruits and vegetables; and seeds for consumption.

The Microbiological Safety of Food in Healthcare Settings - Barbara Lund 2008-04-30

Drawing together the work of a wide range of experts, this extremely important book provides a clear, practical account of the salient features of foodborne pathogenic microorganisms and of the particular risks that they pose to vulnerable groups of the population in hospitals, nursing and residential homes, nurseries, and in the community at large. Chapters cover the following topics: • Properties and importance of microorganisms that cause foodborne disease • Surveillance of foodborne disease • Occurrence of foodborne disease in healthcare settings • Vulnerable groups of the population • Provisions for food and water • Implementation of safety systems Presenting a wealth of information of great importance, this comprehensive and well-edited book is a vital resource for physicians, doctors and nurses responsible for the control of infection, clinicians, physicians, public health doctors and specialists, those responsible for catering management, microbiologists, environmental health officers, food scientists and food technologists. It is also designed to be accessible to policy makers and administrators who may not have specialist training. Libraries in all universities, research establishments and medical schools where these subjects are studied and taught should have copies of this essential work on their shelves.

Microbiological safety of lipid-based ready-to-use foods for management of moderate acute malnutrition and severe acute malnutrition - Food and Agriculture Organization of the United Nations 2016-01-01

Consistent with the need to provide safe food for young children, particularly during the complementary feeding

period between 6 and 24 months and the period of rapid development to age 59 months, FAO and WHO convened a technical meeting in FAO headquarters, Rome, Italy, from 11 to 14 December 2012 that addressed the microbial safety of ready-to-use foods (RUF) for the management of acute malnutrition. The meeting was held at the request of the WFP and UNICEF to help them formulate a science-based response to the finding of Cronobacter spp. in lipid-based RUF and to provide guidance on appropriate microbiological specifications to include among other purchase requirements to enhance the safety of lipid-based RUF. This report provides an overview of the assessment of the risk posed by Cronobacter spp in this product and provides guidance to agencies distributing the product as well of the producers on how to manage this problem and minimise the risk to the vulnerable consuming popula tion.

Hurdle Technologies: Combination Treatments for Food Stability, Safety and Quality - Lothar Leistner 2012-12-06

Hurdle Technologies: Combination Treatments for Food Stability, Safety and Quality is the first work on hurdle technology in which all aspects, the possibilities and limitations of hurdle technology, are comprehensively outlined and evaluated. World-renowned on the subject, Leistner and Gould were instrumental in the development of the hurdle technology concept and in the last decades have obtained much practical experience in the application of this successful approach in the food industry worldwide.

Seafood Safety - Institute of Medicine 1991-02-01

Can Americans continue to add more seafood to their diets without fear of illness or even death? Seafood-caused health problems are not widespread, but consumers are at risk from seafood-borne microbes and toxinsâ€"with consequences that can range from mild

enteritis to fatal illness. At a time when legislators and consumer groups are seeking a sound regulatory approach, Seafood Safety presents a comprehensive set of practical recommendations for ensuring the safety of the seafood supply. This volume presents the first-ever overview of the field, covering seafood consumption patterns, where and how seafood contamination occurs, and the effectiveness of regulation. A wealth of technical information is presented on the sources of contaminationâ€"microbes, natural toxins, and chemical pollutantsâ€"and their effects on human health. The volume evaluates methods used for risk assessment and inspection sampling.

Regulating Safety of Traditional and Ethnic Foods - V. Prakash 2015-11-25

Regulating Safety of Traditional and Ethnic Foods, a compilation from a team of experts in food safety, nutrition, and regulatory affairs, examines a variety of traditional foods from around the world, their risks and benefits, and how regulatory steps may assist in establishing safe parameters for these foods without reducing their cultural or nutritive value. Many traditional foods provide excellent nutrition from sustainable resources, with some containing nutraceutical properties that make them not only a source of cultural and traditional value, but also valuable options for addressing the growing need for food resources. This book discusses these ideas and concepts in a comprehensive and scientific manner. Addresses the need for balance in safety regulation and retaining traditional food options Includes case studies from around the world to provide practical insight and guidance Presents suggestions for developing appropriate global safety standards

Foodborne Pathogenic Microorganisms & Natural Toxins - 1996

Principles of Microbiological Troubleshooting in the Industrial Food Processing

Environment - Jeffrey Kornacki 2010-05-19

Principles of Microbiological Troubleshooting in the Industrial Food Processing Environment provides proven approaches and suggestions for finding sources of microbiological contamination of industrially produced products. Industrial food safety professionals find themselves responsible for locating and eliminating the source(s) of food contamination. These are often complex situations for which they have not been adequately prepared. This book is written with them, the in-plant food safety/quality assurance professional, in mind. However, other professionals will also benefit including plant managers, regulatory field investigators, technical food safety policy makers, college instructors, and students of food science and microbiology. A survey of the personal and societal costs of microbial contamination of food is followed by a wide range of respected authors who describe selected bacterial pathogens, emerging pathogens, spoilage organisms and their significance to the industry and consumer. Dr. Kornacki then provides real life examples of in-plant risk areas / practices (depicted with photographs taken from a wide variety of food processing facilities). Factors influencing microbial growth, survival and death area also described. The reader will find herein a practical framework for troubleshooting and for assessing the potential for product contamination in their own facilities, as well as suggestions for conducting their own in-plant investigations. Selected tools for testing the environment and statistical approaches to testing ingredients and finished product are also described. The book provides suggestions for starting up after a processing line (or lines) have been shut down due to a contamination risk. The authors conclude with an overview of molecular subtyping and its value with regard to in-plant investigations. Numerous

nationally recognized authors in the field have contributed to the book. The editor, Dr. Jeffery L. Kornacki, is President and Senior Technical Director of the consulting firm, Kornacki Microbiology Solutions in Madison, Wisconsin. He is also Adjunct Faculty with the Department of Food Science at the University of Georgia and also with the National Food Safety & Toxicology Center at Michigan State University.

Applications of Cold Plasma in Food Safety - Tian Ding

An Evaluation of the Role of Microbiological Criteria for Foods and Food Ingredients - National Research Council 2018-11-10