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Adapting High Hydrostatic Pressure (HPP) for Food Processing Operations Tatiana Koutchma 2014-06-21 Adapting High Hydrostatic Pressure (HPP) for Food Processing Operations presents commercial benefits of HPP technology for specific processing operations in the food industry, including raw and ready-to-eat (RTE) meat processing, dairy and seafood products, drinks and beverages, and other emerging processes. The book presents high hydrostatic pressure processing (HPP) for treatment of different groups of raw and finished products, focusing on specific pressure-induced effects that will lead to different biological impacts, and the information necessary for specifying HPP process and equipment. It also discusses phenomena of compression heating, the HPP in-container principle, requirements for plastic materials, factors affecting efficacy of HPP treatments, and available commercial systems. Additionally, the book provides updated information on the regulatory status of HPP technology around the world. This book is an ideal concise resource for food process engineers, food technologists, product developers, federal and state regulators, equipment manufacturers, graduate students, and educators involved in research and development. Includes case studies for HPP treatment of commercially produced foods with information regarding different HPP processing equipment Gives examples of specific applications for meat and poultry products treatments, fresh juices and beverages, and seafood Covers energy savings, environmental aspects of HPP technology, and regulatory status

Emerging Technologies for Food Processing Da-Wen Sun 2014-08-14 The second edition of Emerging Technologies in Food Processing presents essential, authoritative, and complete literature and research data from the past ten years. It is a complete resource offering the latest technological innovations in food processing today, and includes vital information in research and development for the food processing industry. It covers the latest advances in non-thermal processing including high pressure, pulsed electric fields, radiofrequency, high intensity pulsed light, ultrasound, irradiation, and addresses the newest hurdles in technology where extensive research has been carried out. Provides an extensive list of research sources to further research development Presents current and thorough research results and critical reviews Includes the most recent technologies used for shelf life extension, bioprocessing simulation and optimization

Diet Diversification and Health Promotion I. Elmadfa 2005-01-01 About half of the global burden of disease is due to chronic noncommunicable diseases such as obesity, metabolic disorders, cardiovascular diseases and cancer, which are all related to modifiable risk factors such as unbalanced diet and malnutrition as well as determinants such as behavior and lifestyle. Dietary patterns during the last few decades have undergone a general shift towards high energy density and fatty foods combined with a low proportion of plant components. The resulting diet profile has proven inadequate to meet the physiological needs of a healthy human life. A comprehensive and highly valuable source of knowledge for all professionals interested in the underlying causes of today's major health challenges, this publication gives an in-depth view of the various methods of monitoring and addressing this precarious situation: impact of gender and age on eating behavior, role of a vegetarian lifestyle, processed and fortified foods, organic foods, ethnic food culture, and consumer choice.

Heat Transfer in Food Processing S. Yanniotis 2007 Heat Transfer is important in food processing. This edited book presents a review of ongoing activities in a broad perspective.

Food Engineering Handbook Theodoros Varzakas 2014-11-24 Food Engineering Handbook: Food Process Engineering addresses the basic and applied principles of food engineering methods used in food processing operations around the world. Combining theory with a practical, hands-on approach, this book examines the thermophysical properties and modeling of selected processes such as chilling, freezing, and dehydration. A complement to Food Engineering Handbook: Food Engineering Fundamentals, this text: Discusses size reduction, mixing, emulsion, and encapsulation Provides case studies of solid–liquid and supercritical fluid extraction Explores fermentation, enzymes, fluidized-bed drying, and more Presenting cutting-edge information on new and emerging food engineering processes, Food Engineering Handbook: Food Process Engineering is an essential reference on the modeling, quality, safety, and technologies associated with food processing operations today.

Handbook of Research on Food Processing and Preservation Technologies Megh R. Goyal 2021-11-25 Handbook of Research on Food Processing and Preservation Technologies will be a 5-volume collection that attempts to illustrate various design, development, and applications of novel and innovative strategies for food processing and preservation. The role and applications of minimal processing techniques (such as ozone treatment, vacuum drying, osmotic dehydration, dense phase carbon dioxide treatment, pulsed electric field, and high-pressure assisted freezing) are also discussed, along with a wide range of applications. The handbook also explores some exciting computer-aided techniques emerging in the food processing sector, such as robotics, radio frequency identification (RFID), three-dimensional food printing, artificial intelligence, etc. Some emphasis has also been given on nondestructive quality evaluation techniques (such as image processing, terahertz spectroscopy imaging technique, near infrared, Fourier transform infrared spectroscopy technique, etc.) for food quality and safety evaluation. The significant roles of food properties in the design of specific foods and edible films have been elucidated as well. The first volume in this set, Nonthermal and Innovative Food Processing Methods, provides a detailed discussion of many nonthermal food process techniques. These include high-pressure processing, ultraviolet light technology, microwave-assisted extraction, high pressure assisted freezing, microencapsulation, dense phase carbon dioxide aided preservation, to name a few. The volume is a treasure house of valuable information and will be an excellent reference for researchers, scientists, students, growers, traders, processors, industries, and others.

Cooking for Geeks Jeff Potter 2010-07-20 Presents recipes ranging in difficulty with the science and technology-minded cook in mind, providing the science behind cooking, the physiology of taste, and the techniques of molecular gastronomy.

Innovative Technologies in Beverage Processing Ingrid Aguilo-Aguayo 2017-05-18 An in-depth look at new and emerging technologies for non-alcoholic beverage manufacturing The non-alcoholic beverage market is the fastest growing segment of the functional food industry worldwide. Consistent with beverage consumption trends generally, the demand among consumers of these products is for high-nutrient drinks made from natural, healthy ingredients, free of synthetic preservatives and artificial flavor and color enhancers. Such drinks require specialized knowledge of exotic ingredients, novel processing techniques, and various functional ingredients. The latest addition to the critically acclaimed IFST Advances in Food Science series this book brings together edited contributions from internationally recognized experts in their fields who offer insights and analysis of the latest developments in non-alcoholic beverage manufacture. Topics covered include juices made from pome fruits, citrus fruits, prunus fruits, vegetables, exotic fruits, berries, juice blends and non-alcoholic beverages, including grain-based beverages, soups and functional beverages. Waste and by-products generated in juice and non-alcoholic beverage sector are also addressed. Offers fresh insight and analysis of the latest developments in non-alcoholic beverage manufacture from leading international experts Covers all product segments of the non-alcoholic beverage market, including juices, vegetable blends, grain-based drinks, and alternative beverages Details novel thermal and non-thermal technologies that ensure high-quality nutrient retention while extending product shelf life Written with the full support of The Institute of Food Science and Technology (IFST), the leading qualifying body for food professionals in Europe Innovative Technologies in Beverage Processing is a valuable reference/working resource for food scientists and engineers working in the non-alcoholic beverage industry, as well as academic researchers in industrial food processing and nutrition.

Sustainable Food Processing and Engineering Challenges Charis Michel Galanakis 2021-03-16 Sustainability is becoming a major item for the food industry around the world, as resources become more restricted and demand grows. Food processing ensures that the resources required producing raw food materials and ingredients for food manufacturing are used most efficiently. Responding to the goals of sustainability requires the maximum utilization of all raw materials produced and integration of activities throughout all the production-to-consumption stages. To maximize the conversion of raw materials into consumer products, food engineering and food processing challenges should be met. Sustainable Food Processing and Engineering Challenges covers the most trend topics and challenges of sustainable food processing and food engineering, giving emphasis in engineering packaging for a sustainable food chain, food processing technologies, Industry 4.0 applied to food, food digestion engineering, sustainable alternative food processing technologies, physico-chemical aspects of food, cold plasma technology, refrigeration climate control, non-thermal pasteurisation and sterilization, nanotechnology and alternative processes requiring less resources, sustainable innovation in food product design etc. Edited by a multiple team of experts, the book is aimed at food engineers who are seeking to improve efficiency of production systems and also researchers, specialists, chemical engineers and professionals working in food processing. Covers the most trend topics and challenges of sustainable food processing and food engineering Brings developments in methods to reduce the carbon footprint of the food system Explores emerging topics such as Industry 4.0 applied to food and Food digestion engineering

Trends in Food Safety and Protection V Ravishankar Rai 2017-09-18 Trends in Food Safety and Protection explores the recent developments and ongoing research in the field of food safety and protection. The book covers improvements in the existing techniques and implementation of novel analytical methods for detecting and characterizing foodborne pathogens.

Innovation Strategies in the Food Industry Charis M. Galanakis 2021-10-21 Innovation Strategies for the Food Industry: Tools for Implementation, Second Edition explores how process technologies and innovations are implemented in the food industry, by i.e., detecting problems and providing answers to questions of modern applications. As in all science sectors, Internet and big data have brought a renaissance of changes in the way academics and researchers communicate and collaborate, and in the way that the food industry develops. The new edition covers emerging skills of food technologists and the integration of food science and technology knowledge into the food chain. This handbook is ideal for all relevant actors in the food sector (professors, researchers, students and professionals) as well as for anyone dealing with food science and technology, new products development and food industry. Includes the latest trend on training requirements for the agro-food industry Highlights new technical skills and profiles of modern food scientists and technologists for professional development Presents new case studies to support research activities in the food sector, including product and process innovation Covers topics on collaboration, entrepreneurship, Big Data and the Internet of Things

Innovative Food Processing Technologies 2020-08-18 Food process engineering, a branch of both food science and chemical engineering, has evolved over the years since its inception and still is a rapidly changing discipline. While traditionally the main objective of food process engineering was preservation and stabilization, the focus today has shifted to enhance health aspects, flavour and taste, nutrition, sustainable production, food security and also to ensure more diversity for the increasing demand of consumers. The food industry is becoming increasingly competitive and dynamic, and strives to develop high quality, freshly prepared food products. To achieve this objective, food manufacturers are today presented with a growing array of new technologies that have the potential to improve, or replace, conventional processing technologies, to deliver higher quality and better consumer targeted food products, which meet many, if not all, of the demands of the modern consumer. These new, or innovative, technologies are in various stages of development, including some still at the R&D stage, and others that have been commercialised as alternatives to conventional processing technologies. Food process engineering comprises a series of unit operations traditionally applied in the food industry. One major component of these operations relates to the application of heat, directly or indirectly, to provide foods free from pathogenic microorganisms, but also to enhance or intensify other processes, such as extraction, separation or modification of components. The last three decades have also witnessed the advent and adaptation of several operations, processes, and techniques aimed at producing high quality foods, with minimum alteration of sensory and nutritive properties. Some of these innovative technologies have significantly reduced the thermal component in food processing, offering alternative nonthermal methods. Food Processing Technologies: A Comprehensive Review covers the latest advances in innovative and nonthermal processing, such as high pressure, pulsed electric fields, radiofrequency, high intensity pulsed light, ultrasound, irradiation and new hurdle technology. Each section will have an introductory article covering the basic principles and applications of each technology, and in-depth articles covering the currently available equipment (and/or the current state of development), food quality and safety, application to various sectors, food laws and regulations, consumer acceptance, advancements and future scope. It will also contain case studies and examples to illustrate state-of-the-art applications. Each section will serve as an excellent reference to food industry professionals involved in the processing of a wide range of food categories, e.g., meat, seafood, beverage, dairy, eggs, fruits and vegetable products, spices, herbs among others.

In-Pack Processed Foods P Richardson 2008-06-13 Recent developments have enabled the production of in-pack processed foods with improved sensory quality as well as new types of heat-preserved products packaged in innovative containers. This book reviews these advances in packaging formats and processing technologies and their application to produce higher quality, safer foods. Opening chapters cover innovative can designs and non-traditional packaging formats, such as retort pouches. The second part of the book reviews the developments in processing and process control technology required by newer types of packaging. Part three addresses the safety of in-pack processed foods, including concerns over pathogens and hazardous compounds in processed foods. The book concludes with chapters on novel methods to optimise the quality of particular types of in-pack processed foods such as fruit and vegetables, meat, poultry and fish products. In-pack processed foods: improving quality is a valuable reference for professionals involved in the manufacture of this important group of food products and those researching in this area. Reviews advances in packaging formats and processing

technologies Covers innovative can designs and non-traditional packaging formats Examines the safety of in-pack processed foods, including concerns over pathogens

A Stakeholder Approach to Managing Food Adam Lindgreen 2016-08-05 This research anthology explores the concept of food production and supply, from farm gate to plate, bringing together contemporary thinking and research on local, national, and global issues from a stakeholder perspective. A Stakeholder Approach to Managing Food includes a number of sections to represent these challenges, opportunities, conflicts, and cohesions affecting relevant stakeholder groups within food production and supply and their reaction to, engagement with, and co-creation of the food environment. For some, local, national, and global interests may seem at odds. We are in an era of growing and pervasive multi-national corporations, and these corporations have significant influence at all levels. Rapidly growing economies such as China are a focus for the global brand, but is this a scenario of adaptation or homogenization of food? Alongside this trend toward national and global development in food, this volume presents the counter-reaction that is taking place (especially in developed countries) toward local speciality and culturally bound foods, with emphasis on the importance of the inter-connection of local communities and agri-food culture and economy. With an in-depth analysis of agricultural businesses, this book shows that the entrepreneurial spirit is alive and well in rural communities with often renewed and engaged connection with consumers and imaginative use of new media. This book will be of interest to students, researchers and policy-makers concerned with agriculture, food production and economics, cultural studies.

British Social Attitudes Alison Park 2010-01-15 The annual British Social Attitudes survey is carried out by Britain?s largest independent social research organisation, the National Centre for Social Research. It provides an indispensable guide to political and social issues in contemporary Britain. This 26th Report summarises and interprets data from the most recent nationwide survey, as well as drawing invaluable comparisons with the findings of previous years to provide a richer picture and deeper understanding of changing British social values. The British Social Attitudes survey report is essential reading for anyone seeking a guide to the topical issues and debates of today or engaged in contemporary social and political research.

Advances in Thermal and Non-Thermal Food Preservation Gaurav Tewari 2008-02-28 Advances in Thermal and Non-Thermal Food Preservation provides current, definitive and factual material written by experts on different thermal and non-thermal food preservation technologies. Emphasizing inactivation of microorganisms through the application of traditional as well as newer and novel techniques and their combinations, the book's chapters cover: thermal food preservation techniques (e.g., retorting, UHT and aseptic processing), minimal thermal processing (e.g., sous-vide processing), and non-thermal food preservation techniques (e.g., high pressure processing and pulsed technologies). Editors Tewari and Juneja give special emphasis to the commercial aspects of non-conventional food preservation techniques. As the most comprehensive and contemporary resource of its kind, Advances in Thermal and Non-Thermal Food Preservation is the definitive standard in describing the inactivation of microorganisms through conventional and newer, more novel techniques.

Handbook of Food Safety Engineering Da-Wen Sun 2011-11-03 This book presents a comprehensive and substantial overview of the emerging field of food safety engineering, bringing together in one volume the four essential components of food safety: the fundamentals of microbial growth food safety detection techniques microbial inactivation techniques food safety management systems Written by a team of highly active international experts with both academic and professional credentials, the book is divided into five parts. Part I details the principles of food safety including microbial growth and modelling. Part II addresses novel and rapid food safety detection methods. Parts III and IV look at various traditional and novel thermal and non-thermal processing techniques for microbial inactivation. Part V concludes the book with an overview of the major international food safety management systems such as GMP, SSOP, HACCP and ISO22000.

Electron Beam Pasteurization and Complementary Food Processing Technologies Suresh Pillai 2014-11-28 Food safety is a constant challenge for the food industry, and food irradiation technology has developed significantly since its introduction, moving from isotope irradiation to the use of electron beam technology. Electron Beam Pasteurization and Complementary Food Processing Technologies explores the application of electron beam pasteurization in conjunction with other food processing technologies to improve the safety and quality of food. Part one provides an overview of the issues surrounding electron beam pasteurization in food processing. Part two looks at different thermal and non-thermal food processing technologies that complement irradiation. Finally, a case study section on the commercial applications of e-beam processing provides examples from industry.

Food Processing Technology P.J. Fellows 2009-07-28 Widely regarded as a standard work in its field, this book introduces the range of processing techniques that are used in food manufacturing. It explains the principles of each process, the processing equipment used, operating conditions and the effects of processing on micro-organisms that contaminate foods, the biochemical properties of foods and their sensory and nutritional qualities. The book begins with an overview of important basic concepts. It describes unit operations that take place at ambient temperature or involve minimum heating of foods. Subsequent chapters examine operations that heat foods to preserve them or alter their eating quality, and explore operations that remove heat from foods to extend their shelf life with minimal changes in nutritional quality or sensory characteristics. Finally, the book reviews post-processing operations, including packaging and distribution logistics. The third edition has been substantially rewritten, updated and extended to include the many developments in food technology that have taken place since the second edition was published in 2000. Nearly all unit operations have undergone significant developments, and these are reflected in the large amount of additional material in each chapter. In particular, advances in microprocessor control of equipment, 'minimal' processing technologies, genetic modification of foods, functional foods, developments in 'active' or 'intelligent' packaging, and storage and distribution logistics are described. Developments in technologies that relate to cost savings, environmental improvement or enhanced product quality are highlighted. Additionally, sections in each chapter on the impact of processing on food-borne micro-organisms are included for the first time.

Ultra High Pressure Treatment of Foods Marc E.G. Hendrickx 2012-12-06 During the past decade, consumer demand for convenient, fresh-like, safe, high-quality food products has grown. The food industry has responded by applying a number of new technologies including high hydrostatic pressure for food processing and preservation. In addition, food scientists have demonstrated the feasibility of industrial-scale high pressure processing. This technology is of specific interest to the food industry because it provides an attractive alternative to conventional methods of thermal processing, which often produce undesirable changes in foods and hamper the balance between high quality (color, flavor, and functionality) and safety. In addition, it offers opportunities for creating new ingredients and products because of the specific actions of high pressure on bio logical materials and food constituents. It allows food scientists to redesign exist ing processes and to create entirely new ones using high pressure technology alone or in combination with conventional processes (e. g. , pressure-temperature combinations). Researchers have investigated high pressure processing for the past century. Scientists such as Hite and Bridgman did pioneering work at the turn of the 20th century. Then during the 1980s and 1990s, there was a large effort to investigate the effects of high pressure on biological materials, particularly foods. The initial research activities in the late 1980s and early 1990s focused on exploratory activ ities in the food area.

Functional Food Ingredients and Nutraceuticals John Shi 2006-08-24 A growing awareness of the contributions that functional foods, bioactive compounds, and nutraceuticals make to health is creating a tremendous market for these products. In order for manufacturers to match this demand with stable, high volume production while maintaining defined and reliable composition, they must have ready access to the very lat

Innovative and Emerging Technologies in the Bio-marine Food Sector Marco Garcia-Vaquero 2021-12-06 Innovative and Emerging Technologies in the Bio-marine Food Sector: Applications, Regulations, and Prospects presents the use of technologies and recent advances in the emerging marine food industry. Written by renowned scientists in the field, the book focuses primarily on the principles of application and the main technological developments achieved in recent years. It includes technological design, equipment and applications of these technologies in multiple processes. Extraction, preservation, microbiology and processing of food are extensively covered in the wide context of marine food products, including fish, crustaceans, seafood processing waste, seaweed, microalgae and other derived by-products. This is an interdisciplinary resource that highlights the potential of technology for multiple purposes in the marine food industry as these technological approaches represent a future alternative to develop more efficient industrial processes. Researchers and scientists in the areas of food microbiology, food chemistry, new product development, food processing, food technology, bio-process engineers in marine based industries and scientists in marine related areas will all find this a novel resource. Presents novel innovative technologies in the Bio-marine food sector, including principles, equipment, advantages, disadvantages, and future technological prospects Explores multi-purpose uses of technologies for extraction, functional food generation, food preservation, food microbiology and food processing Provides industrial applications tailored for the marine biological market to foster new innovative applications and regulatory requirements

Food Preservation and Safety of Natural Products Helen N. Onyeaka 2022-06-24 Food Preservation and Safety of Natural Products addresses the most common causes of food spoilage that create significant loss to global food production while also discussing how food serves as a vehicle for the transmission of pathogenic microorganisms responsible for mild to debilitating health conditions in humans. The book provides essential information for food safety professionals on issues relating to foodborne diseases and offers potential solutions by presenting various methods of incorporating natural products in food production to prevent the spread of foodborne pathogenic organisms. The demand for green consumerism and consumers general distaste for synthetic food additives poses a serious challenge to food safety and preservation. Natural products are used as green and sustainable source of bioactive compounds that can be applied in various fields including food. The use of plant and other natural products in food preservation is on the rise, hence this book reviews microbial mediated food spoilage, foodborne pathogens and food contamination and offers applications of natural products in food preservation. Provides important information on microbial metabolic by-products (natural enzymatic processes) to prevent food spoilage or deterioration Includes molecular techniques for antimicrobial and antioxidant applications in food, food packaging and edible films Presents the latest evidence-based science on the natural products used as additives in food

Nonthermal Processing Technologies for Food Howard Q. Zhang 2011-02-04 Nonthermal Processing Technologies for Food offers a comprehensive review of nonthermal processing technologies that are commercial, emerging or over the horizon. In addition to the broad coverage, leading experts in each technology serve as chapter authors to provide depth of coverage. Technologies covered include: physical processes, such as high pressure processing (HPP); electromagnetic processes, such as pulsed electric field (PEF), irradiation, and UV treatment; other nonthermal processes, such as ozone and chlorine dioxide gas phase treatment; and combination processes. Of special interest are chapters that focus on the "pathway to commercialization" for selected emerging technologies where a pathway exists or is clearly identified. These chapters provide examples and case studies of how new and nonthermal processing technologies may be commercialized. Overall, the book provides systematic knowledge to industrial readers, with numerous examples of process design to serve as a reference book. Researchers, professors and upper level students will also find the book a valuable text on the subject.

Food Processing Kshirod Kumar Dash 2021-06-28 Non-thermal operations in food processing are an alternative to thermal operations and similarly aimed at retaining the quality and organoleptic properties of food products. This volume covers different non-thermal processing technologies such as high-pressure processing, ultrasound, ohmic heating, pulse electric field, pulse light, membrane processing, cryogenic freezing, nanofiltration, and cold plasma processing technologies. The book focuses both on fundamentals and on recent advances in non-thermal food processing technologies. It also provides information with the description and results of research into new emerging technologies for both the academy and industry. Key features: Presents engineering focus on non-thermal food processing technologies. Discusses sub-classification for recent trends and relevant industry information/examples. Different current research-oriented results are included as a key parameter. Covers high-pressure processing, pulse electric field, pulse light technology, irradiation, and ultrasonic techniques. Includes mathematical modeling and numerical simulations. Food Processing: Advances in Non-Thermal Technologies is aimed at graduate students, professionals in food engineering, food technology, and biological systems engineering.

Recent Developments in High Pressure Processing of Foods Navin K Rastogi 2013-07-16 Features a Foreword by Dr. Dietrich Knorr. Fruit processing and preservation technologies must ensure fresh-like characteristics in foods while providing an acceptable and convenient shelf life, as well as assuring safety and nutritional value. Processing technologies include a wide range of methodologies to inactivate microorganisms, improve quality and stability, and preserve and minimize changes of fresh-like characteristics in fruit. High pressure as a food preservation technique inactivates microorganisms at room temperature or lower; thus, sensory and nutritional characteristics can be maintained. In recent years, a significant increase in the number of scientific papers in literature demonstrating novel and diversified uses of high pressure processing indicates it to be highly emerging technology. The effect of high pressure technology on the quality and safety of foods will be discussed. Selected practical examples in fruits and vegetables, dairy and meat industries using high pressure will be presented and discussed. A brief account of the challenges in adopting this technology for industrial development will also be included.

Listeria, Listeriosis, and Food Safety, Third Edition Elliot T. Ryser 2007-03-27 Since the second edition of Listeria, Listeriosis, and Food Safetywas published in 1999, the United States has seen a 40 percent decline in the incidence of listeriosis, with the current annual rate of illness rapidly approaching the 2010 target of 2.5 cases per million. Research on this food-borne pathogen, however, has continued unabated, concentrating in the last five years on establishing risk assessments to focus limited financial resources on certain high-risk foods. Listeria, Listeriosis, and Food Safety, Third Edition summarizes much of the newly published literature and integrates this information with earlier knowledge to present readers with a complete and current overview of foodborne listeriosis. Two completely new chapters have been added to this third edition. The first deals with risk assessment, cost of foodborne listeriosis outbreaks, and regulatory control of the Listeria problem in various countries. The second identifies specific data gaps and directions for future research efforts. All of the chapters from the second edition have been revised, many by new authors, to include updated information on listeriosis in animals and humans, pathogenesis and characteristics of Listeria monocytogenes, methods of detection, and subtyping. The text covers the incidence and behavior of Listeria monocytogenes in many high-risk foods including, fermented and unfermented dairy products, meat, poultry, and egg products, fish and seafood products, and products of plant origin. Upholding the standard of the first two editions, Listeria, Listeriosis, and Food Safety, Third Edition provides the most current information to food scientists, microbiologists, researchers, and public health practitioners.

Essentials and Applications of Food Engineering C. Anandharamakrishnan 2019-03-15 Essentials & Applications of Food Engineering provides a comprehensive understanding of food engineering operations and their practical and industrial utility. It presents pertinent case studies, solved numerical problems, and multiple choice questions in each chapter and serves as a ready reference for classroom teaching and exam preparations. The first part of this textbook contains the introductory topics on units and dimensions, material balance, energy balance, and fluid flow. The second part deals with the theory and applications of heat and mass transfer, psychrometry, and reaction kinetics. The subsequent chapters of the book present the heat and mass transfer operations such as evaporation, drying, refrigeration, freezing, mixing, and separation. The final section focuses on the thermal, non-thermal, and nanotechnology-based novel food processing techniques, 3D food printing, active and intelligent food packaging, and fundamentals of CFD modeling. Features Features 28 case studies to provide a substantial understanding of the practical and industrial applications of various food engineering operations Includes 178 solved numerical problems and 285 multiple choice questions Highlights the application of mass balance in food product traceability and the importance of viscosity measurement in a variety of food products Provides updated information on novel food processing techniques such as cold plasma, 3D food printing, nanospray drying, electrospraying, and electrospinning The textbook is designed for undergraduate and graduate students pursuing Food Technology and Food Process Engineering courses. This book would also be of interest to course instructors and food industry professionals.

Emerging Food Packaging Technologies Kit L Yam 2012-03-15 The successful employment of food packaging can greatly improve product safety and quality, making the area a key concern to the food processing industry. Emerging food packaging technologies reviews advances in packaging materials, the design and implementation of smart packaging techniques, and developments in response to growing concerns about packaging sustainability. Part one of Emerging food packaging technologies focuses on developments in active packaging, reviewing controlled release packaging, active antimicrobials

and nanocomposites in packaging, and edible chitosan coatings. Part two goes on to consider intelligent packaging and how advances in the consumer/packaging interface can improve food safety and quality. Developments in packaging material are analysed in part three, with nanocomposites, emerging coating technologies, light-protective and non-thermal process packaging discussed, alongside a consideration of the safety of plastics as food packaging materials. Finally, part four explores the use of eco-design, life cycle assessment, and the utilisation of bio-based polymers in the production of smarter, environmentally-compatible packaging. With its distinguished editors and international team of expert contributors, Emerging food packaging technologies is an indispensable reference work for all those responsible for the design, production and use of food and beverage packaging, as well as a key source for researchers in this area. Reviews advances in packaging materials, the design and implementation of smart packaging techniques, and developments in response to growing concerns about packaging sustainability Considers intelligent packaging and how advances in the consumer/packaging interface can improve food safety and quality Examines developments in packaging materials, nanocomposites, emerging coating technologies, light-protective and non-thermal process packaging and the safety of plastics as food packaging materials

High Pressure Processing of Foods Christopher J. Doona 2008-04-15 In High Pressure Processing of Foods, an array of international experts interrelate leading scientific advancements that use molecular biology techniques to explore the biochemical mechanisms of spore germination and inactivation by high pressure; investigate the inactivation of different spore species as functions of processing parameters such as pressure, temperature, time, food matrix, and the presence of anti-microbials; propose predictive mathematical models for predicting spore inactivation in foods treated with HPP; address commercial aspects of high pressure processing that include the high pressure equipment and packaging used to achieve the sterilization of bacterial spores in foods; and provide an assessment of the quality of food products preserved by HPP. High Pressure Processing of Foods is the landmark resource on the mechanisms and predictive modeling of bacterial spore inactivation by HPP.

High Pressure Processing of Fruit and Vegetable Products Milan Houška 2017-10-24 High pressure processing is a fast-growing food processing technology and opens the door to nearly-fresh products that retain their sensorial and nutritional qualities. High Pressure Processing of Fruit and Vegetable Products reviews and summarizes the latest advances in novel high-pressure processing techniques for preserving fruits, fruit juices, and their mixtures. It contains basic information on the relation of high-process treatment parameters with the safety and quality of fruit and vegetable juices/products. The book focuses on product quality parameters, nutritional value, bio-active health components, and microbial safety and stability. The main aim of this book is to summarize the advances in the utilization of modern high pressure pasteurization (HPP) treatment to preserve and stabilize fruit and vegetable products. HPP technology is related to the product quality parameters, the content of nutritional and health active components, and the microbial safety and subsequent shelf life. One chapter of this book is devoted to industrial equipment available; other chapters deal with examples of commercial fruit and vegetable products. Another chapter of this book is dedicated to packaging, as packaging of food before HPP is mandatory in this technology. The regulatory aspects for high-pressure treated fruit and vegetable products in different regions of the world (Europe, the United States, Asia, and Australia) are also an important topic dealt within one chapter of the book. The effects of HPP technology on the quality of fruit and vegetable products, namely nutrients and stability, health active components, and sensory aspects, are reviewed in a trio of chapters.

Fruit Juices Gaurav Rajauria 2017-11-24 Fruits Juices is the first and only comprehensive resource to look at the full scope of fruit juices from a scientific perspective. The book focuses not only on the traditional ways to extract and preserve juices, but also the latest novel processes that can be exploited industrially, how concentrations of key components alter the product, and methods for analysis for both safety and consumer acceptability. Written by a team of global experts, this book provides important insights for professionals in industrial and academic research as well as in production facilities. Presents fruit juice from extraction to shelf-life in a single resource volume Includes quantitative as well as qualitative insights Provides translatable information from one fruit to another

Foodborne Pathogens Clive de W Blackburn 2009-06-30 Effective control of pathogens continues to be of great importance to the food industry. The first edition of Foodborne pathogens quickly established itself as an essential guide for all those involved in the management of microbiological hazards at any stage in the food production chain. This major edition strengthens that reputation, with extensively revised and expanded coverage, including more than ten new chapters. Part one focuses on risk assessment and management in the food chain. Opening chapters review the important topics of pathogen detection, microbial modelling and the risk assessment procedure. Four new chapters on pathogen control in primary production follow, reflecting the increased interest in safety management early in the food chain. The fundamental issues of hygienic design and sanitation are also covered in more depth in two extra chapters. Contributions on safe process design and operation, HACCP and good food handling practice complete the section. Parts two and three then review the management of key bacterial and non-bacterial foodborne pathogens. A new article on preservation principles and technologies provides the context for following chapters, which discuss pathogen characteristics, detection methods and control procedures, maintaining a practical focus. There is expanded coverage of non-bacterial agents, with dedicated chapters on gastroenteritis viruses, hepatitis viruses and emerging viruses and foodborne helminth infections among others. The second edition of Foodborne pathogens: hazards, risk analysis and control is an essential and authoritative guide to successful pathogen control in the food industry. Strengthens the highly successful first edition of Foodborne pathogens with extensively revised and expanded coverage Discusses risk assessment and management in the food chain. New chapters address pathogen control, hygiene design and HACCP Addresses preservation principles and technologies focussing on pathogen characteristics, detection methods and control procedures

Progress in Food Preservation Rajeev Bhat 2012-03-05 This volume presents a wide range of new approaches aimed at improving the safety and quality of food products and agricultural commodities. Each chapter provides in-depth information on new and emerging food preservation techniques including those relating to decontamination, drying and dehydration, packaging innovations and the use of botanicals as natural preservatives for fresh animal and plant products. The 28 chapters, contributed by an international team of experienced researchers, are presented in five sections, covering: Novel decontamination techniques Novel preservation techniques Active and atmospheric packaging Food packaging Mathematical modelling of food preservation processes Natural preservatives This title will be of great interest to food scientists and engineers based in food manufacturing and in research establishments. It will also be useful to advanced students of food science and technology.

Food Safety Engineering Ali Demirci 2020-05-28 Food Safety Engineering is the first reference work to provide up-to-date coverage of the advanced technologies and strategies for the engineering of safe foods. Researchers, laboratory staff and food industry professionals with an interest in food engineering safety will find a singular source containing all of the needed information required to understand this rapidly advancing topic. The text lays a solid foundation for solving microbial food safety problems, developing advanced thermal and non-thermal technologies, designing food safety preventive control processes and sustainable operation of the food safety preventive control processes. The first section of chapters presents a comprehensive overview of food microbiology from foodborne pathogens to detection methods. The next section focuses on preventative practices, detailing all of the major manufacturing processes assuring the safety of foods including Good Manufacturing Practices (GMP), Hazard Analysis and Critical Control Points (HACCP), Hazard Analysis and Risk-Based Preventive Controls (HARPC), food traceability, and recalls. Further sections provide insights into plant layout and equipment design, and maintenance. Modeling and process design are covered in depth. Conventional and novel preventive controls for food safety include the current and emerging food processing technologies. Further sections focus on such important aspects as aseptic packaging and post-packaging technologies. With its comprehensive scope of up-to-date technologies and manufacturing processes, this is a useful and first-of-its kind text for the next generation food safety engineering professionals.

Animal Sourced Foods for Developing Economies Muhammad Issa Khan 2018-12-21 Animal products are good source of disposable income for many small farmers in developing countries. In fact, livestock are often the most important cash crop in many small holder mixed farming systems. Livestock ownership currently supports and sustains the livelihoods of rural poor, who depend partially or fully on livestock for their income and/or subsistence. Human population growth, increasing urbanization and rising incomes are predicted to double the demand for, and production of, livestock products in the developing countries over the next twenty years. The future holds great opportunities for animal production in developing countries. Animal Sourced Foods for Developing Economies addresses five major issues: 1) Food safety and nutritional status in developing world; 2) the contribution of animal origin foods in human health; 3) Production processes of animal foods along with their preservation strategies; 4) functional outcomes of animal derived foods; and finally, 5) strategies, issues and polices to promote animal origin food consumption. Animal sourced food contain high biological value protein and important micronutrients required for optimal body functioning but are regarded as sources of fat that contribute to the intake of total and saturated fatty acids in diet. The quality of protein source has a direct influence on protein digestibility, as a greater proportion of higher quality proteins is absorbed and becomes available for bodily functions. Animal foods has high quantity and quality of protein that includes a full complement of the essential amino acids in the right proportion. Land availability limits the expansion of livestock numbers in extensive production systems in most regions, and the bulk of the increase in livestock production will come from increased productivity through intensification and a wider adoption of existing and new production and marketing technologies. The significant changes in the global consumption and demand for animal source foods, along with increasing pressures on resources, are having some important implications for the principal production systems. In this book, contributors critically analyze and describe different aspects of animal's origin foods. Each chapter is dedicated to a specific type of food from animal source, its nutritional significance, preservation techniques, processed products, safety and quality aspects on conceptual framework. Special attention is given to explain current food safety scenario in developing countries and contribution of animal derived food in their dietary intake. Existing challenges regarding production, processing and promotion of animal's origin foods are also addressed with possible solutions and strengthening approaches.

Fruit Preservation Amauri Rosenthal 2018-11-05 Fruits and fruit based products are, in most cases, associated with very good sensory characteristics, health, well-being, perishability, relatively easy to mix with food products of diverse origin, amenable to be processed by conventional and novel technologies. Given the multiplicity of aspects whenever fruit preservation is considered, the editors took the challenge of covering in a thorough, comprehensive manner most aspects dealing with this topic. To accomplish these goals, the editors invited well known colleagues with expertise in specific disciplines associated with fruit preservation to contribute chapters to this book. Eighteen chapters were assembled in a sequence that would facilitate, like building blocks, to have at the same time, a birds-eye view and an in-depth coverage of traditional and novel technologies to preserve fruits. Even though processing took center stage in this book, ample space was dedicated to other relevant and timely topics on fruit preservation such as safety, consumer perception, sensory and health aspects. FEATURES: Traditional and Novel Technologies to Process Fruits Microwaves Ohmic Heating UV-C light Irradiation High Pressure Pulsed Electric Fields Ultrasound Vacuum Impregnation Membranes Ozone Hurdle Technology Topics Associated with Fruit Preservation Safety Nutrition and Health Consumer Perception Sensory Minimal Processing Packaging Unit Operations for Fruit Processing Cooling and Freezing Dehydration Frying

Food Engineering Innovations Across the Food Supply Chain Pablo Juliano 2021-12-05 Food Engineering Innovations Across the Food Supply Chain discusses the technology advances and innovations into industrial applications to improve supply chain sustainability and food security. The book captures the highlights of the 13th International Congress of Engineering ICEF13 under selected congress themes, including Sustainable Food Systems, Food Security, Advances in Food Process Engineering, Novel Food Processing Technologies, Food Process Systems Engineering and Modeling, among others. Edited by a team of distinguished researchers affiliated to CSIRO, this book is a valuable resource to all involved with the Food Industry and Academia. Feeding the world's population with safe, nutritious and affordable foods across the globe using finite resources is a challenge. The population of the world is increasing. There are two opposed sub-populations: those who are more affluent and want to decrease their caloric intake, and those who are malnourished and require more caloric and nutritional intake. For sustainable growth, an increasingly integrated systems approach across the whole supply chain is required. Focuses on innovation across the food supply chain beyond the traditional food engineering discipline Brings the integration of on-farm with food factory operations, the inclusion of Industry 4.0 sensing technologies and Internet of Things (IoT) across the food chain to reduce food wastage, water and energy inputs Makes a full intersection into other science domains (operations research, informatics, agriculture and agronomy, machine learning, artificial intelligence and robotics, intelligent packaging, among others)

High Pressure Processing of Food V.M. Balasubramaniam 2016-01-28 High pressure processing technology has been adopted worldwide at the industrial level to preserve a wide variety of food products without using heat or chemical preservatives. High Pressure Processing: Technology Principles and Applications will review the basic technology principles and process parameters that govern microbial safety and product quality, an essential requirement for industrial application. This book will be of interest to scientists in the food industry, in particular to those involved in the processing of products such as meat, fish, fruits, and vegetables. The book will be equally important to food microbiologists and processing specialists in both the government and food industry. Moreover, it will be a valuable reference for authorities involved in the import and export of high pressure treated food products. Finally, this update on the science and technology of high pressure processing will be helpful to all academic, industrial, local, and state educators in their educational efforts, as well as a great resource for graduate students interested in learning about state-of-the-art technology in food engineering.

Thermal Processing of Food Senate Commission on Food Safety SKLM 2007-09-24 This is the latest and most authoritative documentation of current scientific knowledge regarding the health effects of thermal food processing. Authors from all over Europe and the USA provide an international perspective, weighing up the risks and benefits. In addition, the contributors outline those areas where further research is necessary.