

## **Microbial Quality And Proximate Composition Of Dried**

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. This book covers a range of important topics on dairy and fermented foods and microalgae biotechnologies for food, beverage and bioproduct industries. The topics range from traditionally fermented African foods, fermentation technologies for large-

scale industrial enzyme production to microalgae cultivation and nutraceuticals in Africa, etc. The editors provide detailed information on approaches towards harnessing indigenous bioresources for food and nutrition security, climate change adaptation, industrial enzyme production, environmental remediation and healthcare delivery. The book will be useful reference material for scientists and researchers working in the field of dairy and food biotechnology, fermentation technology, enzyme biotechnology, algal biotechnology and cultivation systems, biofuels and other bioproducts from algal biomass and underutilized and novel African food sources. Emphasizes recent advances in biotechnologies that could ameliorate the high-level global food insecurity through fermentation technologies applicable to traditional African indigenous and underutilized novel foods, algal biotechnology and value-added bioproducts Provides detailed information on how to harness indigenous bioresources including microalgae for food and nutrition security, climate change adaptation, industrial enzyme production, environmental remediation and healthcare delivery Introduces new frontiers in the area of large-scale enzyme production using fermentation biotechnologies and their applications in the food and beverage industries Discusses current biotechnologies applicable in the food, beverage and bioproduct industries James Chukwuma Ogbonna, Ph.D., is a Professor of Microbiology and Biotechnology, and Director, National Biotechnology Development Agency, South East Zonal Biotechnology Centre, University of Nigeria, Nsukka,

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This book offers the latest scientific research on applied microbiology presented at the IV International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld2011) held in Spain in 2011. A wide-ranging set of topics including agriculture, environmental, food, industrial and medical microbiology makes this book interesting not only for microbiologists, but also for anyone who likes to keep up with cutting-edge research in microbiology and microbial

biotechnology. Readers will find a major collection of knowledge, approaches, methods and discussions on the latest advances and challenges in applied microbiology in a compilation of 136 chapters written by active researchers in the field from around the world. The topics covered in this single volume include biodegradation of pollutants, water, soil and plant microorganisms, biosurfactants, antimicrobial natural products, antimicrobial susceptibility, antimicrobial resistance, human pathogens, food microorganisms, fermentation, biotechnologically relevant enzymes and proteins, microbial physiology, metabolism and gene expression mainly, although many other subjects are also discussed.

Includes reports of activities of: National Institute of Science and Technology, Philippine Atomic Energy Commission, Philippine Coconut Research Institute, Philippine Textile Research Institute, Philippine Inventors Commission and Forest Products Research and Industries Development Commission.

Safety and Microbiological Quality

Solidarity in a competing world - fair use of resources

Report of the Seventh Session of the Committee for the Development and Management of Fisheries in the Southwest Indian Ocean

FAO Fisheries Report

Fermentation and Algal Biotechnologies for the Food, Beverage and Other Bioproduct Industries

The Effect of Salt Reduction on the Microbial Composition and Quality Characteristics of Sliced Roast Beef and Turkey Breast

*Today, flavor chemists can generate copious amounts of data in a short time with relatively little effort using automated solid phase micro-extraction, Gerstel-Twister and other extraction techniques in combination with gas chromatographic (GC) analysis. However, more data does not necessarily mean better understanding. In fact, the ability to extr*

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*antimicrobial susceptibility, antimicrobial resistance, human pathogens, food microorganisms, fermentation, biotechnologically relevant enzymes and proteins, microbial physiology, metabolism and gene expression mainly, although many other subjects are also discussed. Sample Chapter(s) A microcosm study on the die-off response of the indicator bacteria, Enterococcus faecium and Enterococcus faecalis (267 KB)*

*Contents:Agriculture, Soil, Environmental and Marine-Aquatic MicrobiologyFood MicrobiologyIndustrial Microbiology. Methods. Quantitative Models and BioinformaticsMedical and Pharmaceutical Microbiology. Antimicrobial Agents and ChemotherapyMicrobial Physiology, Metabolism and Gene ExpressionBiotechnologically Relevant Enzymes and Proteins Readership: Professionals, microbiologists, clinicians, (bio)chemists, physicists, and engineers. Keywords:Microorganisms;Applied Microbiology;Environmental Microbiology;Industrial Microbiology;Microbial Biotechnology;BioMicroWorld2011 Conference Proceedings Book;Mendez-VilasKey Features:The topics covered in this single volume include biodegradation of pollutants, water, soil and plant microorganisms, biosurfactants, antimicrobial natural products, antimicrobial susceptibility, antimicrobial resistance, human pathogens, food microorganisms,*

*fermentation, biotechnologically relevant enzymes and proteins, microbial physiology, metabolism and gene expression mainly, although many other subjects are also discussed*

*Dairy Processing and Quality Assurance, Second Edition describes the processing and manufacturing stages of market milk and major dairy products, from the receipt of raw materials to the packaging of the products, including the quality assurance aspects. The book begins with an overview of the dairy industry, dairy production and consumption trends. Next are discussions related to chemical, physical and functional properties of milk; microbiological considerations involved in milk processing; regulatory compliance; transportation to processing plants; and the ingredients used in manufacture of dairy products. The main section of the book is dedicated to processing and production of fluid milk products; cultured milk including yogurt; butter and spreads; cheese; evaporated and condensed milk; dry milks; whey and whey products; ice cream and frozen desserts; chilled dairy desserts; nutrition and health; sensory evaluation; new product development strategies; packaging systems; non-thermal preservation technologies; safety and quality management systems; and dairy laboratory analytical techniques. This fully revised and updated edition highlights the developments which have*

*taken place in the dairy industry since 2008. The book notably includes: New regulatory developments The latest market trends New processing developments, particularly with regard to yogurt and cheese products Functional aspects of probiotics, prebiotics and synbiotics A new chapter on the sensory evaluation of dairy products Intended for professionals in the dairy industry, Dairy Processing and Quality Assurance, Second Edition, will also appeal to researchers, educators and students of dairy science for its contemporary information and experience-based applications.*

*Nutrition is the key driver of animal health, welfare and production. In agriculture, nutrition is crucial to meet increasing global demands for animal protein and consumer demands for cheaper meat, milk and eggs and higher standards of animal welfare. For companion animals, good nutrition is essential for quality and length of life. Animal Nutrition examines the science behind the nutrition and feeding of the major domesticated animal species: sheep, beef cattle, dairy cattle, deer, goats, pigs, poultry, camelids, horses, dogs and cats. It includes introductory chapters on digestion and feeding standards, followed by chapters on each animal, containing information on digestive anatomy and physiology, evidence-based nutrition and feeding requirements, and common nutritional and metabolic diseases. Clear*

*diagrams, tables and breakout boxes make this text readily understandable and it will be of value to tertiary students and to practising veterinarians, livestock consultants, producers and nutritionists.*

*Cumulative Index: Volumes 1-45*

*NSDB Technology Journal*

*Sensory-Directed Flavor Analysis*

*Current Advances and Challenges*

*Microbes in Applied Research*

*Handbook of Food Preservation*

This need-based unique book deals exclusively with water buffalo (*Bubalus bubalis*) meat to provide much needed information to thousands of buffalo meat processors across the world. The information provided in this first-of-its-kind book on buffalo meat quality, nutritional characteristics, safety, and processing can be utilized by buffalo meat producers and meat processors for the advancement of the buffalo meat sector. It also provides valuable information to faculty members, students, researchers, and all other readers interested in this new source of meat. Owing to the limited research and scientific literature available on buffalo meat, the authors' own research findings and our experiences were included wherever required to give crisp, practical, and complete information. The information proposed in this book should

be beneficial to the entire buffalo industry, from the farming and processing of buffaloes to the marketing of products. This serve as a handy guide to meat scientists, faculty members, and students willing to learn more about buffalo meat processing. Up-to-date relevant references were also included for the benefit of researchers and students to enable them to easily access further information. Above all, it provides valuable information to consumers who are interested to know this new and potential source of meat.

The importance of processing and packaging food items so that they are safe for the consumer cannot be underestimated. Sensors have an important role to play in this, and sensing technologies have attracted the attention of the scientific community in view of increasing environmental and societal concerns. This edited volume presents a collection of ten chapters discussing the current trends of bio- and nano-sensing technologies for processing and packaging of food items. Starting with an overview chapter which introduces the field, the book goes on to discuss novel applications related to preservation, authenticity and safety of foods. Intelligent food packaging and nano-based sensing are covered, and the book finishes with a look towards the pros and cons of how this will revolutionise sensing throughout the food sector. It will be of benefit to scientists and practising professionals conducting research in the areas of food processing, contamination and food safety, and academic researchers and graduate students studying food technology or food engineering.

Asia has a long history of preparation and consumption of various types of ethnic fermented foods and alcoholic beverages based on available raw substrates of plant or animal sources and also depending on agro-climatic conditions of the regions. Diversity of functional microorganisms in Asian ethnic fermented foods and alcoholic beverages consists of bacteria (Lactic acid bacteria and *Bacillus* species, micrococci, etc.), amylolytic and alcohol-producing yeasts and filamentous moulds. Though there are hundreds of research articles, review papers, and limited books on fermented foods and beverages, the present book: *Ethnic Fermented Foods and Alcoholic Beverages of Asia* is the first of this kind on compilation of various ethnic fermented foods and alcoholic beverages of Asia. This book has fifteen chapters covering different types of ethnic fermented foods and alcoholic beverages of Asia. Some of the authors are well-known scientists and researchers with vast experiences in the field of fermented foods and beverages who include Prof. Tek Chand Bhalla, Dr. Namrata Thapa (India), Prof. Yearul Kabir and Dr. Mahmud Hossain (Bangladesh), Prof. Tika Karki (Nepal), Dr. Saeed Akhtar (Pakistan), Prof. Sagarika Ekanayake (Sri Lanka), Dr. Werasit Sanpamongkolchai (Thailand), Prof. Sh. Demberel (Mongolia), Dr. Yoshiaki Kitamura, Dr. Ken-Ichi Kusumoto, Dr. Yukio Magariyama, Dr. Tetsuya Oguma, Dr. Toshiro Nagai, Dr. Soichi Furukawa, Dr. Chise Suzuki, Dr. Masataka Satomi, Dr. Kazunori Takamine, Dr. Naonori Tamaki and Dr. Sota Yamamoto (Japan), Prof. Dong-Hwa Shin, Prof. Cherl-Ho Lee, Dr. Young-Myoung Kim, Dr. Wan-Soo Park Dr. Jae-Ho

Kim (South Korea) Dr. Maryam Tajabadi Ebrahimi (Iran), Dr. Francisco B. Elegado (Philippines), Prof. Ingrid Suryanti Surono (Indonesia), Dr. Vu Nguyen Thanh (Vietnam). Researchers, students, teachers, nutritionists, dieticians, food entrepreneurs, agriculturalist, government policy makers, ethnologists, sociologists and electronic media persons may read this book who keep interest on biological importance of Asian fermented foods and beverages.

Protein nutrition and sustainability is a global challenge. Emerging Sources and Applications of Food Proteins provides the latest progresses about research and applications of emerging alternative proteins. Topics covered in this volume include rapeseed (canola) proteins, pulse proteins, insect proteins, fungal proteins, artificial meat, and new applications in bioactive peptides, nanotechnology, 3D printing, meat alternatives, with a focus on the consumer trend and practical applications. Focuses only on emerging sources of food proteins that are key to sustain the global protein nutrition Written by invited experts with years of hands-on experience on the field Provides the latest advancements of research and application of emerging sources of food proteins Aims to inspire new protein products development using emerging sources of food proteins

Innovative Food Processing Technologies

New and Future Developments in Microbial Biotechnology and Bioengineering

A Sustainable and Healthy Red Meat Source

Shellfish Processing and Preservation

Dairy Processing and Quality Assurance

African Edible Insects As Alternative Source of Food, Oil, Protein and Bioactive Components

*Modern marketing arrangements are increasingly being implemented to assure improved food quality and safety. However, it is not well known how these modern marketing arrangements perform in early stages of roll-out. We study this issue in the case of rural-urban milk value chains in Ethiopia, where modern processing companies – selling branded pasteurized milk – and modern retail have expanded rapidly in recent years. We find overall that the adoption levels of hygienic practices and practices leading to safer milk by dairy producers in Ethiopia are low and that there are no significant differences between traditional and modern milk value chains. While suppliers to modern processing companies are associated with more formal milk testing, they do not obtain price premiums for the adoption of improved practices nor do they obtain higher prices overall. Rewards to suppliers by modern processing companies are mostly done through non-price mechanisms. At the urban retail level, we surprisingly find that there are no price differences between branded pasteurized and raw milk and that modern retailers sell pasteurized milk at lower prices, ceteris paribus. Modern value chains to better reward hygiene and food safety in these settings are therefore called for.*

*Advances in Food Research*

*Urban Water Crisis and Management: Strategies for Sustainable Development, Sixth Edition presents solutions for the current challenges of urban water and management strategies. Through contributed chapters, a framework is laid out for a reduction of the use of groundwater (heavily overused as a solution) and the alternative options for the supply of water to cities, or for urban water. Sections discuss urban water, its problems and management approaches, address the root causes of the water crisis in urban areas, and cover the scientific and technical knowledge necessary to manage water resources. Significant gaps between developed and developing nations in the procedure of water management are also addressed, along with practical information regarding recycling and the reuse of wastewater which is useful as baseline data for the future. Presents the quantitative study of water supply in urban areas, identifies water scarcity in megacities, and provides management approaches for sustainable development Identifies technology and the instruments required for the management and safe supply of water Includes case studies where these technologies have been successfully used*

*This open access book describes recent innovations in food systems based on root, tuber and banana crops in developing countries. These innovations respond to many of the challenges facing these vital crops, linked to their vegetative seed and bulky and perishable produce. The innovations create value, food, jobs and new sources of income while improving the*

*wellbeing and quality of life of their users. Women are often key players in the production, processing and marketing of roots, tubers and bananas, so successful innovation needs to consider gender. These crops and their value chains have long been neglected by research and development, hence this book contributes to filling in the gap. The book features many outcomes of the CGIAR Research Program in Roots, Tubers and Banana (RTB), which operated from 2012-21, encompassing many tropical countries, academic and industry partners, multiple crops, and major initiatives. It describes the successful innovation model developed by RTB that brings together diverse partners and organizations, to create value for the end users and to generate positive economic and social outcomes. RTB has accelerated the scaling of innovations to reach many end users cost effectively. Though most of the book's examples and insights are from Africa, they can be applied worldwide. The book will be useful for decision makers designing policies to scale up agricultural solutions, for researchers and extension specialists seeking practical ideas, and for scholars of innovation.*

*Asiatic Water Buffalo*

*Mahé, Seychelles, 29 September-2 October 1997*

*Value Creation for Inclusive Outcomes*

*Ethnic Fermented Foods and Beverages of India: Science History and Culture*

*Summary Report of and Papers Presented at the Tenth Session of the Working Party on Fish Technology and Marketing*

### *Advances in Food Research*

Shellfish is a broad term that covers various aquatic mollusks, crustaceans and echinoderms that are used as food. They have economic and ecological importance and have been consumed as food for centuries. Shellfish provide high quality protein with all the dietary amino acids essential for maintenance and growth of the human body. Shellfish are a major component of global seafood production, with shellfish aquaculture rapidly growing in recent years. There are many different processing methods used across the world. Shellfish are very perishable foods and must be preserved just after catching or harvesting. This makes the preservation of seafood a critical issue in terms of quality and human health. To date there have been a number of books on seafood processing and preservation, but all of them have been mostly focused on fish. *Shellfish Processing and Preservation* is the first reference work to focus specifically on shellfish, providing comprehensive coverage of the production methods, biological makeups and preservation methods of all major shellfish species. Individual sections focus on crustaceans such as shrimps and prawns, crabs and lobsters plus molluscans including mussels, scallops and oysters. Cephalopods such as squid and octopus are also covered in depth. For each species processing and preservation methods such as chilling, freezing, canning and curing are examined, plus the important safety aspects specific to each shellfish type. *Shellfish Processing and Preservation* is an essential publication for any researchers or

industry professionals in search of a singular and up-to-date source for the processing and preservation of shellfish.

The processing of food is no longer simple or straightforward, but is now a highly interdisciplinary science. A number of new techniques have developed to extend shelf-life, minimize risk, protect the environment, and improve functional, sensory, and nutritional properties. Since 1999 when the first edition of this book was published, it has facilitated readers' understanding of the methods, technology, and science involved in the manipulation of conventional and newer sophisticated food preservation methods. The Third Edition of the Handbook of Food Preservation provides a basic background in postharvest technology for foods of plant and animal origin, presenting preservation technology of minimally processed foods and hurdle technology or combined methods of preservation. Each chapter compiles the mode of food preservation, basic terminologies, and sequential steps of treatments, including types of equipment required. In addition, chapters present how preservation method affects the products, reaction kinetics and selected prediction models related to food stability, what conditions need be applied for best quality and safety, and applications of these preservation methods in different food products. This book emphasizes practical, cost-effective, and safe strategies for implementing preservation techniques for wide varieties of food products. Features: Includes extensive overview on the postharvest handling and treatments for foods of

plants and animal origin Describes comprehensive preservation methods using chemicals and microbes, such as fermentation, antimicrobials, antioxidants, pH-lowering, and nitrite Explains comprehensive preservation by controlling of water, structure and atmosphere, such as water activity, glass transition, state diagram, drying, smoking, edible coating, encapsulation and controlled release Describes preservation methods using conventional heat and other forms of energy, such as microwave, ultrasound, ohmic heating, light, irradiation, pulsed electric field, high pressure, and magnetic field Revised, updated, and expanded with 18 new chapters, the Handbook of Food Preservation, Third Edition, remains the definitive resource on food preservation and is useful for practicing industrial and academic food scientists, technologists, and engineers.

The harvesting, processing and consumption of edible insects is one of the main keys to the sustainability of food chains on the African continent. Insects are the largest and most successful group of animals on the planet and it is estimated that they comprise 80% of all animals. This makes edible insects extremely important to the future survival of large populations across Africa and the world. Insects offer a complete animal protein that includes all 9 essential amino acids and are very competitive with other protein sources. They are also a good source of beneficial unsaturated fats, and many insects have a perfect Omega 3:6 balance. African Edible Insects As Alternative Source of Food, Oil, Protein and Bioactive Components comprehensively outlines the importance of edible

insects as food and animal feed and the processing of insects in Africa. The text also highlights indigenous knowledge of edible insects and shows the composition and nutritional value of these insects, plus presents reviews of current research and developments in this rapidly expanding field. All of the main types of edible insects are covered, including their nutritional value, chemical makeup, and harvesting and processing details. The various preparation technologies are covered for each insect, as are their individual sensory qualities and safety aspects. A key aspect of this work is its focus on the role of insects in edible oils and gelatins. Individual chapters focus on entomophagy in Africa and the various key aspects of the continent's growing edible insect consumption market. As it becomes increasingly clear that the consumption of insects will play a major role in the sustainability of food chains in Africa, this work can be used as a comprehensive and up-to-date singular source for researchers looking for a complete overview on this crucial topic.

In recent years, there has been an increase in the concern of society and industries about how food and beverages are produced, the production of natural compounds as well as the concern of industries on fermentation-based processes. Thus, there are several approaches worldwide that are looking for low time and low cost fermentation-based processes integrating not only molecular biology procedures but also engineering. This book contains eleven chapters written by international experts in the field of

fermentation. It covers all recent aspects on fermentation-based processes with potential applications in many fields such as bio combustible production, food and beverage processing, and biomedicine.

Colombo, Sri Lanka, 4-7 June 1996

Food safety, modernization, and food prices: Evidence from milk in Ethiopia

Technological Developments and Advances

Bio- and Nano-sensing Technologies for Food Processing and Packaging

From Theory to Practice

Quality Characteristics of Newfoundland Cultured Blue Mussels (*Mytilus Edulis*) at Pre- and Post-harvest Stages

**As with the first edition this book includes chapters on established fish processes and new processes and allied issues. The first five chapters cover fish biochemistry affecting processing, curing, surimi and fish mince, chilling and freezing and canning. These established processes can still show innovations and improved theory although their mature status precludes major leaps in knowledge and technology. The four chapters concerned with new areas relevant to fish processing are directed at the increasing globalisation of the fish processing industry and the demands, from legislation and the consumer, for better quality, safer products. One chapter reviews the methods available to identify fish species in raw and processed products. The**

**increased demand for fish products and the reduced catch of commercially-important species has lead to adulteration or substitution of these species with cheaper species. The ability to detect these practices has been based on some elegant analytical techniques in electrophoresis.**

**New and Future Developments in Microbial Biotechnology and Bioengineering: Microbial Biomolecules: Properties, Relevance and Their Translational Applications presents a concise review on microbial biotechnology, along with impacts and recent results from research centers, small companies and large enterprises. The book brings the most relevant information on how we can use resources—in this case from microorganisms—and technology to develop solutions in fields like biofuels, food, cosmetics and medicine. It covers case studies of start-ups in the field and explains how scientists have moved their ideas into profitable bio-based products that are necessary for our current living standards. In addition, the book describes strategic governmental programs designed to exploit biomass in a sustainable way, along with detailed information on research in several high-impact, worldwide laboratories. It gives concrete examples of ongoing research from molecules to methods, such as L-asparaginase, extremophiles, new diagnostics tools and the analytical methods that have raised the quality of the data obtained, thereby boosting the so-called bioeconomy. Comprises a unique source of information on the**

**various applications of microbial biomolecules Provides resourceful material for new ideas and strong rational/application-oriented stories Discusses biotech companies in various areas (biofuel, food, medicine, etc.) who are actively using microbial biomolecules Outlines scientific discoveries and their translation into profitable products Gives an insight perspective of institutional and governmental strategic research programs aiming to preserve, explore and generate benefits from microbial biomolecules**

**Tilapia Culture, Second Edition, covers the vital issues of farmed tilapia in the world, including their biology, environmental requirements, semi-intensive culture, intensive culture systems, nutrition and feeding, reproduction, seed production and larval rearing, stress and disease, harvesting, economics, trade, marketing, the role of tilapia culture in rural development and poverty eradication, and technological innovations in, and the environmental impacts of, tilapia culture. In addition, the book highlights and presents the experiences of leading countries in tilapia culture, thus making it ideal for tilapia farmers and researchers who seek the most relevant research and information. The new second edition not only brings the most updated information within each chapter, but also delivers new content on tilapia transfers, introductions and their impacts, the use of probiotics and other additives in tilapia culture, tilapia trade, including marketing, and sustainability approaches and**

**practices, such as management practices, ecosystem approaches to tilapia culture, and value chain analyses of tilapia farming. Presents the biology of tilapia, including taxonomy, body shapes, geographical distribution, introductions and transfers, gut morphology, and feeding habits Covers semi-intensive tilapia culture in earthen ponds, tanks, raceways, cages, recirculating systems, and aquaponics Provides the latest information on brood stock management, production of monosex tilapia, seed production, and larval rearing under different culture systems Highlights the most common infectious and non-infectious diseases affecting farmed tilapia, with a full description of disease symptoms and treatment measures Provides an in-depth exploration of tilapia economics, trade and marketing**

**This study analyzed the effects of salt reduction on microbiological composition and quality characteristics of deli-style turkey breast and roast beef. Turkey breast and roast beef were manufactured with four different salt concentrations: 1.0%, 1.5%, 2.0%, and 2.5% on a meat block basis in addition to sugar, phosphate, and water. Samples were cooked, chilled overnight, sliced, and packaged. On the day of slicing, samples were evaluated for water activity, cooking yield, proximate composition and percent salt. Samples were evaluated throughout 18w of refrigerated storage for pH, texture profile analysis, aerobic plate count (APC), and anaerobic plate count. Bacterial communities were analyzed by 16S rRNA gene sequencing. Beef with**

**2.5% salt had the lowest APC. Aerobic plate count increased until week 6 and then reached a plateau. Family Pseudomonadaceae was the dominant flora on all samples. Relative abundance of Pseudomonadaceae was 46.4% of all sequences in beef samples and 36.0% in turkey samples after slicing, and increased at week 2 for the remainder of storage time. Salt reduction negatively impacted cooking yield and increased water activity. Beef samples had a lower pH than turkey, and 1.5% salt had a lower pH than all other salt concentrations. Decreasing salt concentration increased hardness. In beef, gumminess and cohesiveness increased as salt decreased. In turkey samples, the greatest gumminess and cohesiveness was observed with 1.5% salt while turkey with 2.5% salt had the least gumminess and cohesiveness. Beef samples with 1.0% salt had the greatest chewiness, followed by beef with 1.5% salt. Turkey samples with 2.5%, 2.0%, and 1.0% had the lowest chewiness values. Salt reduction decreased springiness, and turkey samples had lower values than beef. These results show that bacterial population dynamics of cooked deli meat may be more dependent on initial load than salt concentration. Furthermore, reducing salt alters the textural properties of cooked deli meats, changes the proximate composition of cooked meat products, and reduces cooking yields.**

**Current Advantages and Challenges**

## **Snack Foods**

### **Microbiological Safety and Quality of Food**

### **Ethnic Fermented Foods and Alcoholic Beverages of Asia**

### **A Comprehensive Review**

### **Annual Report**

This book provides detailed information on the various ethnic fermented foods and beverages of India. India is home to a diverse food culture comprising fermented and non-fermented ethnic foods and alcoholic beverages. More than 350 different types of familiar, less-familiar and rare ethnic fermented foods and alcoholic beverages are traditionally prepared by the country's diverse ethnic groups, and include alcoholic, milk, vegetable, bamboo, legume, meat, fish, and cereal based beverages. Most of the Indian ethnic fermented foods are naturally fermented, whereas the majority of the alcoholic beverages have been prepared using dry starter culture and the 'back-sloping' method for the past 6,000 years. A broad range of culturable and unculturable microbiomes and mycobiomes are associated with the fermentation and production of ethnic foods and alcoholic drinks in India. The book begins with detailed chapters on various aspects

including food habits, dietary culture, and the history, microbiology and health benefits of fermented Indian food and beverages. Subsequent chapters describe unique and region-specific ethnic fermented foods and beverages from all 28 states and 9 union territories. In turn the classification of various ethnic fermented foods and beverages, their traditional methods of preparation, culinary practices and mode of consumption, socio-economy, ethnic values, microbiology, food safety, nutritional value, and process optimization in some foods are discussed in details with original pictures. In closing, the book addresses the medicinal properties of the fermented food products and their health benefits, together with corresponding safety regulations.

The theme of 2016 is "Solidarity in a competing world - fair use of resources". While on the one hand, one part of the world is profiting from natural resources, the other part of the world is suffering with hunger, malnutrition, human diseases, low income, violence and lately is also challenged through climate change. There is need to rethink and engage in a fair share of all resources between the continents and nations. This includes huge engagement into the management of

natural resources to solve the long list of environmental threats expressed through ongoing erosion, loss of soil fertility and loss of biodiversity, and topped by climate change having strong impact on the productivity in agriculture, fishery and forestry, and the use and quality of water and of energy in the South.

The safety and microbiological quality of fermented foods covers complementary aspects of such products. Food fermentation is primarily intended to improve food preservation, thereby modifying food properties. However, the management of chemical and microbiological hazards is a leading aspect for innovative processing in this domain. Similarly, microbiological quality in fermented foods is of peculiar importance: all microorganisms with a positive effect, including probiotic bacteria, fermentative bacteria, *Saccharomyces* and non-*Saccharomyces* yeasts, can be relevant. The fitness of pro-technological microorganisms impacts nutritional quality, but also sensory properties and processing reliability. This book provides a broad view of factors which determine the safety and microbiological quality of fermented foods. A focus is made on the interconnection between starter properties and the expectations related to a probiotic

effect. All chapters underline the involvement of fermented foods towards better resource management and increasing food and nutritional security, especially in developing countries.

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.

Strategies for Sustainable Development

Microbial Biomolecules: Properties, Relevance, and Their  
Translational Applications

Fish Processing Technology

Microbial Biotechnology in Crop Protection

Soft Chemistry and Food Fermentation

***This is a cumulative index of Volumes 1-45 of the Advances in Food and Nutrition Research series, established in 1948. This eclectic serial recognizes the integral relationship between the food and nutritional sciences and brings together outstanding and comprehensive reviews that highlight this relationship. Contributions detail the scientific developments in the broad areas encompassed by the fields of food science and nutrition and are intended to ensure that food scientists in academia and industry, as well as professional nutritionists and dieticians, are kept informed concerning emerging research and developments in these important disciplines. Series established in 1948 Advisory Board consists of 8 respected scientists Unique as it combines food science and nutrition research together***

*This authoritative two-volume reference provides valuable, necessary information on the principles underlying the production of microbiologically safe and stable foods. The work begins with an overview and then addresses four major areas: 'Principles and application of food preservation techniques' covers the specific techniques that defeat growth of harmful microorganisms, how those techniques work, how they are used, and how their effectiveness is measured. 'Microbial ecology of different types of food' provides a food-by-food accounting of food composition, naturally occurring microflora, effects of processing, how spoiling can occur, and preservation. 'Foodborne pathogens' profiles the most important and the most dangerous microorganisms that can be found in foods, including bacteria, viruses, parasites, mycotoxins, and 'mad cow disease.' The section also looks at the economic aspects and long-term consequences of foodborne disease. 'Assurance of the microbiological safety and quality of foods' scrutinizes all aspects of quality assurance, including*

*HACCP, hygienic factory design, methods of detecting organisms, risk assessment, legislation, and the design and accreditation of food microbiology laboratories. Tables, photographs, illustrations, chapter-by-chapter references, and a thorough index complete each volume. This reference is of value to all academic, research, industrial and laboratory libraries supporting food programs; and all institutions involved in food safety, microbiology and food microbiology, quality assurance and assessment, food legislation, and generally food science and technology. This book, Microbiology for Food and Health: Technological Developments and Advances, highlights the innovative microbiological approaches and advances made in the field of microbial food industries. The volume covers the most recent progress in the field of dairy and food microbiology, emphasizing the current progress, actual challenges, and successes of the latest technologies. This book looks at technological advances in starter cultures, prospective applications of food-grade microorganisms for*

*food preservation and food safety, and innovative microbiological approaches and technologies in the food industry. The first series of chapters discuss the types, classification, and systematic uses of various starter cultures in addition to probiotics for various commercial fermentation processes. The book goes on to covers recent breakthroughs in microbial bioprocessing that can be employed in the food and health industry, such as, for an example, prospective antimicrobial applications of inherently present fermentative microflora against spoilage and pathogenic type microorganisms; the use of potential probiotic LAB biofilms for the control of formation of pathogenic biofilms by exclusion mechanisms, and more. This edited volume is a comprehensive account of plant diseases and insect pests, plant protection and management for various crops using microbial and biotechnological approaches. The book elucidates the role of biotechnology for the enhancement of crop productivity and management of bacterial and fungal diseases via eco-friendly methods. It*

*discusses crop–pest– pathogen interaction and utilizing this interaction in a beneficial and sustainable way. This book is of interest to teachers, researchers, plant scientists and plant pathologists. Also the book serves as additional reading material for undergraduate and graduate students of agriculture, forestry, ecology, soil science, and environmental sciences.*

*Advances in Food and Nutrition Research*

*Progress in Food Preservation*

*Animal Nutrition*

*New Advances on Fermentation Processes*

*Tilapia Culture*

*Second Edition*

*Snack Foods: Processing and Technology presents the use of different raw materials, processing technologies, quality attributes of snacks, machinery requirements, and innovative thoughts for future product development. These items are discussed in 15 chapters, including recent technologies leading to the industrial production of popular snacks and*

*healthy products. The discussion on artistic snacks and troubleshooting are the new additions. This book will be of use to entrepreneurs, academic and research institutes, professionals in the field, and personnel from industries. Covers recent technologies like pressure/vacuum frying process, par frying, agglomeration, use of infra-red, radiofrequency Explores the use of innovative methods for the development of healthy snacks Includes indications for the wide commercialization of traditional foods in the near future*

*Soft Chemistry and Food Fermentation, Volume Three, the latest release in the Handbook of Food Bioengineering series is a practical resource that provides significant knowledge and new perspectives in food processing and preservation, promoting renewable resources by applying soft ecological techniques (i.e. soft chemistry). Fermentation represents a simple and very efficient way to preserve food in developing countries where other methods, depending on specialized instruments, are not available. Through processes of soft*

*chemistry and fermentation, food ingredients can be produced with improved properties (such as pharmabiotics) able to promote health. Includes the most recent scientific progress with proven biological, physical and chemical applications of the food engineering process to understand fermentation Presents novel opportunities and ideas for developing and improving technologies in the food industry that are useful to researchers in food bioengineering Provides eco-friendly approaches towards components, materials and technologies developed for improvements in food quality and stability Includes valuable information useful to a wide audience interested in food chemistry and the bioremediation of new foods*

*Summary Report of and Papers Presented at the Tenth Session of the Working Party on Fish Technology and Marketing Colombo, Sri Lanka, 4-7 June 1996 Food & Agriculture Org. Microbes in Applied Research Current Advantages and Challenges World Scientific Urban Water Crisis and Management*

*Microbiology for Food and Health*

*Root, Tuber and Banana Food System Innovations*

*Processing and Technology*

*Emerging Sources and Applications of Alternative Proteins*

*Tropentag 2016*