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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
Canned Foods; Thermal Processing and Microbiology, 7th Edition - A. C. Hersom 1981-10-01
Contents - 1. Bacteria - Form; Structure; Chemical composition; Physiology; Classification - 2. True fungi - Moulds; Yeasts; Morphology; Principal groups; Biological characteristics - 3. Control of spoilage micro-organisms - Refrigeration; Gas storage; Moisture limitation; Salt; Acid preservatives; Curing; Smoking; Spices; Antibiotics; Fermentation; Air filtration - 4. Containers - Three piece cans; Tinplate; Tin-free steel; Construction of cans; Non-soldered cans; Two piece cans; Easy-open ends; Semi-rigid and flexible packs; Glass containers and closures - 5. Outline of canning operations - Preparation of food; Washing; Peeling; Blanching; Filling; Exhausting; Sealing of containers; Processing; Types of retort; Non-rigid containers; Glass containers; Cooling; Coding - 6. Sources and control of contamination - Raw materials; Plant; Cleaning and disinfection; Containers; Cooling water - 7. Principal spoilage organisms in canned foods - Acidity classification of foods; Low and medium acid products; Acid products - 8. Effects of heat on micro-organisms - Cause of death; Mechanism of heat resistance; Order of destruction; Factors affecting heat resistance; Effect of environment during sporulation; Effect of environment during heating; Effect of recovery medium; Effect of sub-lethal heat treatment; Estimation of heat resistance; Treatment of thermal resistance data - 9. Principles of thermal processing - Thermal death-time data; Standards of processing; Heat penetration; Mechanism of heat transfer; Positioning of

thermocouple; Factors affecting heat penetration; Process evaluation; Classical calculation methods; Integrated lethality methods; Microbiological methods - 10. Continuous flow sterilisation and aseptic processing - Nutritional and quality aspects; HTST and UHT processing; Process evaluation; Cooling; Container sterilisation; Filling; Enzyme inactivation and regeneration - 11. The use of radiations in food preservation - Ionising radiations; Factors affecting the radiation resistance of micro-organisms; Sterilisation doses for foods; Complementary effects of radiation and heat; Low dose procedures; Effects of ionising radiations on food; Ultraviolet irradiation - 12. Types of spoilage - Under-processing; Inadequate cooling; Leakage through seams; Pre-process spoilage; Hydrogen swells; Incorrect retort operation; Under-exhausting; Over-filling; Panelling; Rust; Damage - 13. Microbiology of sound canned foods - 'Commercial sterility'; Results of examinations; Theory of fat protection; Air-borne contamination; Canned cured meats; Proposed standards - 14. Bacterial food poisoning - Clostridium botulinum; Clostridium perfringens; Salmonella; Staphylococci-Bacillus cereus; Vibrio parahaemolyticus; Relation of food-poisoning to canned foods; Food idiosyncrasy - 15. Laboratory examination of canned foods - Culture media for routine work; Additional media for routine and special purposes; Outline of examination procedure; Preliminary external examination; Preliminary incubation of samples; Sampling can contents; Technique for sampling swelled cans; Preparation of cultures; Examination of contents; Examination of glass packs; Incubation tests; Aseptic packaging; Examination of canned cured meats - 16. Examination of raw materials, plant and miscellaneous methods - Thermophilic contamination of sugar, starches, milk, powder, spices, etc.; Plant and equipment; Containers; Cooling water; Dilution cultures - 17. Examination of containers - Selection of cans; Preliminary examination; Examination of rolled seams; Defective soldering; Oval and rectangular cans; Flexible pouches - Appendix - Temperature of saturated steam; Sizes of some common round UK open-top cans; Example of calculation of process lethalities; Lethal rates; Summary of causes and control of microbial spoilage of canned food - Index -

Microorganisms in Foods 6 - International Commission on Microbiological Specifications for Foods (ICMSF) 2005-07-01
The second edition of Microorganisms in Foods 6: Microbial Ecology of Food Commodities is for those primarily interested in applied aspects of food microbiology. For 17 commodity areas, it describes the initial microbial flora and the prevalence of pathogens, the microbiological consequences of processing, typical spoilage patterns, episodes implicating those commodities with foodborne illness, and measures to control pathogens and limit spoilage. Those control measures are presented in a standardized format in line with international developments in risk management; a comprehensive index has also been added in this fully revised and much-anticipated edition.
Microbiology Laboratory Guidebook - United States. Food Safety and Inspection Service. Microbiology Division 1998

Microbial Limit and Bioburden Tests - Lucia Clontz 2008-10-14
In recent years, the field of pharmaceutical microbiology has experienced numerous technological advances, accompanied by the publication of new and harmonized compendial methods. It is therefore imperative for those who are responsible for monitoring the microbial quality of pharmaceutical/biopharmaceutical products to keep abreast of the latest changes. Microbial Limit and Bioburden Tests: Validation Approaches and Global Requirements guides readers through the various microbiological methods listed in the compendia with easy-to-follow diagrams and approaches to validations of such test methodologies. Includes New and Updated Material Now in its second edition, this work is the culmination of research and discussions with technical experts, as well as USP and FDA representatives on various topics of interest to the pharmaceutical microbiologist and those responsible for the microbial quality of products, materials, equipment, and manufacturing facilities. New in this edition is an entire chapter dedicated to the topic of biofilms and their impact on pharmaceutical and biopharmaceutical operations. The subject of rapid methods in microbiology has been expanded and includes a discussion on the validation of alternative microbiological

methods and a case study on microbial identification in support of a product contamination investigation. Substantially updated and revised, this book assists readers in understanding the fundamental issues associated with pharmaceutical microbiology and provides them with tools to create effective microbial contamination control and microbial testing programs for the areas under their responsibility.

Microbiological Analysis of Foods and Food Processing Environments - Osman Erkmen 2021-12-13

Microbiological Analysis of Foods and Food Processing Environments is a well-rounded text that focuses on food microbiology laboratory applications. The book provides detailed steps and effective visual representations with microbial morphology that are designed to be easily understood. Sections discuss the importance of the characteristics of microorganisms in isolation and enumeration of microorganisms. Users will learn more about the characteristics of microorganisms in medicine, the food industry, analysis laboratories, the protection of foods against microbial hazards, and the problems and solutions in medicine and the food industry. Food safety, applications of food standards, and identification of microorganisms in a variety of environments depend on the awareness of microorganisms in their sources, making this book useful for many industry professionals. Includes basic microbiological methods used in the counting of microbial groups from foods and other samples Covers the indicators of pathogenic and spoilage microorganisms from foods and other samples Incorporates identification of isolated microorganisms using basic techniques Provides expressed isolation, counting and typing of viruses and bacteriophages Explores the detection of microbiological quality in foods

Encyclopedia of Food Microbiology - Carl A. Batt 2014-04-02

Written by the world's leading scientists and spanning over 400 articles in three volumes, the Encyclopedia of Food Microbiology, Second Edition is a complete, highly structured guide to current knowledge in the field. Fully revised and updated, this encyclopedia reflects the key advances in the field since the first edition was published in 1999 The articles in this key work, heavily illustrated and fully revised since the first edition in 1999, highlight advances in areas such as genomics and food safety to bring users up-to-date on microorganisms in foods. Topics such as DNA sequencing and E. coli are particularly well covered. With lists of further reading to help users explore topics in depth, this resource will enrich scientists at every level in academia and industry, providing fundamental information as well as explaining state-of-the-art scientific discoveries.

This book is designed to allow disparate approaches (from farmers to processors to food handlers and consumers) and interests to access accurate and objective information about the microbiology of foods Microbiology impacts the safe presentation of food. From harvest and storage to determination of shelf-life, to presentation and consumption. This work highlights the risks of microbial contamination and is an invaluable go-to guide for anyone working in Food Health and Safety Has a two-fold industry appeal (1) those developing new functional food products and (2) to all corporations concerned about the potential hazards of microbes in their food products

Microbiological Guidelines - Collective, 2018-04-04

Food plays an essential part in everyday life. Food should be tasty, healthy, sustainable and preferably not too expensive. But food should also be safe and with sufficient guarantees on maintaining good quality aspects until the end of shelf life. The various actors in the food supply chain have an interest in verifying the expected quality and safety by means of microbiological analyses of food. Measurement brings knowledge and microbiological guidelines help in the decision-making process for judging the acceptability of food or food production processes. The present handbook provides microbiological guidelines and current applicable EU legal criteria (status 1.1.2018) for a wide range of food categories (dairy, meat, seafoods, plant-based foods, bakery products, composite foods, shelf-stable food, water) and subcategories therein, based upon the type of food processing and intrinsic characteristics of the foods. This book can be consulted to provide quick answers on the expected microbiological contamination of foodstuff. It can help in interpretation of test results in assessing good (hygienic) practices in the production of food, determining the shelf life

and ensuring food safety. The handbook also presents definitions of the wide variety of foodstuffs available and some reflections on, in particular, food safety issues or the on-going debate for some food items in assessing microbial quality. This book provides crucial information about food safety, for the use of students and professionals. EXTRACT "First we eat, then we do everything else" M.F.K. Fisher Food plays an important part in everyday life. But when being a food scientist or in the food business, food gets to be an even bigger part of your life. Our team at the Food Microbiology and Food Preservation research group (FMFP-UGent) at Ghent University during its academic tasks in education, research, scientific activities at committees, but also in interaction with many food companies and stakeholders in the food supply chain in projects or contract work, has built up considerable expertise on the microbiological analysis of a large variety of foodstuffs. Being situated in Ghent, and thus close to Brussels, the heart of Europe, we intrinsically have to understand and deal with legal EU criteria or action limits. The latter is the reason why this book is mainly oriented towards inclusion or making reference to EU legal microbiological criteria for foodstuffs as well. ABOUT THE AUTHORS The main author, Prof. Mieke Uyttendaele, leads, together with Prof. Frank Devlieghere, the Food Microbiology and Food Preservation Research Group (FMFP-UGent) at Ghent University, Belgium. Her teaching and research area covers aspects of microbiological analysis of foods, food safety and food hygiene. She has built over twenty years of experience by executing, initiating and coordinating various projects in this research discipline dealing with sampling and testing to collect baseline data on the microbial contamination of foods, looking into the virulence of food-borne pathogens, elaborating challenge testing to study the behavior of food-borne pathogens. All this information serves as an input for quality assurance and microbial risk assessment to support food safety decision-making and setting microbiological criteria. She was/is the promotor of more than 25 Ph.D students (including EU and non-EU citizens). Throughout her career, Prof. Uyttendaele has published more than 270 peer reviewed scientific papers, authored several book chapters and presented at numerous international Conferences/Workshops. Throughout the years she has also used her scientific expertise in interpretation of test results for analyses obtained in routine monitoring or analysis executed at the food service lab at FMFP-UGent.

Microorganisms in Foods: - ICMSF (International Commission on Microbiological Specifications for Foods) 1991-01-15

Book 4 covers the need for operations to assure safety and quality of foods. It describes particularly the `hazard analysis critical control point (HACCP)' philosophy, and how this can be applied and monitored. In the latter part of the book, a wide range of food commodities and processes are used to illustrate how HACCP can be applied. Book 4 will be an essential reference work for people working in all industries associated with food production, processing and control, as well as for teaching establishments and regulatory bodies. The paperback has the cover title `HACCP in Microbiological Safety and Quality'

Microbiological Testing in Food Safety Management - International Commission on Microbiological Specifications for Foods Staff 2012-12-06

. . . . . 68 Appendix 3-A: Control Measures Commonly Applied to Foodborne Diseases . . 71 CHAPTER 4-SELECTION AND USE OF ACCEPTANCE CRITERIA . . . . . 79 4. 1 Introduction . . . . . 79 4. 2 Equivalence . . . . . 80 4. 3 Establishment of Acceptance Criteria . . . . . 81 4. 4 Application of Acceptance Criteria . . . . . 84 4. 5 Determining Acceptance by Approval of Supplier . . . . . 85 4. 6 Examples To Demonstrate the Process of Lot Acceptance . . . . . 87 4. 7 Auditing Food Operations for Supplier Acceptance . . . . . 90 4. 8 References . . . . . 97 CHAPTER 5-ESTABLISHMENT OF MICROBIOLOGICAL CRITERIA FOR LOT ACCEPTANCE . . . . , ... , ... 99 5. 1 Introduction . . . . . 99 5. 2 Purposes and Application of Microbiological Criteria for Foods . . . . . 10 1 5. 3 Definition of Microbiological Criterion . . . . . 10 1 5. 4 Types of Microbiological Criteria . . . . . 102 5. 5 Application of Microbiological Criteria . . . . . 103 5. 6 Principles for the Establishment of Microbiological Criteria . . . . . 104 5. 7 Components of Microbiological Criteria for Foods . . . . . 106 5. 8 Examples of Microbiological Criteria . . . . . .

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.

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.

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

Food Microbiology, 2 Volume Set - Osman Erkmen 2016-06-13

This book covers application of food microbiology principles into food preservation and processing. Main aspects of the food preservation techniques, alternative food preservation techniques, role of microorganisms in food processing and their positive and negative features are covered. Features subjects on mechanism of antimicrobial action of heat, thermal process, mechanisms for microbial control by low temperature, mechanism of food preservation, control of microorganisms and mycotoxin formation by reducing water activity, food preservation by additives and biocontrol, food preservation by modified atmosphere, alternative food processing techniques, and traditional fermented products processing. The book is designed for students in food engineering, health science, food science, agricultural engineering, food technology, nutrition and dietetic, biological sciences and biotechnology fields. It will also be valuable to researchers, teachers and practising food microbiologists as well as anyone interested in different branches of

food.

Compendium of Methods for the Microbiological Examination of Foods - Yvonne Salfinger 2015-06

Fundamental Food Microbiology - Bibek Ray 2007-10-08

Maintaining the high standard set by the previous bestselling editions, Fundamental Food Microbiology, Fourth Edition presents the most up-to-date information in this rapidly growing and highly dynamic field. Revised and expanded to reflect recent advances, this edition broadens coverage of foodborne diseases to include many new and emerging pathogens, as well as descriptions of the mechanism of pathogenesis. An entirely new chapter on detection methods appears with evaluations of advanced rapid detection techniques using biosensors and nanotechnology. With the inclusion of many more easy-to-follow figures and illustrations, this text provides a comprehensive introductory source for undergraduates, as well as a valuable reference for graduate level and working professionals in food microbiology or food safety. Each chapter within the text's seven sections contains an introduction as well as a conclusion, references, and questions. Beginning with the history and development of the field, Part I discusses the characteristics and sources of predominant food microorgasnisms and their significance. Part II introduces microbial foodborne diseases, their growth and influencing factors, metabolism, and sporulation. The third Part explains the beneficial uses of microorganisms in starter cultures, biopreservation, bioprocessing, and probiotics. Part IV deals with food spoilage and methods of detection, followed by a discussion in Part V of foodborne pathogens associated with intoxication, infections, and toxicoinfections. Part VI reviews control methods with chapters on control of microbial access and removal by heat, organic acids, physical means, and combinations of methods. The final section is an in-depth look at advanced and traditional methods of microbial detection and food safety. Four appendices provide additional details on food equipment and surfaces, predictive modeling, regulatory agencies, and hazard analysis critical control points.

Microorganisms in Foods 5 - International Commission on Microbiological Specifications for Foods 1996-06-30

The aim of this book is to assemble detailed information relating to foodborne pathogens in order to make it readily accessible to those who wish to employ the HACCP system for the control of microbial hazards. The book is concerned solely with foodborne pathogens and does not discuss spoilage organisms. Each chapter provides a general survey of a foodborne pathogen, with appropriate referencing to authoritative review material. Reviews the history and the occurrence of the organism in nature as well as its taxonomy. Discusses the symptoms (but not the treatment) of the relevant foodborne disease syndrome(s), as well as the mechanism of pathogenicity. Consideration is given to the available method for the enumeration and identification of the organism, as well as possible alternative methods. Also reviews the epidemiology of the foodborne disease and its importance. Each chapter concerns itself with the specific parameters that influence the growth, survival or death of the microorganism. Includes information on temperature, water activity, pH, irradiation, preservatives, gases, disinfectants and, where possible, on interactions between these parameters. Written for food technologists, product developers, food microbiologists and regulators.

Microbiological Testing in Food Safety Management - International Commission for the Microbiological Specifications of Foods (ICMSF) 2002

The latest book in this excellent series describes the role of microbiological testing in modern food safety management systems. It explores how risk assessment and risk management can be used to establish goals for use in controlling food borne illness, and provides guidelines for establishing effective management systems to control specific hazards in foods. This groundbreaking book will interest food microbiologists, researchers, and others in the food industry, regulatory agencies and academia worldwide.

Microorganisms in Foods 7 - International Commission for the Microbiological Specifications of Foods (ICMSF) 2013-09-14

The latest book in this excellent series describes the role of

microbiological testing in modern food safety management systems. It explores how risk assessment and risk management can be used to establish goals for use in controlling food borne illness, and provides guidelines for establishing effective management systems to control specific hazards in foods. This groundbreaking book will interest food microbiologists, researchers, and others in the food industry, regulatory agencies and academia worldwide.

Food Microbiology - Thomas J. Montville 2008

An indispensable undergraduate textbook that covers the critical topic of food microbiology The second edition of Food Microbiology: an Introduction offers authoritative coverage as well as an appealing design for today's instructors and students. This impressive second edition by Thomas Montville and Karl Matthews builds upon the earlier edition's success covering the complex field of food microbiology while also motivating students to venture beyond memorization to a broader understanding of the concepts. Following up on the critical success of the first edition, this textbook presents a classroom–friendly adaptation that has been student tested for level and depth of coverage. This new edition offers a straightforward approach to learning the core principles without sacrificing depth, clarity, or rigor. It introduces the genetics and mechanisms important to specific issues in food microbiology. This textbook encourages today's students to acquire the understanding and skills necessary for practicing food safety in the future. The textbook has been completely updated based on student input and on new discoveries in food microbiology. Organized into five major sections, which can be taught in any order, this new edition adds important new details, including expanded coverage of food fermentations. Additionally, this student–friendly textbook employs attractive instructive material such as text boxes, case studies, chapter summaries, questions for critical thought, and a glossary. The first section, Basics of Food Microbiology, cements foundational material, while the next four sections detail specific food–borne organisms and strategies for controlling them. Descriptions of outbreaks of food–related infections inject life into each pathogen covered.

Food Shelf Life Stability - Michael Eskin 2000-09-19

Food Shelf Life Stability provides a unique approach to understanding this critical subject by examining physical, chemical, and biochemical factors affecting food quality. The first section emphasizes the effects that water activity, glass transition, and plasticization have on temperature, water content, and time-dependant phenomena affecting

Handbook of Culture Media for Food Microbiology - Janet E. L. Corry 2003-04-22

This is a completely revised edition, including new material, from 'Culture Media for Food Microbiology' by J.E.L. Corry et al., published in Progress in Industrial Microbiology, Volume 34, Second Impression 1999. Written by the Working Party on Culture Media, of the International Committee on Food Microbiology and Hygiene, this is a handy reference for microbiologists wanting to know which media to use for the detection of various groups of microbes in food, and how to check their performance. The first part comprises reviews, written by international experts, of the media designed to isolate the major groups of microbes important in food spoilage, food fermentations or food-borne disease. The history and rationale of the selective agents, and the indicator systems are considered, as well as the relative merits of the various media. The second part contains monographs on approximately 90 of the most useful media. The first edition of this book has been frequently quoted in standard methods, especially those published by the International Standards Organisation (ISO) and the European Standards Organisation (CEN), as well as in the manuals of companies manufacturing microbiological media. In this second edition, almost all of the reviews have been completely rewritten, and the remainder revised. Approximately twelve monographs have been added and a few deleted. This book will be useful to anyone working in laboratories examining food - industrial, contract, medical, academic or public analyst, as well as other microbiologists, working in the pharmaceutical, cosmetic and clinical (medical and veterinary) areas - particularly with respect to quality assurance of media and methods in relation to laboratory accreditation.

Scientific Criteria to Ensure Safe Food - National Research Council 2003-09-29

Food safety regulators face a daunting task: crafting food safety performance standards and systems that continue in the tradition of using the best available science to protect the health of the American public, while working within an increasingly antiquated and fragmented regulatory framework. Current food safety standards have been set over a period of years and under diverse circumstances, based on a host of scientific, legal, and practical constraints. Scientific Criteria to Ensure Safe Food lays the groundwork for creating new regulations that are consistent, reliable, and ensure the best protection for the health of American consumers. This book addresses the biggest concerns in food safetyâ€"including microbial disease surveillance plans, tools for establishing food safety criteria, and issues specific to meat, dairy, poultry, seafood, and produce. It provides a candid analysis of the problems with the current system, and outlines the major components of the task at hand: creating workable, streamlined food safety standards and practices.

Microorganisms in Foods 8 - International Commission on Microbiological Specifications for Foods (ICMSF) 2011-06-02

Microorganisms in Foods 8: Use of Data for Assessing Process Control and Product Acceptance is written by the International Commission on Microbiological Specifications for Foods with assistance from a limited number of consultants. The purpose of this book is to provide guidance on appropriate testing of food processing environments, processing lines, and finished product to enhance the safety and microbiological quality of the food supply. Microorganisms in Foods 8 consists of two parts. Part I, Principles of Using Data in Microbial Control, builds on the principles of Microorganisms in Foods 7: Microbiological Testing in Food Safety Management (2002), which illustrates how HACCP and Good Hygienic Practices (GHP) provide greater assurance of safety than microbiological testing, but also identifies circumstances where microbiological testing may play a useful role. Part II, Specific Applications to Commodities, provides practical examples of criteria and other tests and is an updated and expanded version of Part II of Microorganisms in Foods 2: Sampling for Microbiological Analysis: Principles and Specific Applications (2nd ed. 1986). Part II also builds on the 2nd edition of Microorganisms in Foods 6: Microbial Ecology of Food Commodities (2005) by identifying appropriate tests to evaluation the effectiveness of controls.

Predictive Microbiology in Foods - Fernando Perez-Rodriguez 2012-12-12

Predictive microbiology is a recent area within food microbiology, which studies the responses of microorganisms in foods to environmental factors (e.g., temperature, pH) through mathematical functions. These functions enable scientists to predict the behavior of pathogens and spoilage microorganisms under different combinations of factors. The main goal of predictive models in food science is to assure both food safety and food quality. Predictive models in foods have developed significantly in the last 20 years due to the emergence of powerful computational resources and sophisticated statistical packages. This book presents the concepts, models, most significant advances, and future trends in predictive microbiology. It will discuss the history and basic concepts of predictive microbiology. The most frequently used models will be explained, and the most significant software and databases (e.g., Combase, Sym’Previus) will be reviewed. Quantitative Risk Assessment, which uses predictive modeling to account for the transmission of foodborne pathogens across the food chain, will also be covered.

Microorganisms in Foods 8 - International Commission on Microbiological Specifications for Foods (ICMSF) 2011-06-08

Microorganisms in Foods 8: Use of Data for Assessing Process Control and Product Acceptance is written by the International Commission on Microbiological Specifications for Foods with assistance from a limited number of consultants. The purpose of this book is to provide guidance on appropriate testing of food processing environments, processing lines, and finished product to enhance the safety and microbiological quality of the food supply. Microorganisms in Foods 8 consists of two parts. Part I, Principles of Using Data in Microbial Control, builds on the principles of

Microorganisms in Foods 7: Microbiological Testing in Food Safety Management (2002), which illustrates how HACCP and Good Hygienic Practices (GHP) provide greater assurance of safety than microbiological testing, but also identifies circumstances where microbiological testing may play a useful role. Part II, Specific Applications to Commodities, provides practical examples of criteria and other tests and is an updated and expanded version of Part II of Microorganisms in Foods 2: Sampling for Microbiological Analysis: Principles and Specific Applications (2nd ed. 1986). Part II also builds on the 2nd edition of Microorganisms in Foods 6: Microbial Ecology of Food Commodities (2005) by identifying appropriate tests to evaluation the effectiveness of controls.

The Handbook of Microbiological Media for the Examination of Food - Ronald M. Atlas 2006-01-13

Responding to an estimated 14 million cases of food-borne disease that occur every year in the United States alone, the Food and Drug Administration and US Department of Agriculture have begun implementing new regulations and guidance for the microbial testing of foods. Similarly, Europe and other regions are implementing stricter oversight, as foodborne pathogens that cause deadly diseases such as e. coli 0157:H7 have raised the stakes everywhere. Food safety scientists have acted on this growing public health risk by developing improved media for the cultivation of bacteria, fungi, and viruses, much of it geared toward specific rapid detection. Reflecting the development of these new media and the latest FDA recommendations, the second edition of the Handbook of Microbiological Media for the Examination of Foodprovides an essential resource for anyone involved with the monitoring of both food production and post-production quality control. Organized alphabetically by medium, the expanded edition of this highly respected handbookincludes – · Descriptions of nearly 1,400 media including those recommended by the FDA, as well as media used elsewhere in the world · Concise and lucid instructions for the preparation and uses of each of the media · Cross-referenced indexing that allows the media to be found by name or specific microorganism of interest · Descriptions of expected results as they apply to microorganisms of importance for the examination of foods · Common synonyms for the various media and listings of compositions, so that alternate media an be effectively employed when needed Compiled by Ronald M. Atlas, a world-renowned researcher and author known for his pioneering work in pathogen detection, the Handbook of Microbiological Media for the Examination of Food, Second Edition, provides microbiologists with an essential tool for safeguarding public health.

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

Rapid Methods and Automation in Microbiology and Immunology - K.-O. Habermehl 2012-12-06

Rapid progress in molecular biology, genetic engineering, and basic research in immunology has opened up new possibilities for application to diagnostic procedures and to clinical research. In a short period a new era of diagnosis dawned, covering nearly all fields of microbiology, immunology, and food technology. In consequence of this rapid development, scientists of many disciplines are involved studying infections of humans, animals, and plants or working in technical microbiology. The application of the newest findings of basic research to diagnostic work and to clinical research covers nearly all fields of microbiology and immunology. Moreover, it underlines the close relationship between diagnosis, therapy, and epidemiology. An outstanding example of these connections is given by the recent development of hepatitis B vaccine. The discovery and identification of a non cultivable agent by physicochemical and immunological methods were the heralds of a new era in the prevention of infectious diseases. This book provides an up-to-date, comprehensive review of developments and future aspects in various fields. I am convinced that the authors have succeeded in furnishing a large variety of new ideas and possibilities. K.-O. HABERMEHL Contents Time Realities in the Evaluation of Vaccines for Safety and Efficacy The Evaluation of Vaccines M. R. HILLEMAN . . . . .

Microorganisms in Foods 6 - International Commission on

Microbiological Specifications for Foods (ICMSF) 2010-10-29
The second edition ofMicrobiologyofFoods6:MicrobialEcologyofFoodCommodities was written by the ICMSF, comprising 16 scientists from 11 countries, plus consultants and other contributors to chapters. The intention of the second edition was to bring the ?rst edition (published in 1996) up to date, taking into account developments in food processing and packaging, new products, and recognition of new pathogens and their control acquired since the ?rst edition. Theoverallstructure ofthechapters hasbeen retained,vizeachcovers(i)theimportantpropertiesof thefoodcommoditythataffectitsmicrobialcontentandecology,(ii)theinitialm icro?oraatslaughteror harvest, (iii) the effects of harvesting, transportation, processing, and storage on the microbial content, and (iv) an assessment of the hazards and risks of the food commodities and (v) the processes applied to control the microbial load. In 1980s, control of food safety was largely by inspection and compliance with hygiene regulations, together with end-product testing.MicroorganismsinFoods2:SamplingforMicrobiologicalAnalysis: PrinciplesandSpeci?cApplications(2nded.1986)putsuchtestingonasounder statisticalbasisthrough samplingplans,whichremainusefulwhenthereisnoinformationontheconditi onsunderwhichafood has been produced or processed, e.g. at port-of-entry. At an early stage, the Commission recognized that no sampling plan can ensure the absence of a pathogen in food. Testing foods at ports of entry, or elsewhere in the food chain, cannot guarantee food safety.

Microbial Ecology of Foods V1 - Unknown ICMSF 2012-12-02
Microbial Ecology of Foods, Volume I: Factors Affecting Life and Death of Microorganisms presents valuable background information on the theoretical aspects of food microbiology. It is divided into 14 chapters that focus on the environmental factors affecting food microorganisms. These factors are temperature, irradiation, water activity, pH, acidity, organic acids, curing salts, antibiotics, gases, packaging, and cleaning systems. Each chapter explores the scientific principles of the specific environmental factor; methods of measurement; and effects on growth and viability of spoilage organisms and pathogens. The chapters also look into the control measures and interrelationships with the other factors. Some of the chapters deal with the effects of cell injury on survival and recovery of microorganisms in food and the metabolic aspects of mixed microbial populations. In each chapter, the reader has been directed to appropriate key publications for further study. This volume is particularly suitable as an undergraduate or postgraduate textbook for students who have had at least one course in general microbiology.

Modelling Microorganisms in Food - Stanley Brul 2007-03-12
Predicting the growth and behaviour of microorganisms in food has long been an aim in food microbiology research. In recent years, microbial models have evolved to become more exact and the discipline of quantitative microbial ecology has gained increasing importance for food safety management, particularly as minimal processing techniques have become more widely used. These processing methods operate closer to microbial death, survival and growth boundaries and therefore require even more precise models. Written by a team of leading experts in the field, Modelling microorganims in food assesses the latest developments and provides an outlook for the future of microbial modelling. Part one discusses general issues involved in building models of microbial growth and inactivation in foods, with chapters on the historical background of the field, experimental design, data processing and model fitting, the problem of uncertainty and variability in models and modelling lag-time. Further chapters review the use of quantitative microbiology tools in predictive microbiology and the use of predictive microbiology in risk assessment. The second part of the book focuses on new approaches in specific areas of microbial modelling, with chapters discussing the implications of microbial variability in predictive modelling and the importance of taking into account microbial interactions in foods. Predicting microbial inactivation under high pressure and the use of mechanistic models are also covered. The final chapters outline the possibility of incorporating systems biology approaches into food microbiology. Modelling microorganisms in food is a standard reference for all those in the field of food microbiology. Assesses the latest

developments in microbial modelling Discusses the issues involved in building models of microbial growth Chapters review the use of quantitative microbiology tools in predictive microbiology

Microbiological Analysis of Food and Water - N.F. Lightfoot 1998-04-22

With the help of leading Quality Assurance (QA) and Quality Control (QC) microbiology specialists in Europe, a complete set of guidelines on how to start and implement a quality system in a microbiological laboratory has been prepared, supported by the European Commission through the Measurement and Testing Programme. The working group included food and water microbiologists from various testing laboratories, universities and industry, as well as statisticians and QA and QC specialists in chemistry. This book contains the outcome of their work. It has been written with the express objective of using simple but accurate wording so as to be accessible to all microbiology laboratory staff. To facilitate reading, the more specialized items, in particular some statistical treatments, have been added as an annex to the book. All QA and QC tools mentioned within these guidelines have been developed and applied by the authors in their own laboratories. All aspects dealing with reference materials and interlaboratory studies have been taken in a large part from the projects conducted within the BCR and Measurement and Testing Programmes of the European Commission. With so many different quality control procedures, their introduction in a laboratory would appear to be a formidable task. The authors recognize that each laboratory manager will choose the most appropriate procedures, depending on the type and size of the laboratory in question. Accreditation bodies will not expect the introduction of all measures, only those that are appropriate for a particular laboratory. Features of this book: • Gives all quality assurance and control measures to be taken, from sampling to expression of results • Provides practical aspects of quality control to be applied both for the analyst and top management • Describes the use of reference materials for statistical control of methods and use of certified reference materials (including statistical tools).

Microorganisms in Foods 6 - International Commission on Microbiological Specifications for Foods (ICMSF) 2006-06-18

Intended for those interested in applied aspects of food microbiology, for 17 commodity areas, this book describes the initial microbial flora and the prevalence of pathogens, the microbiological consequences of processing, spoilage patterns, episodes implicating those commodities with foodborne illness, and measures to control pathogens.

Statistical aspects of microbiological criteria related to foods - Food and Agriculture Organization of the United Nations 2019-02-14

Microbiological Criteria have been used in food production and the food regulatory context for many years. While the food-specific aspects of microbiological criteria are well understood, the mathematical and statistical aspects are often less well appreciated, which hinders the consistent and appropriate application of microbiological criteria in the food industry. This document has been developed to begin redressing this situation. A particular aim of this document is to illustrate the important mathematical and statistical aspects of microbiological criteria, but with minimal statistical jargon, equations and mathematical details. It is hoped that the resulting document and support materials make this subject more accessible to a broad audience. This volume and others in this Microbiological Risk Assessment Series contain information that is useful to both food safety risk assessors and risk managers, the Codex Alimentarius Commission, governments and regulatory agencies, food producers and processers and other institutions and individuals with an interest in Microbiological Criteria. This volume in particular aims to support food business operators, quality assurance managers, food safety-policy makers and risk managers.

Statistical Aspects of the Microbiological Examination of Foods - Basil Jarvis 2016-07-12

Statistical Aspects of the Microbiological Examination of Foods, Third Edition, updates some important statistical procedures following intensive collaborative work by many experts in microbiology and statistics, and corrects typographic and other errors present in the previous edition. Following a brief introduction to the subject, basic

statistical concepts and procedures are described including both theoretical and actual frequency distributions that are associated with the occurrence of microorganisms in foods. This leads into a discussion of the methods for examination of foods and the sources of statistical and practical errors associated with the methods. Such errors are important in understanding the principles of measurement uncertainty as applied to microbiological data and the approaches to determination of uncertainty. The ways in which the concept of statistical process control developed many years ago to improve commercial manufacturing processes can be applied to microbiological examination in the laboratory. This is important in ensuring that laboratory results reflect, as precisely as possible, the microbiological status of manufactured products through the concept and practice of laboratory accreditation and proficiency testing. The use of properly validated standard methods of testing and the verification of 'in house' methods against internationally validated methods is of increasing importance in ensuring that laboratory results are meaningful in relation to development of and compliance with established microbiological criteria for foods. The final chapter of the book reviews the uses of such criteria in relation to the development of and compliance with food safety objectives. Throughout the book the theoretical concepts are illustrated in worked examples using real data obtained in the examination of foods and in research studies concerned with food safety. Includes additional figures and tables together with many worked examples to illustrate the use of specific procedures in the analysis of data obtained in the microbiological examination of foods Offers completely updated chapters and six new chapters Brings the reader up to date and allows easy access to individual topics in one place Corrects typographic and other errors present in the previous edition

Microorganisms in Foods 7 - International Commission on Microbiological Specifications for Foods 2018-02-22

The second edition of Microorganisms in Foods 7: Microbiological Testing in Food Safety Management updates and expands on information on the role of microbiological testing in modern food safety management systems. After helping the reader understand the often confusing statistical concepts underlying microbiological sampling, the second edition explores how risk assessment and risk management can be used to establish goals such as a "tolerable levels of risk," Appropriate Levels of Protection, Food Safety Objectives or Performance Objectives for use in controlling foodborne illness. Guidelines for establishing effective management systems for control of specific hazards in foods are also addressed, including new examples for pathogens and indicator organisms in powdered infant formula, Listeria monocytogenes in deli-meats, enterohemorrhagic Escherichia coli in leafy green vegetables, viruses in oysters and Campylobacter in poultry. In addition, a new chapter on application of sampling concept to microbiological methods, expanded chapters covering statistical process control, investigational sampling, environmental sampling, and alternative sampling schemes. The respective roles of industry and government are also explored, recognizing that it is through their collective actions that effective food safety systems are developed and verified. Understanding these systems and concepts can help countries determine whether imported foods were produced with an equivalent level of protection. Microorganisms in Foods 7 is intended for anyone using microbiological testing or setting microbiological criteria, whether for governmental food inspection and control, or industrial applications. It is also intended for those identifying the most effective use of microbiological testing in the food supply chain. For students in food science and technology, this book provides a wealth of information on food safety management principles used by government and industry, with many references for further study. The information was prepared by the International Commission on Microbiological Specifications for Foods (ICMSF). The ICMSF was formed in response to the need for internationally acceptable and authoritative decisions on microbiological limits for foods in international commerce. The current membership consists of fifteen food microbiologists from twelve countries, drawn from government, universities, and food processing and related industries.

Food Hygiene, Microbiology and HACCP - P.R. Hayes 2013-11-09

Food microbiology is a fascinating and challenging science. It is also very

demanding with a constantly changing sea of guidelines, regulations and equip ment. Public concerns over food safety issues can overemphasize certain risks and detract from the normal hygienic practice of food manufacturers. This new edition aims to update anyone concerned with the hygienic production of food on key issues of HACCP, food microbiology and the methods of microbe detection. I have taken a 'crystal ball' approach to certain topics. The use of rapid techniques such as lux gene technology and polymerase chain reaction (DNA probes) are progressing so rapidly in the research laboratory that when this book is in print the techniques may be more readily available. New methods for investigating viral gastroenteritis due to small round structured viruses (SRSV) have been developed past the 'research' stage and may become more standard in the next few years. Undoubtedly this will alter our understanding of the prevalence of viral food poisoning. I have also included issues such as new variant CJD (associated with BSE infected cattle) which at the time of writing has only caused the deaths of 20 people, but due to the uncertain incubation time could be a far more serious problem. In the UK there has been a much publicised outbreak of Escherichia coli 0157:H7 which has resulted in a government inquiry and the recommenda tion of the generic HACCP approach. Hence this approach to HACCP imple mentation has been included.

Microorganisms in Foods 8 - International Commission on Microbiological Specifications for Foods (ICMSF) 2016-08-23

Microorganisms in Foods 8: Use of Data for Assessing Process Control and Product Acceptance is written by the International Commission on Microbiological Specifications for Foods with assistance from a limited number of consultants. The purpose of this book is to provide guidance on appropriate testing of food processing environments, processing lines, and finished product to enhance the safety and microbiological quality of the food supply. Microorganisms in Foods 8 consists of two parts. Part I, Principles of Using Data in Microbial Control, builds on the principles of Microorganisms in Foods 7: Microbiological Testing in Food Safety Management (2002), which illustrates how HACCP and Good Hygienic Practices (GHP) provide greater assurance of safety than microbiological testing, but also identifies circumstances where microbiological testing may play a useful role. Part II, Specific Applications to Commodities, provides practical examples of criteria and other tests and is an updated and expanded version of Part II of Microorganisms in Foods 2: Sampling for Microbiological Analysis: Principles and Specific Applications (2nd ed. 1986). Part II also builds on the 2nd edition of Microorganisms in Foods 6: Microbial Ecology of Food Commodities (2005) by identifying appropriate tests to evaluation the effectiveness of controls.

Microbiological Analysis of Red Meat, Poultry and Eggs - G Mead 2006-11-30

Red meat, poultry and eggs are, or have been, major global causes of foodborne disease in humans and are also prone to microbiological growth and spoilage. Consequently, monitoring the safety and quality of these products remains a primary concern. Microbiological analysis is an established tool in controlling the safety and quality of foods. Recent advances in preventative and risk-based approaches to food safety control have reinforced the role of microbiological testing of foods in food safety management. In a series of chapters written by international experts, the key aspects of microbiological analysis, such as sampling methods, use of faecal indicators, current approaches to testing of foods, detection and enumeration of pathogens and microbial identification techniques, are described and discussed. Attention is also given to the validation of analytical methods and Quality Assurance in the laboratory. Because of their present importance to the food industry, additional chapters on current and developing legislation in the European Union and the significance of Escherichia coli 0157 and other VTEC are included. Written by a team of international experts, Microbiological analysis of red meat, poultry and eggs is certain to become a standard reference in the important area of food microbiology. Reviews key issues in food microbiology Discusses key aspects of microbiological analysis such as sampling methods, detection and enumeration of pathogens Includes chapters on the validation on analytical methods and quality assurance in the laboratory