Handbook Of Functional Beverages And Human Health

As soon as Dr. Stephen DeFelice coined the phrase nutraceutical, product and supplement developers swung into action. Yet among the numerous books available on nutraceuticals, there is none that systematically lists, categorizes, and analyzes nutraceutical extracts and formulations in a pharmacopoeia-like manner. Handbook of Nutraceuticals, Volume 1: Ingredients, Formulations, and Applications lists information on many ingredients used in nutraceuticals, developing their formulations and applications. The book includes contributions from experts with pharmaceutical backgrounds, providing an examination of nutraceuticals from a pharmaceutical perspective. Building a foundation with coverage of historical background, definitions, and challenges, the book offers insight into nutraceutical ingredients from plant, animal, and mineral origin. It then covers the characterization of nutraceuticals’ physicochemical, analytical, pharmacological, and pharmacokinetic classification, followed by information on regulatory requirements. The book highlights applications in cardiovascular disease, bone and joint treatments, diabetes management, weight management, skin health, probiotics and prebiotics, tranquilizing medicinal plants, dietary foods, and more. Interest in new diet regimens and new products for increased health and longevity will continue to grow, giving dietary supplements an increasing amount of cupboard space in most households. With quality of content unsurpassed by many resources, the book discusses the characterization processes for nutraceuticals based on the contributors’ experience in pharmaceuticals. It then explores how those proven techniques may be applied to the development and manufacture of nutraceutical products.

Food Nanotechnology: Applications and Approaches is the definitive guide on all aspects of nano-sized ingredients and devices for the food sector. The book brings science and applications together on the nano-scale into nano-structured food materials, with an emphasis on their production, processing, engineering, characterization, and applications of food materials containing true nano-sized dimensions or nano-structures that enable novel/enhanced properties or functions. All chapters emphasize original results relating to experimental, theoretical, computational, and/or applications of nano-materials in food. Topics such as the application of nanotechnology in food processing operations, functional ingredients, quality control, nutraceutical delivery, and packaging of food products are very attractive and beneficial to both academics and practitioners. Finally, the safety of applying nano ingredients and nano devices is covered. Brings novel applications of nanotechnology in processing food products Shows how to improve the formulation of food products with nano-structured ingredients Explores new opportunities in food packaging through nano-structured materials The Handbook of Food Products Manufacturing is a definitive master reference, providing an overview of food manufacturing in general, and then covering the processing and manufacturing of more than 100 of the most common food products. With editors and contributors from 24 countries in North America, Europe, and Asia, this guide provides international expertise and a truly global perspective on food manufacturing.

Nuts and dried fruits are part of our daily diet. They are consumed whole or as ingredients of many food products such as muffins, cereals, chocolates, energy bars, breads, and cookies, among others. Health Benefits of Nuts and Dried Fruits provides a comprehensive overview of the literature on the health benefits of nuts and dried fruits. The book summarizes the current state of knowledge in key research areas and provides ideas for future scientific research and product development. Nuts, a term that comprises tree nuts and peanuts, are highly nutritious, containing health-promoting macronutrients, micronutrients, vitamins, and bioactive phytochemicals; they are one of the edible foods with the highest content in antioxidants. The consumption of nuts is recognized for its health-promoting properties, which ranges from a consistent cholesterol-lowering effect in clinical trials to a robust association with reduced risk of cardiovascular disease and all-cause mortality in prospective studies. In spite of the high energy content of nuts, there is no evidence that their frequent consumption promotes obesity, and they may even help control it. Dried fruits, which serve as important healthful snacks worldwide, are nutritionally equivalent to fresh fruits while providing all of their bioactive components in concentrated form. While the evidence level concerning the health effects of dried fruits lags behind that on nuts, it suggests that individuals who consume dried fruits regularly have a lower risk of cardiovascular disease, obesity, and other non-communicable diseases. Main features of the book concerning nuts and dried fruits: • Provides detailed information on health effects • Highlights current regulation and health claims • Provides updated dietary recommendations • Describes nutrient absorption and metabolism • Discusses mechanisms implicated in the health effects Although this book is intended primarily as a reference, by comprehensively reviewing the current state of knowledge it can guide future research on the topic. Among others, food scientists, biochemists, nutritionists, health professionals, decision makers, and regulatory agencies can draw much benefit from its contents. Hopefully, it will help in public health strategies to promote healthy aging and improve population wellbeing.

Probiotic Beverages is an essential reference guide to traditional, emerging and unique probiotic beverage products throughout different regions of the world. The book includes in-depth knowledge by local authors on indigenous and commercially produced probiotic beverages and related products. Examining current advancements in probiotic beverages and consumer health relationships, with a focus on large-scale beverage technology, sections cover starter cultures, regulatory challenges, genetic engineering, quality and safety. From practical issues of developing probiotic beverages, to the marketing of these drinks to the consumer, the full product lifecycle of a probiotic beverage is discussed. Describes probiotic beverages of different geographical locations, market status and scope Discusses the potential of probiotic beverages in preventing disease Covers controversial regulatory matters (labeling claims, GMO-free) and sustainability Includes dairy, nondairy, cereal and fruit beverages 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

Oxidative rancidity is a major cause of food quality deterioration, leading to the formation of undesirable off-flavours as well as unhealthy compounds. Antioxidants are widely employed to inhibit oxidation, and with current consumer concerns about synthetic additives and natural antioxidants are of much interest. The two volumes of Oxidation in foods and beverages and antioxidant applications review food quality deterioration due to oxidation and methods for its control. The second volume reviews problems associated with oxidation and its management in different industry sectors. Part one focuses on animal products, with chapters on the oxidation and protection of red meat, poultry, fish and dairy products. The oxidation of fish oils and foods enriched with omega-3 polyunsaturated fatty acids is also covered. Part two reviews oxidation in plant-based foods and beverages, including edible oils, fruit and vegetables, beer and wine. Oxidation of fried products and emulsion-based foods is also discussed. Final chapters examine encapsulation to inhibit lipid oxidation and antioxidant active packaging and edible films. With its distinguished international team of editors and contributors, the two volumes of Oxidation in foods and beverages and antioxidant applications is standard references for R&D and QA professionals in the food industry, as well as academic researchers interested in food quality. Reviews problems associated with oxidation and its management in different industry sectors Examines animal products, with chapters on the oxidation and protection of red meat, poultry and fish Discusses oxidation of fish oils and foods enriched with omega-3 and polyunsaturated fatty acids

With contributions from a panel of leading international experts, the Handbook of Nutraceuticals and Functional Foods, Second Edition, provides a collection of the most current topics in nutraceuticals and functional foods. This edition features new and revised chapters, including the topics of vitamin E, nutritional supplements and inflammation, whey protein, cereals, beverages, and fruits. The Handbook of Nutraceuticals and Functional Foods, Second Edition is a thorough revision of an extremely successful professional handbook that is also used in advances and graduate courses. This book offers a snapshot of the most current topics in this important field of nutraceuticals and functional foods. It is an ideal all-in-one reference for food scientists, academic professors, nutritional scientists and pharmaceutical scientists. For this new edition, seven brand new chapters have been added: Vitamin E; Nutritional Supplements and Inflammation; Whey Protein; Personalized Nutrition; Fruits; Beverages; and Cereals. Other chapters have been cut and remaining chapters have been updated and revised.

Production and Management of Beverages, Volume One in the Science of Beverages series, introduces the broad world of beverage science, providing an overview of the emerging trends in the industry and the potential solutions to challenges such as sustainability and waste. Fundamental information on production and processing technologies, safety, quality control, and nutrition are covered for a wide range of beverage types, including both alcoholic and nonalcoholic beverages, fermented beverages, cocoa and other powder based beverages and more. This is an essential resource for food scientists, technologists, chemists, engineers, microbiologists and students entering into this field. Describes different approaches to waste management and eco-innovative solutions for the wine and beer industry Offers information on ingredient traceability to ensure food safety and quality Provides overall coverage of hot topics and scientific principles in the production and management of beverages for sustainable industry

Functional and Medicinal Beverages, Volume Eleven, in the Science of Beverages series, discusses one of the fastest growing sectors in the food industry. As the need for research and development increases based on consumer demand, the information in this volume is essential. This reference includes the latest research trends, nutritive and medicinal ingredients, and analytical techniques to identify health beneficial elements. The contents of the book will bring readers up-to-date on the field, thus making it useful for researchers and graduate students in various fields and technology. In addition, new concepts, innovative scientific technologies and current concerns in the functional beverages field Covers detailed information on the engineering and processing of novel ingredients for health benefits includes common and alternative ingredients for juices, vegetable blends, milk-based drinks, and probiotic and probiotic based alternative beverages This book focuses on advanced research and technologies in dairy processing, one of the most important branches of the food industry. It addresses various topics, ranging from the basics of dairy technology to the opportunities and challenges in the industry. Following an introduction to dairy processing, the book takes readers through various aspects of dairy engineering, such as dairy-based peptides, novel milk products and bio-fortification. It also describes the essential role of microorganisms in the industry and ways to detect them, as well as the use of prebiotics, and food safety. Lastly, the book examines the challenges faced, especially in terms of maintaining quality across the supply chain. Covering all significant areas of dairy science and processing, this interesting and informative book is a valuable resource for post-graduate students, research scholars and industry experts.

Nutritional Composition and Antioxidant Properties of Fruits and Vegetables provides an overview of the nutritional and anti-nutritional composition, antioxidant potential, and health benefits of a wide range of commonly consumed fruits and vegetables. The book presents a comprehensive overview on a variety of topics, including inflorescence, flowers and flower buds (broccoli, cauliflower, cabbage), bulb, stem and stalk (onion, celery, asparagus, celery), leaves (watercress, lettuce, spinach), fruit and seed (peppers, squash, tomato, eggplant, green beans), roots and tubers (red beet, carrots, radish), and fruits, such as citrus (orange, lemon, grapefruit), berries (blackberry, strawberry, lingonberry, bayberry, blueberry), melons (pumpkin, watermelon), and more. Each chapter, contributed by an international expert in the field, also discusses the factors influencing antioxidant content, such as genotype, environmental variation and agronomic conditions. Contains detailed information on nutritional and anti-nutritional composition for commonly consumed fruits and vegetables Presents recent epidemiological information on the health benefits of fresh produce Provides in-depth information about the antioxidant properties of a range of fruits and vegetables

Soft drinks and fruit juices are produced in almost every country in the world and their availability is remarkable. From the largest cities to some of the remotest villages, soft drinks are available in a variety of flavours and packaging. Over the last decade, soft drinks and fruit juices have been the subject of criticism by the health community and there is considerable pressure on beverage manufacturers to reduce, or even remove, the sugar content of these products. Chemistry and Technology of Soft Drinks and Fruit Juices, Third Edition provides an overview of the chemistry and technology of soft drinks and fruit juices, covering ingredients, processing, microbiology, traceability and packaging as well as global market trends. This fully revised edition now includes chapters on topics that have become prominent in the industry since
publication of the previous edition namely: water use and treatment, and microbiology technologies. The book is directed at graduates in food science, chemistry or microbiology entering production, quality control, new product development or marketing in the beverage industry or in companies supplying ingredients or packaging materials to the beverage industry.

Handbook of Functional Beverages and Human Health CRC Press

As consumer demand for traditional carbonated drinks falls, the market for beverages with perceived health-promoting properties is growing rapidly. Formulating a nutritional, nutraceutical or functional beverage with satisfactory sensory quality and shelf-life can be challenging. This important collection reviews the key ingredients, formulation technology and health effects of the major types of functional and specialty beverage. Chapters in part one consider essential ingredients such as stabilizers and sweeteners, and significant aspects of formulation such as fortification technology and methods to extend shelf-life. Dairy-based beverages are the focus of Part two, with chapters covering methods to improve the nutritional and sensory quality and technological functionality of milk, a crucial ingredient in many healthful beverages. Chapters on newer dairy ingredients, such as whey and milk-fat globule membrane complete the section. Part three then reviews advances in the significant plant-based beverage sector, with chapters on popular products such as fruit juices, sports drinks, tea and coffee. Soy proteins are also covered. Chapters on product development and the role of beverages in the diet complete the volume. With its distinguished editor and contributors, Functional and specialty beverage technology is an essential collection for professionals and academics interested in this product sector. Reviews the key ingredients, formulation technology and health effects of the major types of functional and specialty beverages Essential ingredients such as stabilizers and sweeteners, and significant aspects of formulation such as fortification technology and methods to extend shelf-life are considered Focuses on methods to improve the nutritional and sensory quality and technological functionality of milk.

Natural Beverages, Volume Thirteen, in the Science of Beverages series, takes a multidisciplinary approach to address the shifting beverage landscape towards the global trend of natural beverages. As global beverage consumption has progressed towards healthier and ‘natural’ ingredients, researchers and scientists need to understand the latest scientific developments and the proposed health benefits and improved effects. Classical examples are presented as a basis for innovation expansion to help new researchers understand this segment of the industry. This is a great resource for researchers and scientists in the beverages industry. Describes natural beverage production and its impact on nutritional value Provides overall coverage of hot topics and scientific principles in the beverage industry Explores the pros and cons of natural vs. artificial beverages in product development Covers the production of all commonly consumed ‘natural’ beverages Nutrients in Beverages, Volume Twelve, in the Science of Beverages series, introduces the role of nutrients in beverages and provides details into the biological effects of beverage ingredients by presenting their nutritional properties and characterization. This scientific reference covers both the current state-of-the-art and future trends in the beverage industry, and is designed as a comprehensive guide to this area of research. Detailed research information is presented to not only help researchers and students understand the nature of the challenges associated with incorporating nutrients, but to also help strengthen the knowledge transfer between research institutions and industry. Includes information on the health impact of various nutrients Discusses nutrients in beverages as a potential delivery system for nutraceuticals Presents research example detection techniques to assist in identifying nutrient types and functionalities Fermented Beverages, Volume Five, the latest release in The Science of Beverages series, examines emerging trends and applications of different fermented beverages, including alcoholic and non-alcoholic drinks. The book discusses processing techniques and microbiological methods for each classification, their potential health benefits, and overall functional properties. The book provides an excellent resource to broaden the reader’s understanding of different fermented beverages. It is ideal for research and development professionals who are working in the area of new products. Presents research examples to help solve problems and optimize production Provides recent technologies used for quality analysis Includes industry formulations for different beverages to increase productivity and innovation Includes common industry formulations to foster the creation of new products Handbook on Natural Pigments: Industrial Applications for Improving Food Colour is unique in its approach to the improvement of food colors. The book is written with industrial applications in mind, with each chapter focusing on a color solution for a specific commodity that will provide food scientists with a one-stop, comprehensive reference on how to improve the color of a particular food product. The first section of the book looks at the legal frameworks which underpin natural food colorings, also investigating the consumer expectations of food color. The second section of the book focuses on specific industrial applications of natural colorants with chapters covering the use of natural colorants in aquatic food products, cereal-based foods, and meat products, amongst many other topics. The various pigments which can be used to effectively color these commodities are presented with information on safety and testing included throughout. The final section in the book looks at recent developments and future perspectives in natural food colorings. There are chapters which cover the health benefits of natural pigments, the use of novel fruits and vegetables in pigments, and stable natural solutions for blue colorings. Presents recent advances in consumer demand and worldwide legislation regarding natural food colorants Discusses the use of natural food colorants for one specific product category per chapter rather than one pigment class per chapter – this makes the book extremely useful for industrialists working in a specific sector Contains a comprehensive array of product-specific coloration approaches, from using pigment-enriched feed additives to the direct addition of color formulations * Covers the manufacturing and processing of foods in: Bakery, Beverages, Cereals, Cheese, Confectionary, Fats, Fruits, and Functional Foods * Includes coverage of manufacturing principles * Presents details of commercial processing for each commodity including (where appropriate) a general introduction, ingredients, technologies, types and evaluation of industrial products, special problems, types and evaluation of consumer products, and processing and product trends * Includes truly international coverage with editors and contributors from all over the world. Scientific advances in this field have not only given us a better understanding of what is an optimal diet, but has allowed food and nutraceutical companies to market products with specific health claims, fortify existing foods, and even create new foods designed for a particular health benefit. Handbook of Nutraceuticals and Functional Foods, Second Edition, compiles the latest data from authoritative, scientific sources. It provides hard evidence on the prophylactic and medicinal properties of many natural foods. This handbook reviews more than 200 nutraceutical compounds. Each chapter includes the chemical properties, biochemical activity, dietary sources, and evidentiary findings for each compound. New topics include the use of exopolysaccharides from lactic acid bacteria, protein as a functional ingredient for weight loss, and nutraceuticals to be used in the adjunctive treatment of depression. Two new chapters discuss recent evidence on oxidative stress and the antioxidant requirements of athletes as well as the use of
nutraceuticals for inflammation. The scientific investigation of nutrition and lifestyle changes on the pain and debilitation of osteoarthritis is the subject of another new article. The book concludes with a look at future marketing opportunities paying particular attention to the alleviation of obesity. With contributions from a panel of leading international experts, Handbook of Nutraceuticals and Functional Foods, Second Edition, provides instant access to comprehensive, cutting edge data, making it possible for food scientists, nutritionists, and researchers to utilize this ever growing wealth of information.

This Handbook of Research in Food Science and Technology consists of three volumes focusing on food technology and chemistry, food biotechnology and microbiology, and functional foods and nutraceuticals. The volumes highlight new research and current trends in food science and technology, looking at the most recent innovations, emerging technologies, and strategies focusing on taking food design to sustainable levels. In particular, the handbooks includes relevant information on the modernization in the food industry, sustainable packaging, food bioprocesses, food fermentation, food microbiology, functional foods and nutraceuticals, natural products, nano- and microtechnology, healthy product composition, innovative processes/bioprocesses for utilization of by-products, development of novel preservation alternatives, extending the shelf life of fresh products, alternative processes requiring less energy or water, among other topics. Volume 1 of the 3-volume set focuses on food technology and chemistry. The chapters examine edible coatings, bioactive compounds, essential oils in active food packaging, food industrial wastes as raw material for nanostructure production, and more.

Provides the latest research on the analysis, metabolism, function, and physicochemical properties of fiber, fiber concentrates, and bioactive isolates--exploring the effect of fiber on chronic disease, cardiovascular health, cancer, and diabetes. Examines food applications and the efficacy and safety of psyllium, sugar beet fiber, pectin, alginate, gum arabic, and rice bran.

Handbook of Coffee Processing By-Products: Sustainable Applications presents alternative and sustainable solutions for coffee processing by-products and describes their industrial potential, both as a source for the recovery of bioactive compounds and their reutilization in the pharmaceutical, biotechnological, food, biotechnology, and cosmetic industries, also covering environmental and agronomic applications. This book addresses key topics specific to sustainable management in the coffee industry, placing an emphasis on integrated solutions for the valorization and upgrade of coffee processing by-products, biorefinery, and different techniques for the separation, extraction, recovery and formulation of polyphenols. Specifies potential for the use of by-products as a source for the recovery of bioactive compounds and their reutilization in the pharmaceutical, biotechnological, food, biotechnology and cosmetic industries. Places emphasis on integrated solutions for the valorization and upgrade of coffee processing by-products, biorefinery, and different techniques for the separation, extraction, recovery and formulation of polyphenols.

Authored by world experts, the Handbook of Food Processing, Two-Volume Set discusses the basic principles and applications of major commercial food processing technologies. The handbook discusses food preservation processes, including blanching, pasteurization, chilling, freezing, aseptic packaging, and non-thermal food processing. It describes com

Biotechnological Progress and Beverage Consumption, Volume 19 in the Science of Beverages series, presents a scientific resource that discusses current and emerging advancements in technologies and novel applications to help researchers understand and apply the latest techniques to improve beverages. This reliable reference explores how beverages have been improved through biotechnology and provides technical information to improve professional development in a competitive market. Topics include a broad range of trends where some of the most advancements have been made, including improvements in bioactive concentration, probiotics, green technologies in fermentation, and in clarification processes. Provides technical aspects of bioprocesses for a deeper understanding of product creation. Presents modeling and simulation examples for quality control and safety of fermented beverages. Includes research methods and analysis to improve product development including texture and flavor.

Value-Added Ingredients and Enrichment of Beverages, Volume Fourteen in The Science of Beverages series, takes a multidisciplinary approach in addressing what consumers demand in natural beverages. This in-depth reference covers both natural and unnatural ingredients and explains their impact on consumer health and nutrition. Sweeteners, vitamins, oils and other natural ingredients to improve beverages are included. The book addresses some of the most common enrichments used in the industry, including those with biomedical and nutritional applications. This volume will be useful to anyone in the beverages industry who needs a better understanding of advances in the industry. Discusses health-related benefits and risks, along with the potential harmful effects of additives and preservatives. Provides research examples of health promoting ingredients in beverages to further research and development. Presents key steps in designing formulations of enriched beverages. Analysis, product development, shelf life, cost-benefit ratio and compliance with WHO regulations.

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

Discusses issues such as risk assessment, regulatory framework, detection and characterisation of nanoparticles in food. Summarises the wide range of applications of nanotechnology in food processing, including nutraceutical delivery and packaging materials. Written by a distinguished team of international contributors, this book is an invaluable reference for industry professionals and academics alike.

This 2 volume set comprises of the 3rd edition of Volume 1 and the 4th edition of Volume 2, both published in 2014. In recent years, we've developed a much better grasp of the biological and other factors associated with the development of obesity. New clinical trials, discoveries related to drug use, and greater understanding of the benefits of wei

MilK-Based Beverages, Volume 9 in The Science of Beverages series, presents current status, developments, and technologies for researchers and developers to meet consumer demand and understand consumer trends toward healthy drinks. This resource takes a multidisciplinary approach to address issues in safety and quality control, while also discussing the nutritional and functional information that professionals in the beverage industry need. The book presents a framework for researchers, product
developers, engineers, and regulators in the beverages industry for understanding new research developments in milk-based products to meet industry needs in producing competitive products. Covers the most recent advances in various milk-based products includes a solid review of safety and hygiene for the development of new products. Presents engineering techniques and applications using novel technologies.

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.

The Handbook of Research on Food Processing and Preservation Technologies covers a vast abundance of information on various design, development, and applications of novel and innovative strategies for food processing and preservation. The roles and applications of minimal processing techniques (such as ozone treatment, vacuum drying, osmotic dehydration, dense phase carbon dioxide treatment, pulsed electric field, and high-pressure assisted freezing) are discussed, along with a wide range of applications. The handbook also explores some exciting computer-aided techniques emerging in the food processing sector, such as robotics, radio frequency identification (RFID), three-dimensional food printing, artificial intelligence, etc. Some emphasis has also been given on nondestructive quality evaluation techniques (such as image processing, terahertz spectroscopy imaging technique, near infrared, Fourier transform infrared spectroscopy technique, etc.) for food quality and safety evaluation. The significant roles of food properties in the design of specific foods and edible films have been elucidated as well.

Volume 1: Nonthermal and Innovative Food Processing Methods Volume 2: Nonthermal Food Preservation and Novel Processing Strategies Volume 3: Computer-Aided Food Processing and Quality Evaluation Techniques Volume 4: Design and Development of Specific Foods, Packaging Systems, and Food Safety Together with the other volumes in the set, the Handbook of Research on Food Processing and Preservation Technologies will be a valuable resource for researchers, scientists, students, growers, traders, processors, industries, and others.

It has been ten years since its first edition, making the Handbook of Brewing, Second Edition the must-have resource on the science and technology of beer production. It recounts how during this time, the industry has transformed both commercially and technically and how many companies have been subsumed into large multinationals while at the other extreme, microbreweries have flourished in many parts of the world. It also explains how massive improvements in computer power and automation have modernized the brewhouse while developments in biotechnology have steadily improved brewing efficiency, beer quality, and shelf life. In addition to these topics, the book, written by an international team of experts recognized for their contributions to brewing science and technology, also covers traditional beer styles as well as more obscure beverages such as chocolate- or coffee-flavored beers. It includes the many factors to be considered in setting up and operating a microbrewery as well as the range of novel beers and beer-related products currently being considered by the brewing industry. It also describes new avenues that challenge the brewer's art of manufacturing a quality beverage from barley-based raw materials. Thorough and accessible, the Handbook of Brewing, Second Edition provides the essential information for those who are involved or interested in the brewing industry.

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.

Handbook of Functional Beverages and Human Health provides potential applications and new developments in functional beverages, nutraceuticals, and health foods. In addition to serving as a reference manual, it summarizes the current state of knowledge in key research areas and contains novel ideas for future research and development. Additionally, this handbook compiles information on novel ingredients and functional food products from leading authors in their respective areas of expertise. It provides an evidence-based and authoritative review of the prophylactic properties exerted by food components, foods, and dietary patterns. It includes information on the chemical properties, dietary sources, intakes, efficacy, health effects, and safety of each bioactive compound, functional food, or nutraceutical. This edition contains many new topics, including inflammation relief, exercised-induced immunity, Alzheimer’s disease, and dementia.

Biofortification, which can be defined as the process of increasing the content/density of essential nutrients and/or its...
bioavailability of food with valuable compounds, is a promising means of increasing nutrient intakes. Traditional fortification practices in which exogenous nutrients are added to food can increase the content of nutrients but the use of biofortified foods with nutrients also may deliver the compounds in a more available form, as well as boost the overall relative effectiveness of these foods in raising nutrients status. Food Biofortification Technologies presents the state of the art in the field of novel methods of fortification and agricultural treatments as a way to improve the quality of obtained food products or compounds enriched with valuable nutrients. The book deals with fortification methods and agricultural treatments, which can improve the quality of food products or other agricultural compounds, providing them with a higher density of valuable nutrients. The utilization of novel products, such as feed additives and fertilizers, can avert nutrients depletion in food products. The book describes new and conventional methods of introducing valuable compounds into food components and presents the application of biosorption, bioaccumulation, and utilization of fertilizers in obtaining designer food. Attention is paid to the use of biomass as the carrier of nutrients such as microelements into the food components. The chapters are dedicated to specific food products and their nutrient components. The first chapter discusses the agronomic biofortification with micronutrients where the fertilization strategies are pointed out as a key to plant/cereals fortification. Other chapters present the fortification of animal foodstuffs such as meat, fish, milk, and eggs as well as the fortification of plant foodstuffs such as vegetables, fruits, and cereals. The book also explores advances in food fortification with vitamins and co-vitamins, essential minerals, essential fatty and amino acids, phytonutrients, and enzymes.

Packaging plays an essential role in protecting and extending the shelf life of a wide range of foods, beverages and other fast-moving consumer goods. There have been many key developments in packaging materials and technologies in recent years, and Trends in packaging of food, beverages and other fast-moving consumer goods (FMCG) provides a concise review of these developments and international market trends. Beginning with a concise introduction to the present status and trends in innovations in packaging for food, beverages and other fast-moving consumer goods, the book goes on to consider modified atmosphere packaging and other active packaging systems, including smart and intelligent packaging, and the role these play in augmenting and securing the consumer brand experience. Developments in plastic and bioplastic materials and recycling systems are then discussed, followed by innovations and trends in metal, paper and paperboard packaging. Further chapters review international environmental and sustainability regulatory and legislative frameworks, before the use of nanotechnology, smart and interactive packaging developments for enhanced communication at the packaging/user interface are explored. Finally, the book concludes by considering potential future trends in materials and technologies across the international packaging market. With its distinguished editor and international team of expert contributors, Trends in packaging of food, beverages and other fast-moving consumer goods (FMCG) is an important reference tool, providing a practical overview of emerging packaging technologies and market trends for research and design professionals in the food and packaging industry, and academics working in this area. Introduces the present status, current trends and new innovations in the field whilst considering future trends in materials and technologies Considers modified atmosphere packaging and other active packaging systems including smart and intelligent packaging Discusses developments in plastic and bioplastic materials and recycling systems

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