Meat is a global product, which is traded between regions, countries and continents. The onus is on producers, manufacturers, transporters and retailers to ensure that an ever-demanding consumer receives a top quality product that is free from contamination. With such a dynamic product and market place, new innovative ways to process, package and assess meat products are being developed. With ever increasing competition and tighter cost margins, industry has shown willingness to engage in seeking novel innovative ways of processing, packaging and assessing meat products while maintaining quality and safety attributes. This book provides a comprehensive overview on the application of novel processing techniques. It represents a standard reference book on novel processing, packaging and assessment methods of meat and meat products. It is part of the IFST Advances in Food Science book series.

Biologically Active Peptides: From Basic Science to Applications for Human Health stands as a comprehensive resource on bioactive peptide science and applications. With contributions from more than thirty global experts, topics discussed include bioactive peptide science, structure-activity relationships, best practices for their study and production, and their applications. In the interdisciplinary field of bioactive peptides, this book bridges the gap between basic peptide chemistry and human physiology, while reviewing recent advances in peptide analysis and characterization. Methods and technology-driven chapters offer step-by-step guidance in peptide preparation from different source materials, bioactivity assays, analysis and identification of bioactive peptides, encoding bioactive peptides. Later, applications across disease areas and medical specialties are examined in-depth, including the use of bioactive peptides in treating obesity, diabetes, osteoporosis, mental health disorders, food allergies, and joint health, among other disorders, as well as bioactive peptides for sensory enhancement, sports and clinical nutrition, lowering cholesterol, improving cardiovascular health, and driving advances in biotechnology. Discusses the latest advances in bioactive peptide chemistry, functionality and analysis Offers step-by-step instruction in applying new technologies for peptide extraction, protection, production and encoding, as well as employing bioactive peptide sequencing and bioactivity assays in new research Effectively links basic peptide chemistry, human biology and disease Features chapter contributions from international experts across disciplines and applications

Innovative Food Processing Technologies: Extraction, Separation, Component Modification and Process Intensification focuses on advances in new and novel non-thermal processing technologies which allow food producers to modify and process food with minimal damage to the foodstuffs. The book is highly focused on the application of new and novel technologies, beginning with an introductory chapter, and then detailing technologies which can be used to extract food components. Further sections on the use of technologies to modify the structure of food and the separation of food components are also included, with a final section focusing on process intensification and enhancement. Provides information on a variety of food processing technologies Focuses on advances in new and novel non-thermal processing technologies which allow food producers to modify and process food with minimal damage to the foodstuffs Presents a strong focus on the application of technologies in a variety of situations Created by editors who have a background in both the industry and academia

The identification and control of food contaminants rely on careful investigation and implementation of appropriate management strategies. Using a wide range of real-life examples, Case studies in food safety and authenticity provides a vital insight into the practical application of strategies for control and prevention. Part one provides examples of recent outbreak investigations from a wide range of experts around the world, including lessons learnt, before part two goes on to explore examples of how the source was traced and the implications for the food chain. Methods of crisis management are the focus of part three, whilst part four provides studies of farm-level interventions and the tracking of contaminants before they enter the food chain. Part five is focussed on safe food production, and considers the challenges of regulatory testing and certification, hygiene control and predictive microbiology. The book concludes in part six with an examination of issues related to food adulteration and authenticity. With its distinguished editor and international team of expert contributors, Case studies in food safety and authenticity is a key reference work for those involved in food production, including quality control, laboratory and risk managers, food engineers, and anyone involved in researching and teaching food safety. Delivers a vital insight into the practical application of strategies for control and prevention of food contaminants Provides detailed examples of recent outbreak investigations from a wide range of international experts, discussing how the source was traced and the implications for the food chain Chapters discuss methods of crisis management, farm-level interventions, safe food production and the challenges of regulatory testing and certification Reducing Salt in Foods, Second Edition, presents updated strategies for reducing salt intake. The book contains comprehensive information on a wide range of topics, including the key health issues driving efforts to reduce salt, government action regarding salt reduction and the implications of salt
Packaging plays an essential role in limiting undesired microbial growth and sensory deterioration. Advances in meat, poultry and seafood packaging provide a comprehensive review of both current and emerging technologies for the effective packaging of muscle foods. Part one provides a comprehensive overview of key issues concerning the safety and quality of packaged meat, poultry and seafood. Part two goes on to investigate developments in vacuum and modified atmosphere packaging for both fresh and processed muscle foods, including advances in bulk packaging and soluble carbon dioxide use. Other packaging methods are the focus of part three, with the packaging of processed, frozen, ready-to-serve and retail-ready meat, seafood and poultry products all reviewed, alongside advances in sausage casings and in-package pasteurization. Finally, part four explores emerging labelling and packaging techniques. Environmentally-compatible, antimicrobial and antioxidant active packaging for meat and poultry are investigated, along with edible films, smart packaging systems, and issues regarding traceability and regulation. With its distinguished editor and international team of expert contributors, Advances in meat, poultry and seafood packaging is a key text for those involved with the research, development and production of packaged meat, poultry and seafood products. It also provides an essential overview for post-graduate students and academic researchers with an interest in the packaging of muscle foods. Provides a comprehensive review of current and emerging technologies for the effective and safe packaging of muscle foods. Investigates developments in vacuum and modified atmosphere packaging for fresh and processed muscle foods, including advances in bulk packaging and soluble carbon dioxide use. Explores environmentally-compatible, antimicrobial and antioxidant active packaging for meat and poultry, along with edible films, smart packaging systems, and issues regarding traceability and regulation. Sustainable Meat Production and Processing presents current solutions to promote industrial sustainability and best practices in meat production, from postharvest to consumption. The book acts as a guide for meat and animal scientists, technologists, engineers, professionals and producers. The 12 most trending topics of sustainable meat processing and meat by-products management are included, as are advances in ingredient and processing systems for meat products, techno-functional ingredients for meat products, protein recovery...
from meat processing by-products, applications of blood proteins, artificial meat production, possible uses of processed slaughter co-products, and environmental considerations. Finally, the book covers the preferred technologies for sustainable meat production, natural antioxidants as additives in meat products, and facilitators and barriers for food containing meat co-products. Analyzes the role of novel technologies for sustainable meat processing. Covers how to maintain sustainability and achieve high levels of meat quality and safety. Presents solutions to improve productivity and environmental sustainability. Takes a proteomic approach to characterize the biochemistry of meat quality defects.

Processed Meats
Non-Equilibrium States and Glass Transitions in Foods
Handbook of Natural Antimicrobials for Food Safety and Quality
Improving Safety, Nutrition and Quality
Electron Beam Pasteurization and Complementary Food Processing Technologies
Properties, Processing and Applications

In a market in which consumers demand nutritionally-balanced meat products, producing processed meats that fulfill their requirements and are safe to eat is not a simple task. Processed meats: Improving safety, nutrition and quality provides professionals with a wide-ranging guide to the market for processed meats, product development, ingredient options and processing technologies. Part one explores consumer demands and trends, legislative issues, key aspects of food safety and the use of sensory science in product development, among other issues. Part two examines the role of ingredients, including blood by-products, hydrocolloids, and natural antimicrobials, as well as the formulation of products with reduced levels of salt and fat. Nutraceutical ingredients are also covered. Part three discusses meat products' processing, taking in the role of packaging and refrigeration alongside emerging areas such as high pressure processing and novel thermal technologies. Chapters on quality assessment and the quality of particular types of products are also included. With its distinguished editors and team of expert contributors, Processed meats: Improving safety, nutrition and quality is a valuable reference tool for professionals working in the processed meat industry and academics studying processed meats. Provides professionals with a wide-ranging guide to the market for processed meats, product development, ingredient options, processing technologies and quality assessment. Outlines the key issues in producing processed meat products that are nutritionally balanced, contain fewer ingredients, have excellent sensory characteristics and are safe to eat. Discusses the use of nutraceutical ingredients in processed meat products and their effects on product quality, safety and acceptability.

The nutrition of an individual during gestation and the first two years of life—the first 1,000 days—sets the stage for lifelong health. Nutrition quality and quantity in this period can influence the risk of developing diseases that constitute today's epidemics. Early-life nutrition can program the body's tissues, organ structure and function, and metabolic and immunologic responses. These factors impact growth, development and cognition, and the risk of cardiovascular diseases, allergies and obesity. The first part of Early Nutrition and Long-Term Health examines the mechanisms by which early nutrition affects the risk of developing these conditions. The second part of this book reviews specific non-communicable diseases (NCDs) associated with early nutrition. The third part discusses the effects of nutritional programming from fetal life to toddlerhood. Prevention of over- or undernutrition in early life, rather than dietary, behavioral or therapeutic interventions in later life, is likely to have a greater return on society's investment in coping with the modern epidemic of NCDs. Examines the relation between early life nutrition and long-term health. Covers the mechanistic aspects of nutritional programming and its impact on risk of chronic non-communicable diseases. Reviews associations between infant and child diet and its effect on growth, development, cognition and later occurrence of cardiovascular diseases, allergies, metabolic conditions and obesity.

Manley's Technology of Biscuits, Crackers and Cookies is widely regarded as the standard work in its field. Part one covers management issues such as HACCP, quality control, process control and product development. Part two deals with the selection of raw materials and ingredients. The range and types of biscuits is covered in part three, while part four covers the main production processes and equipment, from bulk handling and metering of ingredients to packaging, storage and waste management. Eight expert authors have joined Duncan Manley in extensively updating and expanding the book, which is now some 25% longer than the previous edition. Part one now includes a new chapter on sustainability in the biscuit industry and the discussion of process and efficiency control is more detailed. In part two the information on wheat flour has been extensively revised to reflect recent developments and there are entirely new chapters on fats and oils and packaging materials. Photographs of the major types of biscuits now illustrate chapters in part three, which also includes a newly-composed chapter on the position of biscuits in nutrition. Finally, part four has been comprehensively reviewed and revised with the assistance of an author from a major machinery manufacturer. With its distinguished editor and team of expert contributors this new edition consolidates the position of Manley's Technology of Biscuits, Crackers and Cookies as the standard reference work in the industry. Widely regarded as the standard work in its field, Covers management issues such as HACCP, quality control, process control and product development. Deals with the selection of raw materials and ingredients.

Salt, Fat and Sugar Reduction: Sensory Approaches for Nutritional Reformulation of Foods and Beverages explores salt, sugar, fat and the current...
scientific findings that link them to diseases. The sensory techniques that can be used for developing consumer appealing nutritional optimized products are also discussed, as are other aspects of shelf life and physicochemical analysis, consumer awareness of the negative nutritional impact of these ingredients, and taxes and other factors that are drivers for nutritional optimization. This book is ideal for undergraduate and postgraduate students and academics, food scientists, food and nutrition researchers, and those in the food and beverage industries. Provides a clear outline of current legislation on global ingredient taxes Demonstrates effective protocols, sensory, multivariate and physico-chemical for salt, fat and sugar reduction Outlines reduction protocols, with and without the use of replacer ingredients for salt, fat and sugar reduction Illustrates the full process chain, consumer to packaging, and the effects of reformulation by reduction of ingredients

Specialty Oils and Fats in Food and Nutrition: Properties, Processing and Applications examines the main specialty oils and fats currently in use in food processing, as well as those with significant potential. Specialty oils and fats have an increasing number of applications in the food industry, due to growing consumer interest in “clean label functional foods and the emerging markets in “free-from and specialist foods. Part One of this book covers the properties and processing of specialty oils and fats, with a focus on the chemistry, extraction, and quality of different fats and oils, including chapters on shea butter, tropical exotic oils, and structured triglycerides. Part Two looks at the applications of specialty oils and fats in different food and nutraceutical products, such as confectionary, ice cream, and margarine. Specialty Oils and Fats in Food and Nutrition is a key text for R&D managers and product development personnel working in the dairy, baking, and dairy analogue sectors, or any sector using fats and oils. It is a particularly useful reference point for companies reformulating their products or developing new products to alter fat content, as well as academics with a research interest in the area, such as lipid scientists or food scientists. Authored by an industry expert with 35 years of experience working for Unilever and Loders Croklaan Broad coverage encompasses tropical exotic oils, tree nut oils, algal oils, GM vegetable oils, and more

Addressess growing application areas including nutraceuticals, infant formula, and ice cream and confectionery

Materials, Processing Technologies, and Safety Issues
Advanced Technologies for Meat Processing
Innovations in Processing, Packaging, and Predictive Modelling
Lifetime Nutritional Influences on Cognition, Behaviour and Psychiatric Illness
Salt, Fat and Sugar Reduction
A Handbook for Sensory and Consumer-Driven New Product Development

Continuing food poisoning outbreaks around the globe have put fresh produce safety at the forefront of food research. Global Safety of Fresh Produce provides a detailed and comprehensive overview of best practice for producing safe fresh produce in the supply chain, and unique coverage of commercial technologies for fresh produce safety. Part One covers the production and regulation of fresh produce on the agricultural level, including issues of niche farm fresh products, FDA regulation, and zoonotic transfer of pathogens from animals to farm products. Part Two moves on to look at safety and environmental issues surrounding fresh produce processing, such as postharvest washing, alternative sanitizers, and using produce waste as animal feed. Part Three focuses on current and emerging commercial solutions for fresh produce safety, like ionizing radiation and edible coatings, and Part Four covers methods of laboratory testing and related legislation. The final section of the book covers a series of case studies of fresh produce safety breaches, including European E. coli outbreaks in sprouts and leafy greens, and the illegal use of fluorescent whitening agents (FWAs) in China. This book is an essential text for R&D managers in the fresh produce industry, quality control professionals working with fresh produce throughout the food chain, postgraduate students, and academic researchers with an interest in fresh produce safety. Provides a comprehensive overview of best practice for produce safety Examines the production and regulation of fresh agricultural produce Looks at safety and environmental issues surrounding fresh produce processing

Processed MeatsImproving Safety, Nutrition and Quality

As with the first edition, the main goal of Advanced Technologies for Meat Processing is to provide the reader with recent developments in new advanced technologies for the full meat- processing chain. This book is written by distinguished international contributors with recognized expertise and excellent reputations, and brings together all the advances in a wide and varied number of technologies that are applied in different stages of meat processing. This second edition contains 21 chapters, combining updated and revised versions of several chapters with entirely new chapters that deal with new online monitoring techniques like hyperspectral imaging and Raman spectroscopy, the use of nanotechnology for sensor devices or new packaging materials and the application of omics technologies like nutrigenomics and proteomics for meat quality and nutrition. The book starts with the control and traceability of genetically modified farm animals, followed by four chapters reporting the use of online non-destructive monitoring techniques like hyperspectral imaging and Raman spectroscopy, real-time PCR for pathogens detection, and nanotechnology-based sensors. Then, five chapters describe different advanced technologies for meat decontamination, such as irradiation, hydrostatic and hydrodynamic pressure processing, other non-thermal technologies, and the reduction in contaminants generation. Nutrigenomics in animal nutrition and production is the object of a chapter that is followed by five chapters dealing with nutritional-related issues like bioactive peptides, functional meats, fat and salt reduction, processing of nitrite-free products, and the use of proteomics for the improved processing of dry-cured meats. The last four chapters are reporting the latest developments in bacteriocins against meat-borne pathogens, the functionality of bacterial starters, modified atmosphere packaging and the use of new nanotechnology-based materials for intelligent and edible packaging.

Recent advances in array-based detectors and imaging technologies have provided high throughput systems that can operate within a substantially reduced timeframe and other
techniques that can detect multiple contaminants at one time. These technologies are revolutionary in terms of food safety assessment in manufacturing, and will also have a significant impact on areas such as public health and food defence. This book summarizes the latest research and applications of sensor technologies for online and high throughput screening of food. The book first introduces high throughput screening strategies and technology platforms, and discusses key issues in sample collection and preparation. The subsequent chapters are then grouped into four sections: Part I reviews biorecognition techniques; Part II covers the use of optical biosensors and hyperspectral imaging in food safety assessment; Part III focuses on electrochemical and mass-based transducers; and finally Part IV deals with the application of these safety assessment technologies in specific food products, including meat and poultry, seafood, fruits and vegetables. Summarises the latest research on sensor technologies for online and high-throughput screening of food. Covers high-throughput screening and the current and forecast state of rapid contaminant detection technologies. Looks at the use of optical and electrochemical biosensors and hyperspectral imaging in food safety assessment and the application of these technologies in specific food products.

The hygiene processing of food concerns both potential hazards in food products and the regulation, design, and management of food processing facilities. This second edition of Hygiene in Food Processing gives a revised overview of the practices for safe processing and incorporates additional chapters concerning pest control, microbiological environmental sampling, and the economics of food plants. Part one addresses microbial risks in foods and the corresponding regulation in the European Union. Part two discusses the hygienic design of food factory infrastructure, encompassing the design and materials for the factory itself, as well as food processing equipment. This edition includes a new chapter on the control of compressed gases used to pneumatically operate equipment. Part three focuses on cleaning and disinfection practices in food processing. The chapter on cleaning in place also considers more cost-effective systems, and complements the additional chapter on maintenance of equipment. These chapters also explore hygiene work areas, potential infection by foreign bodies, and pest control. Further, the chapter on microbiological sampling explains how to calculate the risk of contamination depending on the product's environment. This essential second edition is useful to professionals responsible for hygiene in the food industry. It provides a comprehensive, yet concise and practical reference source for food plant managers, suppliers of food processing equipment, building contractors, and food inspectors looking for an authoritative introduction to hygiene regulation, hygienic design, and sanitation. Provides a revised overview of the practices for safe processing Incorporates additional chapters concerning pest control, microbiological environmental sampling, and the economics of food plants. This essential second edition is useful for professionals responsible for hygiene in the food industry.

Mechanisms, Consequences, and Opportunities
Case Studies in Novel Food Processing Technologies
Advances in Meat Processing Technology
Fibre-Rich and Wholegrain Foods
Biosensor Technologies, Hyperspectral Imaging and Practical Applications
Principles and Practice

Consumers are increasingly seeking foods that are rich in dietary fibre and wholegrains, but are often unwilling to compromise on sensory quality. Fibre-rich and wholegrain foods reviews key research and best industry practice in the development of fibre-enriched and wholegrain products that efficiently meet customer requirements. Part one introduces the key issues surrounding the analysis, definition, regulation and health claims associated with dietary fibre and wholegrain foods. The links between wholegrain foods and health, the range of fibre dietary ingredients and a comparison of their technical functionality are discussed, as are consumption and consumer challenges of wholegrain foods. Part two goes on to explore dietary fibre sources, including wheat and non-wheat cereal dietary fibre ingredients, vegetable, fruit and potato fibres. Improving the quality of fibre-rich and wholegrain foods, including such cereal products as wholegrain bread, muffins, pasta and noodles, is the focus of part three. Fibre in extruded products is also investigated before part four reviews quality improvement of fibre-enriched dairy products, meat products, seafood, beverages and snack foods. Companion animal nutrition as affected by dietary fibre inclusion is discussed, before the book concludes with a consideration of soluble and insoluble fibre in infant nutrition. With its distinguished editors and international team of expert contributors, Fibre-rich and wholegrain foods provides a comprehensive guide to the field for researchers working in both the food industry and academia, as well as all those involved in the development, production and use of fibre-enriched and wholegrain foods. Reviews key research and best industry practice in the development of fibre-enriched and wholegrain products. Considers analysis, definition, regulation and health claims associated with dietary fibre and wholegrain foods. Explores sources of dietary fibre including: wheat and non-wheat cereals, vegetable, fruit and potato fibres.

The Microwave Processing of Foods, Second Edition, has been updated and extended to include the many developments that have taken place over the past 10 years. Including new chapters on microwave assisted frying, microwave assisted microbial inactivation, microwave assisted disinfection, this book continues to provide the basic principles for microwave technology, while also presenting current and emerging research trends for future use development. Led by an international team of experts, this book will serve as a practical guide for those interested in applying microwave technology. Provides thoroughly up-to-date information on the basics of microwaves and microwave heating Discusses the main factors for the successful application of microwaves and the main problems that may arise Includes current and potential future applications for real-world application as well as new research and advances Includes new chapters on microwave-assisted frying, microbial inactivation, and disinfection

Nanotechnology for Food Packaging: Materials, Processing Technologies, and Safety Issues showcases the latest research in the use of nanotechnology in food packaging, providing an in-depth and interdisciplinary overview of the field. Nanoscale advances in materials science, processing technology and analytical techniques
have led to the introduction of new, cheaper and safer packaging techniques. Simultaneously, the increasing use of renewable nanomaterials has made food packaging more sustainable. Chapters provide a comprehensive review on materials used, their structure–function relationship, and new processing technologies for the application and production of nanotechnology-based packaging materials. In addition, the book discusses the use of functional materials for the development of active, smart and intelligent packaging, possible migration and toxicity of nanomaterials for foods and regulatory aspects, and commercial applications. Provides detailed information on the use of nanomaterials and methodologies in food packaging, possible applications and regulatory barriers to commercialization. Presents an interdisciplinary approach that brings together materials science, bioscience, and the industrial and regulatory aspects of the creation and uses of food packaging.

This book is a printed edition of the Special Issue "Reducing Dietary Sodium and Improving Human Health" that was published in Nutrients. Metabolomics enables valuable information about the biochemical composition of foods to be rapidly obtained. Since the biochemical profile of food largely determines key food properties such as flavor and shelf life, the information gained using metabolomics-based methods will enable greater control of food quality and also help to determine the relationship between diet and health. Metabolomics in food and nutrition provides an overview of their current and potential use in the food industry. Part one reviews equipment, methods and data interpretation in metabolomics including the use of nuclear magnetic resonance (NMR), statistical methods in metabolomics, and metabolic reconstruction databases and their application to metabolomics research. Part two explores applications of metabolomics in humans, plants and food. Chapters discuss metabolomics in nutrition, human samples for health assessments, and current methods for the analysis of human milk oligosaccharides (HMOs) and their novel applications. Further chapters highlight metabolomic analysis of plants and crops, metabolomics for the safety assessment of genetically modified (GM) crops, and applications of metabolomics in food science including food composition and quality, sensory and nutritional attributes. With its distinguished editors and team of expert contributors, Metabolomics in food and nutrition is a technical resource for industrial researchers in the food and nutrition sectors interested in the potential of metabolomics methods and academics and postgraduate students working in the area. Provides an overview of the current and potential future use of metabolomics in the food industry. Chapters focus on key applications and review the analytical methods used and the bioinformatics techniques involved in processing the results. Discusses metabolomics in nutrition, human samples for health assessments, and current methods for the analysis of human milk oligosaccharides (HMOs) and their novel applications.

High Throughput Screening for Food Safety Assessment
From Basic Science to Applications for Human Health
Advances in Meat, Poultry and Seafood Packaging
Processing Effects and Product-Specific Implications
Improving and Tailoring Enzymes for Food Quality and Functionality
Reducing Dietary Sodium and Improving Human Health
Metabolomics in nutrition, human samples for health assessments, and current methods for the analysis of human milk oligosaccharides (HMOs) and their novel applications.

Computational modeling is an important tool for understanding and improving food processing and manufacturing. It is used for many different purposes, including process design and process optimization. However, modeling goes beyond the process and can include applications to understand and optimize food storage and the food supply chain, and to perform a life cycle analysis. Modeling Food Processing Operations provides a comprehensive overview of the various applications of modeling in conventional food processing. The needs of industry, current practices, and state-of-the-art technologies are examined, and case studies are provided. Part One provides an introduction to the topic, with a particular focus on modeling and simulation strategies in food processing operations. Part Two reviews the advances, applications, and future perspectives of modeling in food processing. The book is divided into two parts: Part One provides an introduction to the topic, with a particular focus on modeling and simulation strategies in food processing operations. Part Two reviews the advances, applications, and future perspectives of modeling in food processing. The book is divided into two parts: Part One provides an introduction to the topic, with a particular focus on modeling and simulation strategies in food processing operations. Part Two reviews the advances, applications, and future perspectives of modeling in food processing.
Improving and Tailoring Enzymes for Food Quality and Functionality provides readers with the latest information on enzymes, a biological processing tool that offers the food industry a unique}

Advances in Food and Nutrition Research, Volume 84 provides updated knowledge on nutrients in foods and how to avoid their deficiency, especially the essential nutrients that should be present in the diet to reduce disease risk and optimize health. The book provides the latest advances on the identification and characterization of emerging bioactive compounds with putative health benefits. Readers will find up-to-date information on food science, including raw materials, production, processing, distribution and consumption, with an emphasis on nutritional benefits and health effects. Specific sections in this new release include discussions on ethylcellulose oleogels, novel biosensors for the rapid detection of toxicants in foods, polyphenols and their interactions with other dietary compounds - implications for human health, protein hydrolysates and hypolipidemia, the effects of B-alanine supplementation on carnosine elevation and physiological performance, the effect of ultrasound technology on food and nutritional quality, modern procedures for removal of hazardous compounds from foods, the bioactive potential of

Metabolomics is a multidisciplinary science used to understand the ways in which nutrients from food are used in the body and how this can be optimised and targeted at specific nutritional needs. Metabolomics as a Tool in Nutrition Research provides a review of the uses of metabolomics in nutritional research. Chapters cover the most important aspects of the topic such as analysis techniques, bioinformatics and integration with other ‘omic’ sciences such as proteomics and genomics. The final chapters look at the impact of exercise on metabolomic profiles and future trends in metabolomics for nutrition research.

The influence of nutrition on cognition and behaviour is a topic of increasing interest. Emerging evidence indicates that nutrition in early life can influence later mental performance and that diet in later life can reduce cognitive decline. Lifet ime nutritional influences on cognition, behaviour and psychiatric illness reviews the latest research into the effects of nutrition on cognition and behaviour across the lifespan and on psychiatric illness. Part one investigates nutritional influences on brain development and cognition including the effects of early diet and the impact of key dietary constituents including long-chain polyunsaturated fatty acids and iron. Part two explores the link between diet, mood and cognition discussing carbohydrate consumption, mood and anti-social behaviour, hydration and mental performance and the neurocognitive effects of herbal extracts, among other topics. Part three examines nutritional influences on behavioural problems, psychiatric illness and cognitive decline, including the role of nutrition in attention deficit hyperactivity disorder, vitamin status and psychiatric disorders, antioxidants and dementia, and depression, suicide and fatty acids. With its distinguished editor and international team of expert contributors, Lifet ime nutritional influences on cognition, behaviour and psychiatric illness is a valuable reference tool for researchers working on the effects of diet on the brain in both academia and industry and may also appeal to dieticians and nutritionists. Reviews the latest research into the effects of nutrition on cognition and behaviour across the lifespan and on psychiatric illness Explores the link between diet, mood and cognition discussing carbohydrate consumption, mood and anti-social behaviour Examines nutritional influences on behavioural problems, psychiatric illness and cognitive decline Improving and Tailoring Enzymes for Food Quality and Functionality provides readers with the latest information on enzymes, a biological processing tool that offers the food industry a unique means to control and tailor specific food properties. The book explores new techniques in the production, engineering, and application of enzymes, covering sourcing, isolation, and production of enzymes for food applications. In addition, chapters include detailed discussions of enzyme processing, analytical and diagnostic applications of enzymes in the food industry, and enzyme
applications in specific food commodities. Provides readers with the latest information on enzymes and their unique applications in the food industry. Explores new techniques in the production, engineering, and application of enzymes, covering sourcing, isolation, and production of enzymes for food applications. Chapters include detailed discussions of enzyme processing, engineering and analytical and diagnostic applications of enzymes in the food industry, and enzyme applications in specific food commodities.

Natural additives are increasingly favored over synthetic alternatives as methods of ensuring food safety and long shelf-life. The antimicrobial properties of both plant-based antimicrobials such as essential oils and proteins such as bacteriocins are used in, for example, edible preservative films, in food packaging and in combination with synthetic preservatives for maximum efficacy. New developments in delivery technology such as nanoencapsulation also increase the potential of natural antimicrobials for widespread use in industry. Part one introduces the different types of natural antimicrobials for food applications. Part two covers methods of application, and part three looks at determining the effectiveness of natural antimicrobials in food. Part four focuses on enhancing quality and safety, and includes chapters on specific food products. Reviews different types of antimicrobials used in food safety and quality. Covers how antimicrobials are created to be used in different foods. Examines how the antimicrobials are used in foods to enhance the safety and quality.

Emerging Technologies in Meat Processing
Production, Processing and Technology
Handbook of Fermented Meat and Poultry
Innovative Technologies for the Food and Beverage Industry
Specialty Oils and Fats in Food and Nutrition

Nanotechnology has the potential to impact food processing significantly. This important book summarises current research in this area and provides an overview of both current and possible future applications of nanotechnologies in the food industry. Issues such as safety and regulation are also addressed. After an introductory overview, the first part discusses general issues such as risk assessment, the regulatory framework, detection and characterisation of nanoparticles in food. Part two summarises the wide range of applications of nanotechnology in food processing, including nanoscale nutraceutical delivery systems, nanoemulsions and colloids, nanoscale rapid detection devices for contaminants, nanofiltration and nanocomposite packaging materials. With its distinguished editor and international team of contributors, Nanotechnology in the food, beverage and nutraceutical industries is a valuable reference work for both food processors and those researching this expanding field. Discusses issues such as risk assessment, regulatory framework, detection and characterisation of nanoparticles in food.

Summarises the wide range of applications of nanotechnology in food processing, including nutraceutical delivery and packaging materials. Written by a distinguished team of international contributors, this book is an invaluable reference for industry professionals and academics alike.

A Handbook for Sensory and Consumer Driven New Product Development explores traditional and well-established sensory methods (difference, descriptive and affective) as well as taking a novel approach to product development and the use of new methods and recent innovations. This book investigates the use of these established and new sensory methods, particularly hedonic methods coupled with descriptive methods (traditional and rapid), through multivariate data analytical interfaces in the process of optimizing food and beverage products effectively in a strategically defined manner. The first part of the book covers the sensory methods which are used by sensory scientists and product developers, including established and new and innovative methods. The second section investigates the product development process and how the application of sensory analysis, instrumental methods and multivariate data analysis can improve new product development, including packaging optimization and shelf life. The final section defines the important sensory criteria and modalities of different food and beverage products including Dairy, Meat, Confectionary, Bakery, and Beverage (alcoholic and non-alcoholic), and presents case studies indicating how the methods described in the first two sections have been successfully and innovatively applied to these different foods and beverages. The book is written to be of value to new product development researchers working in large corporations, SMEs (micro, small or medium-sized enterprises) as well as being accessible to the novice starting up their own business. The innovative technologies and methods described are less expensive than some more traditional practices and aim to be quick and effective in assisting products to market. Sensory testing is critical for new product development/optimization, ingredient substitution and devising appropriate packaging and shelf life as well as comparing foods or beverages to competitor’s products. Presents novel and effective sensory-based methods for new product development—two related fields that are often covered separately. Provides accessible, useful guidance to the new product developer working in a large multi-national food company as well as novices starting up a new business. Offers case studies that provide examples of how these methods have been applied to real product development by practitioners in a wide range of organizations. Investigates how the application of sensory analysis can improve new product development including packaging optimization.

Meat and meat-based products play an important role as foods in the diets of people around the world. However, environmental and social issues have posed a challenge to meat production. Processing plants, with the advent of more consumer conscious production values across the food processing industry and a changing attitude among some communities towards the consumption of products from animal origin. The development of meat science and technology has brought solutions that allow the consumption of meat in a greater proportion from the source. Traditional processes such as salting, smoking, and fermentation have been refined, and, more recently, processes such as emulsification, marinating, and tenderizing of meat, have further diversified meat products. Meat processing technology is also required to meet consumer expectations and demands for nutritious and safe food. Consumer requirements have pushed for need for adaptation and modernization of slaughterhouses, as well as the use of more suitable processing technologies for saving water, energy, and reducing waste production, all while trying to provide a high level of nutritional, sensory, and food-safety for consumers. Advances in Meat Processing Technologies aims to inform students, researchers, lecturers and others who are interested in the subject, about new meat and meat-based product processing technologies. The handbook covers a variety of meat processing technologies including dry fermentation,
meat emulsification, curing, marinating, restructuring and processing of non-emulsified meat and meat analogues. Additional chapters cover the use of additives and ultrasound technology in meat processing as well as different strategies suitable for meat processing operations. The simple, topical presentation of the book, which covers a wide variety of products makes the book a key reference for informing students, researchers, lecturers, professionals and general readers who are interested in the subject of meat processing technology.

The need to reduce saturated fat levels in food and the different ways of doing this are among the most important issues facing the food industry. Reducing saturated fats in foods reviews the sources and effects of saturated fats in food and the ways in which the food industry can effectively reduce saturates. Part one covers the functional and nutritional aspects of saturated fats in foods, with chapters covering sources of dietary saturated fats, their functional attributes and the health issues associated with saturated fatty acids. Part two focuses on reducing saturated fats through food reformulation, concentrating on both the technologies used and the food categories affected. Chapters cover topics such as emulsion technology for reduction of saturated fats and the application of diacylglycerol oils, as well as different food categories including milk and dairy products, processed meats, fried foods and pastry products. With its distinguished editor and international team of contributors, Reducing saturated fats in foods is an essential reference for oils and fats processors and food manufacturers, as well as those researching saturated fats in the academic sector. Reviews the sources and effects of saturated fats in food and the ways in which the food industry can effectively reduce saturates Explores the functional and nutritional aspects of saturated fats in foods, covering sources of dietary saturated fats and their functional attributes Focuses on reducing saturated fats through food reformulation, concentrating on both the technologies used and the food categories affected

Fermented meat products have been consumed for centuries in many different parts of the world and constitute one of the most important groups of food. Bacterial cultures are used in their manufacture to preserve the meat and confer particular textures and sensory attributes. Examples of fermented meats include salami, chorizo, pepperoni and saucisson. This fully revised and expanded reference book on meat fermentation presents all the principle fermented meat products and the processing technologies currently used in their manufacture. The 54 chapters of this substantial book are grouped into the following sections: Meat fermentation worldwide: overview, production and principles Raw materials Microbiology and starter cultures for meat fermentation Sensory attributes Product categories: general considerations Semidry-fermented sausages Dry-fermented sausages Other fermented meats and poultry Ripened meat products Biological and chemical safety of fermented meat products Processing sanitation and quality assurance There are five new chapters in the second edition that address the following topics: Smoking and new smoke flavourings; Probiotics; Methodologies for the study of the microbial ecology in fermented sausages; Low sodium in meat products; and Asian sausages. Handbook of Fermented Meat and Poultry, Second Edition provides readers with a full overview of meat fermentation, the role of microorganisms naturally present and/or added as starter cultures, safety aspects and an account of the main chemical, biochemical, physical and microbiological changes that occur in processing and how they affect final quality. Finally, readers will find the main types of worldwide fermented meat products, typically produced in different areas, with the description of their main characteristics.

Fermented Meat Products
Biologically Active Peptides
The Microwave Processing of Foods
Metabolomics as a Tool in Nutrition Research
Nanomaterials for Food Packaging
Improving Quality

Meat is a unique biological material with a central importance in nutrition and health. Advances in Meat Processing Technology merges the expertise of meat scientists and food engineers in a holistic approach toward the processing of meat. The meat industry strives to deliver consistent high quality and safe meat products. Readers can benefit from knowledge generated by meat science researchers by achieving a greater understanding of the nature of meat, and the engineering technology required for meat processing. This book comprises 17 full chapters that provide up-to-date and fundamental information on current topics in meat processing. This includes novel technologies, such as the application of pulsed electric field, meat stretching and shaping, ultrasound and high pressure. In addition, analytical techniques such as Raman spectroscopy and NMR are enabling considerable advancement of knowledge in meat science and in meat processing. Written by world renowned experts in their fields, this contemporary collective work assembles the state of current knowledge that is of importance to both industry and academia.

Reducing Saturated Fats in Foods
Advances in Microbial Food Safety
Global Safety of Fresh Produce
A Handbook of Best Practice, Innovative Commercial Solutions and Case Studies
Theory and Practice
Metabolomics in Food and Nutrition