

## Physicochemical Characteristics And Sensory Properties Of

The field of sensory science has grown exponentially since the publication of the previous version of this work. Fifteen years ago the journal Food Quality and Preference was fairly new. Now it holds an eminent position as a venue for research on sensory test methods (among many other topics). Hundreds of articles relevant to sensory testing have appeared in that and in other journals such as the Journal of Sensory Studies. Knowledge of the intricate cellular processes in chemoreception, as well as their genetic basis, has undergone nothing less than a revolution, culminating in the award of the Nobel Prize to Buck and Axel in 2004 for their discovery of the olfactory receptor gene super family. Advances in statistical methodology have accelerated as well. Sensometrics meetings are now vigorous and well-attended annual events. Ideas like Thurstonian modeling were not widely embraced 15 years ago, but now seem to be part of the everyday thought process of many sensory scientists. And yet, some things stay the same. Sensory testing will always involve human participants. Humans are tough measuring instruments to work with. They come with varying degrees of acumen, training, experiences, differing genetic equipment, sensory capabilities, and of course, different preferences. Human foibles and their associated error variance will continue to place a limitation on sensory tests and actionable results. Reducing, controlling, partitioning, and explaining error variance are all at the heart of good test methods and practices.

This new book, Biotechnical Processing in the Food Industry: New Methods, Techniques, and Applications, explores several newly emerged techniques and technologies that have significantly changed the scenario of the dairy and food sector by making the processes more stable and more economically viable. Worldwide adoption of these novel technologies will also, the editors believe, provide benefit to consumers in terms of enhanced food safety labeling, nutritional security, and value-added products at reasonable cost. Divided into three main parts, the book looks at technological trends and advances in dairy research and industry, emerging technological developments, and potential advanced research in the food, health and processing industry.

Food flavor, appearance, and texture are the sensory properties that influence food acceptance, and among these, flavor is usually the decisive factor for the choice of a particular product. Food Flavors: Chemical, Sensory, and Technological Properties explores the main aspects of food flavors and provides a starting point for further study in focused areas. Topics discussed include: The nature of food odorants and tastants and the way they are perceived by the human olfactory system Basic anatomy and physiology of sensory systems involved in flavor sensation, olfactory pathways, and interactions between olfactory and gustatory stimuli The fundamentals of flavor compounds formation based on their main precursors (lipids, amino acids, and carbohydrates) Technological issues related to flavor compounds Physicochemical characteristics of aroma compounds and the main factors that influence aroma binding and release in foods Safety and regulatory aspects of flavorings used in foods Flavors of essential oils and spices, cheeses, red meat, wine, and bread and bakery products Food taints and off-flavors Analytical approaches to characterize food flavors The book also explores the latest technology in artificial olfaction systems with a chapter on the main physical and chemical features of these sensors. Bringing together the combined experience of a host of international experts, the book provides insight into the fundamentals of food flavors and explores the latest advances in flavor analysis.

Food Storage Stability addresses one of the foremost problems faced by food processors - how to stabilize food once it is harvested. Using a holistic approach, the book discusses the changes responsible for food quality deterioration and considers strategies for minimizing or eliminating these degradative changes. Topics include: consumer perceptions and preferences, cellular changes, conversion of major constituents to more stable products, the effect of color and texture, packaging issues, and practical strategies for storing foods frozen, chilled, or at ambient temperature. Food Storage Stability is the only treatment of this subject that covers the diverse factors that influence quality retention in foods and integrates basic concepts in storage stability with practical applications. Food scientists and technologists concerned with changes in food quality are interested in ensuring that safe and appealing food products reach consumers - this is the book that will assist them with that important goal.

This collection of 23 contributions reviews the most common instruments for measuring food quality both on the processing line and in the laboratory. Each chapter describes an instrument's underlying principles with emphasis on aspects relevant to food applications, identifies the significance of the variables measured, and assesses the accuracy of the technique for specific food groups. The second edition adds eight chapters. Annotation copyrighted by Book News Inc., Portland, OR.

Fermented food can be produced with inexpensive ingredients and simple techniques and makes a significant contribution to the human diet, especially in rural households and village communities worldwide. Progress in the biological and microbiological sciences involved in the manufacture of these foods has led to commercialization and heightened interest.

Cereals, pulses, roots, and tubers are major food sources worldwide and make a substantial contribution to the intake of carbohydrates, protein, and fiber, as well as vitamin E and B. The Handbook of Cereals, Pulses, Roots, and Tubers: Functionality, Health Benefits, and Applications provides information about commercial cereals, pulses, and their nutritional profile, as well as health benefits and their food and non-food applications. Split into four sections, this handbook covers all the recent research about the related crops and outlines matters needing further research in the field of agriculture sciences. Both qualitative and quantitative analysis of nutrients and bio-actives, and their beneficial effects on human health, are highlighted in this book. The conclusions drawn and future perspectives proposed in each chapter will also help researchers to take more focused approaches. FEATURES Covers the full spectrum of cereals, pulses, roots, and tubers grain production, processing, and their use for foods, feeds, fuels, and industrial materials, and other uses Contains the latest information from grain science professionals and food technologists alike Provides comprehensive knowledge on the nutritional and non-nutritional aspects of cereals, pulses, and tubers Discusses the latest development in modification of native starch Provides information in enhancing shelf life and its utilization in phytochemical rich product development The result of various well-versed researchers across the globe sharing their knowledge and experience, this handbook will be a valuable resource for students, researchers, and industrial practitioners who wish to enhance their knowledge and insights on cereals, pulses, roots, and tubers.

Dietary Fiber: Properties, Recovery and Applications explores the properties and health effects of dietary fiber, along with new trends in recovery procedures and applications. The book covers the most trending topics of dietary fiber applications, emphasizing polyphenol properties, bioavailability and metabolomics, target sources, recovery and emerging technologies, technological aspects, stability during processing, and applications in the food, beverage and nutraceutical sectors. Written by a team of experts in the field of dietary fiber, this book is ideal for chemists, food scientists, technologists, new product developers and academics. Thoroughly explores dietary fiber properties and health effects in light of new trends in recovery procedures and applications Covers issues in three critical dimensions: properties, recovery and applications Focuses on applications in food additives, as well as recovery from plant processing by-products

The 2012 International Conference on Applied Biotechnology (ICAB 2012) was held in Tianjin, China on October 18-19, 2012. It provides not only a platform for domestic and foreign researchers to exchange their ideas and experiences with the application-oriented research of biotechnology, but also an opportunity to promote the development and prosperity of the biotechnology industry. The proceedings of ICAB 2012 mainly focus on the world's latest scientific research and techniques in applied biotechnology, including Industrial Microbial Technology,

Food Biotechnology, Pharmaceutical Biotechnology, Environmental Biotechnology, Marine Biotechnology, Agricultural Biotechnology, Biological Materials and Bio-energy Technology, Advances in Biotechnology, and Future Trends in Biotechnology. These proceedings are intended for scientists and researchers engaging in applied biotechnology. Professor Pingkai Ouyang is the President of the Nanjing University of Technology, China. Professor Tongcun Zhang is the Director of the Key Laboratory of Industrial Fermentation Microbiology of the Ministry of Education at the College of Bioengineering, Tianjin University of Science and Technology, China. Dr. Samuel Kaplan is a Professor at the Department of Microbiology & Molecular Genetics at the University of Texas at Houston Medical School, Houston, Texas, USA. Dr. Bill Skarnes is a Professor at Wellcome Trust Sanger Institute, United Kingdom.

This book is a printed edition of the Special Issue "Phenolic Compounds in Fruit Beverages" that was published in Beverages

Starter cultures have great significance in the food industry due to their vital role in the manufacture, flavour, and texture development of fermented foods. Once mainly used in the dairy industry, nowadays starter cultures are applied across a variety of food products, including meat, sourdough, vegetables, wine and fish. New data on the potential health benefits of these organisms has led to additional interest in starter bacteria. Starter Cultures in Food Production details the most recent insights into starter cultures. Opening with a brief description of the current selection protocols and industrial production of starter cultures, the book then focuses on the innovative research aspects of starter cultures in food production. Case studies for the selection of new starter cultures for different food products (sourdough and cereal based foods, table olives and vegetables, dairy and meat products, fish and wine) are presented before chapters devoted to the role of lactic acid bacteria in alkaline fermentations and ethnic fermented foods. This book will provide food producers, researchers and students with a tentative answer to the emerging issues of how to use starter cultures and how microorganisms could play a significant role in the complex process of food innovation.

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.

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This book contains over 400 offered papers which were presented at the 63rd International Congress of Meat Science and Technology, held in Cork, Ireland, from 13-18 August, 2017. Under the theme of nurturing locally, growing globally, areas covered in the congress included meat sustainability and the role of the of meat science in a challenging global environment, genetics and genomics, the science of meat quality, technological demands in meat processing from an Asian perspective, international best practice in animal welfare, scientific advances underpinning meat safety, emerging technologies in meat processing, meat science and impact, consumer aspects, meat biochemistry, advancements in meat packaging and the congress ended with a session on meat and health, with focus on sustaining healthy protein sources. This year also included a session dedicated to addressing specific hot topics of importance to the industry and meat scientists. These proceedings reflect the truly global nature of meat research and provide an insight into current research issues for the industry.

Bread and flour-based foods are an important part of the diet for millions of people worldwide. Their complex nature provides energy, protein, minerals and many other macro- and micronutrients. However, consideration must be taken of three major aspects related to flour and bread. The first is that not all cultures consume bread made from wheat flour. There are literally dozens of flour types, each with their distinctive heritage, cultural roles and nutritive contents. Second, not all flours are used to make leavened bread in the traditional (i.e., Western) loaf form. There are many different ways that flours are used in the production of staple foods. Third, flour and breads provide a suitable means for fortification: either to add components that are removed in the milling and purification process or to add components that will increase palatability or promote health and reduce disease per se. Flour and Breads and their Fortification in

Health and Disease Prevention provides a single-volume reference to the healthful benefits of a variety of flours and flour products, and guides the reader in identifying options and opportunities for improving health through flour and fortified flour products. Examines those flour and bread related agents that affect metabolism and other health-related conditions Explores the impact of compositional differences between flours, including differences based on country of origin and processing technique Includes methods for analysis of flours and bread-related compounds in other foods

Covers a Host of Groundbreaking Techniques Thermal processing is known to effectively control microbial populations in food, but the procedure also has a downside?it can break down the biochemical composition of foods, resulting in a marked loss of sensory and nutritional quality. Processing Effects on Safety and Quality of Foods delineates three decades of advances made in processing techniques that produce microbiologically safe foods, while maintaining their sensory and nutritive properties. Addresses the Entire Food Processing Industry With an international team of more than 35 renowned contributors, this book presents evaluation techniques that yield reliable estimations of microbiological, physicochemical, nutritive, and sensory characteristics. Each chapter discusses the processing effects of relevant technologies and includes the basics of microbial kinetics, sensory evaluation, and the perception of food quality. A sampling of the techniques covered: Hermetically sealed containers Acrylamide formation Dried foods Irradiated foods Pressure-assisted thermal processing Pulsed electric field processing Processing Effects on Safety and Quality of Foods addresses the entire food processing industry, including food modeling, optimization, and proper design of manufacturing plants. It is the first of its kind?a single, sound reference that explores all of the different aspects involved in evaluating processing effects in food safety 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.

This foods Special Issue contains seven papers on a range of technical dairy topics. Three involve beneficial uses of proteolytic enzymes, two involve the use of membrane technology in cheese making, while two deal with the role of ingredients, raw milk in the UHT paper and apricot fibre in the yogurt paper, in product quality. In all, the papers demonstrate the breadth of on-going research for an industry based on just one raw material, milk.

Multiple factors can directly influence the chemical composition of foods and, consequently, their organoleptic, nutritional, and bioactive properties, including their geographical origin, the variety or breed, as well as the conditions of cultivation, breeding, and/or feeding, among others. Therefore, there is a great interest in the development of accurate, robust, and high-throughput analytical methods to guarantee the authenticity and traceability of foods. For these purposes, a large number of sensorial, physical, and chemical approaches can be used, which must be normally combined with advanced statistical tools. In this vein, the aim of the Special Issue “Food Authentication: Techniques, Trends, and Emerging Approaches” is to gather original research papers and review articles focused on the development and application of analytical techniques and emerging approaches in food authentication. This Special Issue comprises 12 valuable scientific contributions, including one review article and 11 original research works, dealing with the authentication of foods with great commercial value, such as olive oil, Iberian ham, and fruits, among others.

Sports and Energy Drinks, Volume 10 in The Science of Beverages series, is the first single-volume resource to focus on the science behind these beverages-for-purpose products. As consumers seek ways to effectively replenish key nutrients after strenuous activity—while also balancing calories and vitamin intake—sports and energy drinks is one of the fastest growing markets in the industry. From protein to fruit, athlete to adolescent consumption, this book explores the key issues and challenges in developing products that meet consumer demand in a safe-and-effective manner. This series takes a multidisciplinary approach to help research and development professionals understand the scientific complexities of these unique beverages. As demand for sports and energy drinks is growing and with a more competitive market, this timely and useful resource will equip industry professionals with the tools they need to create new and innovative health-promoting products. Presents new findings on the health effects of sports and energy drinks Provides research analysis of existing products to promote new product innovation Includes information on trace minerals to promote safety and quality

Livestock production systems will only be sustained in the long term if their products continue to meet the demand of consumers. The quality of ruminant carcasses, meat and meat products is of predominant importance in a competitive market where consumers tend to have a preconceived idea about the criteria that define meat quality such as flavour, tenderness, juiciness, smell, colour and texture. The carcass evaluation could be interesting as a precocious classification of the final quality of meat coming from each

carcass. Today the quality characteristics of the meat must be different according to its utilisation (supermarket, butcher, catering, refectory, etc.) and so it is very important to choose very early the final destination of the carcass. Obviously, the carcass classification must correlate with meat quality characteristics required by final consumer. Other important factors that have to be taken into account in order to maintain a demand for ruminant meat are safety and traceability. This book reviews the historical and recent developments for carcass evaluation and grading for meat quality assessment in beef and sheep. It places special emphasis on new concepts and approaches to define carcass and meat quality and on the use of modern technologies for composition and quality evaluation. A range of technologies are presented such as ultrasounds and colour reflectance, X-ray computerised tomography, spectral and thermal imaging, image analysis and NIRS. The use of phenotypic markers such as the plasma hormones and genetic markers to predict carcass composition and meat quality are also presented.

This book contains over 300 offered papers in addition to 4 papers from invited speakers presented at the 52nd International Congress of Meat Science and Technology, held in Dublin, Ireland, from 13-18 August 2006. Under the theme of harnessing and exploiting global opportunities, areas covered in the congress included meat quality encompassing genomics and biotechnology, animal production and production systems, muscle biology and biochemistry; meat safety, meat processing and packaging technology, consumer topics and meat and health. A new approach this year was to address specific hot topics important to the industry and meat scientists, in particular, electrical stimulation and new instrumental methods for evaluation of meat quality characteristics. These proceedings reflect the truly global nature of meat research and give an insight into the current research issues for the industry.

This book explores the recent advancements in cutting-edge techniques and applications of Biotechnology. It provides an overview of prospects and applications while emphasizing modern, and emerging areas of Biotechnology. The chapters are dedicated to various field of Biotechnology including, genome editing, probiotics, in-silico drug designing, nanoparticles and its applications, molecular diagnostics, tissue engineering, cryopreservation, and antioxidants. It is useful for both academicians and researchers in the various disciplines of life sciences, agricultural sciences, medicine, and Biotechnology in Universities, Research Institutions, and Biotech companies. This book provides the readers with a comprehensive knowledge of topics in Genomics, Bionanotechnology, Drug Designing, Diagnostics, Therapeutics, Food and Environmental Biotechnology. The chapters have been written with special reference to the latest developments in the frontier areas of Biotechnology that impacts the Biotech industries.

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Roots and tubers are considered as the most important food crops after cereals and contribute significantly to sustainable development, income generation and food security especially in the tropical regions. The perishable nature of roots and tubers demands appropriate storage conditions at different stages starting from farmers to its final consumers. Because of their highly perishable nature, search for efficient and better methods of preservation/processing have been continuing alongside the developments in different arena. This book covers the processing and technological aspects of root and tuber foods, detailing the production and processing of roots and tubers such as taro, cassava, sweet potato, yam and elephant foot yam. Featuring chapters on anatomy, taxonomy and physiology, molecular and biochemical characterization, GAP, GMP, HACCP, Storage techniques, as well as the latest technological interventions in Taro, Cassava, Sweet potato, yam and Elephant foot Yam.

Alcoholic Beverages, Volume Seven in The Science of Beverages series, is a multidisciplinary resource for anyone who needs deeper knowledge on the most recent approaches in beverage development, technology, and engineering, along with their effects on beverage composition, quality, sensory and nutritional features. The book discusses main alcoholic beverages, such as spirits and wines that are thoroughly analyzed in terms of production, sustainability, and future perspectives. It offers examples of the new trends and the most recent technologies and approaches in the industry of alcoholic drinks. Includes a variety of trending ingredients for novel beverage production Provides different approaches for the identification of adulterations and contaminants in alcoholic beverages Includes research examples and applications of different products, such as beer, wine, and spirits

This book brings together in a review manner a comprehensive summary of high-quality research contributions from the different research teams and their collaborators, to celebrate the 25th anniversary of the Centre for Interdisciplinary Research in Animal Health (CIISA). The topics span from animal behaviour and welfare over biotechnology to clinical veterinary medicine. Thus, the book is of interest for researchers and students working in the diverse fields of veterinary medicine and science. The Centre for Interdisciplinary Research in Animal Health (CIISA), the Research Centre of the Faculty of Veterinary Medicine of the University of Lisbon, commemorated its 25th-year jubilee in 2018. Throughout its history, CIISA has been consolidating as the top-ranking Portuguese Animal and Veterinary Sciences research unit. More recently, CIISA has taken a leading role in the coordination of national and international research networks and consortiums. This conveyed a highly interdisciplinary nature to CIISA's research,

encompassing animal, veterinary and biomedical sciences. This multi- and interdisciplinary nature is reflected on the broad scientific background of the team.

The seafood processing industry produces a large amount of by-products that usually consist of bioactive materials such as proteins, enzymes, fatty acids, and biopolymers. These by-products are often underutilized or wasted, even though they have been shown to have biotechnological, nutritional, pharmaceutical, and biomedical applications. For example, by-products derived from crustaceans and algae have been successfully applied in place of collagen and gelatin in food, cosmetics, drug delivery, and tissue engineering. Divided into four parts and consisting of twenty-seven chapters, this book discusses seafood by-product development, isolation, and characterization, and demonstrates the importance of seafood by-products for the pharmaceutical, nutraceutical, and biomedical industries.

Previous research has demonstrated the extensive impacts of various environmental and processing conditions on rice milling and processing characteristics. Nevertheless, little is known about the influences of these conditions on cooking and sensory qualities of rice. The present study aimed to determine the impact of cultivating location, harvest moisture content (HMC), and thickness fractionation on the physicochemical properties, and cooking and sensory characteristics of long-grain rice. Four long-grain rice cultivars (purelines: Cheniere and V3501, and hybrids: XP760 and XL753) were cultivated at Harrisburg, AR and Alvin, TX, and harvested at three HMC. Rough rice lots were conditioned and a portion was fractionated according to thickness into thin (

Exotic Fruits Reference Guide is the ultimate, most complete reference work on exotic fruits from around the world. The book focuses on exotic fruit origin, botanical aspects, cultivation and harvest, physiology and biochemistry, chemical composition and nutritional value, including phenolics and antioxidant compounds. This guide is in four-color and contains images of the fruits, in addition to their regional names and geographical locations. Harvest and post-harvest conservation, as well as the potential for industrialization, are also presented as a way of stimulating interest in consumption and large scale production. Covers exotic fruits found all over the world, described by a team of global contributors Provides quick and easy access to botanical information, biochemistry, fruit processing and nutritional value Features four-color images throughout for each fruit, along with its regional name and geographical location Serves as a useful reference for researchers, industrial practitioners and students

Sausages are privileged foods due to their diversity, nutritional value, deep roots in the culture of the peoples and economic importance. In order to increase the knowledge and to improve the quality and safety of these foods, an intense research activity was developed from the early decades of the past century. This book includes ten research works and a review showing important and interesting advances and new approaches in most of the research topics related to sausages. After an editorial of the Editor reflecting the aims and contents of the book, the initial five chapters deal with microbiological issues of the sausage manufacture (characterization and study of the bacterial communities of sausages, study of the metabolism and the technological and safety characteristics of concrete microbial strains, and use of starter cultures to improve the sausage quality).

Chemical hazards also receive some attention in this book with a chapter on the optimization of the smoking process of traditional dry-cured meat products to minimize the presence of PAHs. The partial or total replacement of the traditional ingredients in sausages with unconventional raw materials for the obtaining of novel and varied products are the subject of three chapters. Next, a chapter is dedicated to another interesting topic, the search and the essay of natural substitutes for synthetic additives due to the increasing interest of consumers in healthier meat products. The book ends with an interesting review on the safety, quality and analytical authentication of hal?l meat products, with particular emphasis on salami.

Continuing the mission of the first two editions, Food Emulsions: Principles, Practices, and Techniques, Third Edition covers the fundamentals of emulsion science and demonstrates how this knowledge can be applied to control the appearance, stability, and texture of emulsion-based foods. Initially developed to fill the need for a single resource co

The first objective for this research was to formulate and produce a set of model high protein extruded snack foods varying by protein level and protein type, incorporating enough protein to meet the health claims stated above. Secondly, the snacks were evaluated in a consumer acceptance test to understand the effect of the independent variables, protein level and protein type, on overall acceptance. Following this, the snacks were evaluated by a descriptive analysis panel, which was trained to quantify sensory aspects of the products that differentiated in terms of appearance, taste, texture, etc. In addition, the snacks were profiled using a battery of instrumental food analysis techniques to understand how the independent variables affect the physico- chemical properties of the snacks. These measures were repeated after a six-month storage period in ambient conditions (~22°C), to understand the changes the snacks underwent during a typical shelf life. These results were analyzed together to understand how various sensory and physico-chemical characteristics may be responsible for affecting consumer liking, and how that may change over a six-month storage period.

Winner of the 2017 James Beard Award for Reference & Scholarship The discovery of cheese is a narrative at least 8,000 years old, dating back to the Neolithic era. Yet, after all of these thousands of years we are still finding new ways to combine the same four basic ingredients - milk, bacteria, salt, and enzymes - into new and exciting products with vastly different shapes, sizes, and colors, and equally complex and varied tastes, textures, and, yes, aromas. In fact, after a long period of industrialized, processed, and standardized cheese, cheesemakers, cheesemongers, affineurs, and most of all consumers are rediscovering the endless variety of cheeses across cultures. The Oxford Companion to Cheese is the first major reference work dedicated to cheese, containing 855 A-Z entries on cheese history, culture, science, and production. From cottage cheese to Camembert, from Gorgonzola to Gruyère, there are entries on all of the major cheese varieties globally, but also many cheeses that are not well known outside of their region

of production. The concentrated whey cheeses popular in Norway, brunost, are covered here, as are the traditional Turkish and Iranian cheeses that are ripened in casings prepared from sheep's or goat's skin. There are entries on animal species whose milk is commonly (cow, goat, sheep) and not so commonly (think yak, camel, and reindeer) used in cheesemaking, as well as entries on a few highly important breeds within each species, such as the Nubian goat or the Holstein cow. Regional entries on places with a strong history of cheese production, biographies of influential cheesemakers, innovative and influential cheese shops, and historical entries on topics like manorial cheesemaking and cheese in children's literature round out the Companion's eclectic cultural coverage. The Companion also reflects a fascination with the microbiology and chemistry of cheese, featuring entries on bacteria, molds, yeasts, cultures, and coagulants used in cheesemaking and cheese maturing. The blooms, veins, sticky surfaces, gooey interiors, crystals, wrinkles, strings, and yes, for some, the odors of cheese are all due to microbial action and growth. And today we have unprecedented insight into the microbial complexity of cheese, thanks to advances in molecular biology, whole-genome sequencing technologies, and microbiome research. The Companion is equally interested in the applied elements of cheesemaking, with entries on production methodologies and the technology and equipment used in cheesemaking. An astonishing 325 authors contributed entries to the Companion, residing in 35 countries. These experts included cheesemakers, cheesemongers, dairy scientists, anthropologists, food historians, journalists, archaeologists, and on, from backgrounds as diverse as the topics they write about. Every entry is signed by the author, and includes both cross references to related topics and further reading suggestions. The endmatter includes a list of cheese-related museums and a thorough index. Two 16-page color inserts and well over a hundred black and white images help bring the entries to life. This landmark encyclopedia is the most wide-ranging, comprehensive, and reliable reference work on cheese available, suitable for both novices and industry insiders alike.

Fermented food can be produced with inexpensive ingredients and simple techniques and makes a significant contribution to the human diet, especially in rural households and village communities worldwide. Progress in the biological and microbiological sciences involved in the manufacture of these foods has led to commercialization and heightened interest among scientists and food processors. Handbook of Animal-Based Fermented Food and Beverage Technology, Second Edition is an up-to-date reference exploring the history, microorganisms, quality assurance, and manufacture of fermented food products derived from animal sources. The book begins by describing fermented animal product manufacturing and then supplies a detailed exploration of a range of topics including: Dairy starter cultures, microorganisms, leuconostoc and its use in dairy technology, and the production of biopreservatives Exopolysaccharides and fermentation ecosystems Fermented milk, koumiss, laban, yogurt, and sour cream Meat products, including ham, salami, sausages, and Turkish pastirma Malaysian and Indonesian fermented fish products Probiotics and fermented products, including the technological aspects and benefits of cheese as a probiotic carrier Fermented food products play a critical role in cultural identity, local economy, and gastronomical delight. With contributions from over 60 experts from more than 20 countries, the book is an essential reference distilling the most critical information on this food sector.

Increased consumer awareness of the effects of food in preventing nutrient-related diseases and maintaining physical and mental well-being has made nutritional improvement an important goal for the food and beverage industry, including the cereal sector. The Book "Qualitative and Nutritional Improvement of Cereal-Based Foods and Beverages" collects research articles aimed at exploring innovative ways to improve cereal-based foods and beverages; an old—if not ancient—group of products which are still on our table every day. The main directions of research aimed at nutritional improvement have to face either excess or deficiency in the diet. To this end, different strategies may be adopted, such as the reformulation of products, the introduction of functional ingredients, and the application of biotechnologies to increase the bioavailability of bioactive compounds. These interventions, however, can alter the physico-chemical and sensory properties of final products, making it necessary to achieve a balance between nutritional and quality modification. This book offers readers information on innovative ways to improve cereal-based foods and beverages, useful for researchers and for industry operators.

Novel Food Fermentation Technologies provides a comprehensive overview of innovations in food fermentation technologies and their application. Current novel technologies for microbial culture production and preservation are covered in detail, as are fermentation techniques for the production of bioactives from various food matrices, including food processing by-products and waste. Readers are provided with a close look at thermal and non-thermal technologies applicable to fermented food products. The text covers immobilization, microencapsulation technologies and novel preservation techniques for cultures in fermentation. In-depth studies of high pressure processing, pulsed electric field, power ultrasound and gamma irradiation in fermentation are provided in addition to novel thermal and non-thermal technologies and process analytical techniques. A wide variety of fermented products are covered, including meat, marine-based, grain-based, dairy and vegetable-based products. Current technologies for extraction of bioactives are examined, as are current innovations in fermented food packaging. Readers are presented with current and future challenges in food fermentation as well. As a comprehensive reference for food fermentation, this work provides up-to-date insights into emerging fermentation technologies which facilitate the processing of wholesome and safe food products.

Rheology of Semisolid Foods comprehensively covers the rheological behaviors and rheological testing of semisolid foods. Individual chapters focus on semisolid food structure, rheological and sensory behaviors, testing of various semisolid food behaviors, and factors that impact those behaviors. Special concentration is given to the relationships among semisolid food structures and mechanical properties and textures. The second section of this work presents a series of case studies on acid milk gels and yogurt which provide a practical illustration of the concepts presented in the preceding chapters, allowing readers to gain both conceptual knowledge of semisolid food rheology and an understanding of

how that knowledge can be applied to a food system of choice. Individual components, processing parameters, and storage conditions can dramatically impact food functional properties and textures. Changing any of these factors can cause significant microstructural alterations resulting in undesirable changes in product stability, functionality and texture. The lack of knowledge of how these factors impact the final food properties makes development of new food products a process of empirical trial rather than intentional design. A fundamental understanding food structure, function and texture relationships is critical for targeted design of food products. This text is a valuable reference for researchers looking to gain an understanding of how rheology works in semisolid food design and processing.

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