

Instant Controlled Pressure Drop D I C In Food Processing From Fundamental To Industrial Applicat

The book Advances in Computer Science and Engineering constitutes the revised selection of 23 chapters written by scientists and researchers from all over the world. The chapters cover topics in the scientific fields of Applied Computing Techniques, Innovations in Mechanical Engineering, Electrical Engineering and Applications and Advances in Applied Modeling.

Olives and Olive Oil in Health and Disease Prevention, Second Edition expands the last releases content and coverage, including new sections on materials in packaging, the Mediterranean diet, metabolic syndrome, diabetic health, generational effects, epigenetics, glycemic control, ketogenic diet, antioxidant effects, the use of olive oil in protection against skin cancer, oleuropein and ERK1/2 MAP-Kinase, oleocanthal and estrogen receptors, and oleocanthal and neurological effects. The book is a valuable resource for food and health researchers, nutritionists, dieticians, pharmacologists, public health scientists, epidemiologists, food technologists, agronomists, analytical chemists, biochemists, biologists, physicians, biotechnologists and students. Continues the tradition of exploring olives and olive oil from general aspects down to a detailed level of important micro-and micronutrients Explains how olive oil compares to other oils Details the many implications for human health and disease, including metabolic health, cardiovascular health and effects on tissue and body systems

Instant Controlled Pressure Drop (D.I.C.) in Food Processing From Fundamental to Industrial Applications Springer
INTRODUCTION This reference is a detailed guide to the world of food additives commonly used in the food processing and manufacturing industry. Edited by experts in the field, invited scholars enrich the book with relevant chapter contributions. Chapters provide readers with knowledge on a broad range of food additives (anti-browning agents, essential oils, flavour enhancers, preservatives, stabilizers, sweeteners, among others), their safe use and a summary of their effects on human health. Key Features: - Covers a wide range of natural and synthetic food additives - Covers health related topics relevant to food additives - Chapters are organized into specific, easy-to-read topics - Provides bibliographic references for further reading This book serves a valuable instrument for a broad spectrum of readers: researchers, health professionals, students, food science enthusiasts, and working professionals in industry and government regulatory agencies interested in the science of food additives.

A Centum of Valuable Plant Bioactives

Consolidated and Green Processes

Intermittent and Nonstationary Drying Technologies

Handbook on Characterization of Biomass, Biowaste and Related By-products

Handbook of Research on Bioenergy and Biomaterials

Olives and Olive Oil in Health and Disease Prevention

Technologies to Recover Polyphenols from AgroFood By-products and Wastes: Applications in Different Fields covers the most used technologies to extract and recover polyphenols from all kinds of by-products and wastes generated by the food industry, restaurant and agricultural sectors. Polyphenols are characterized by different AgroFood by-products and waste sources, hence this book explores the practical applications of these polyphenols in the development of functional foods and pharmaceutical and cosmetic products. Containing definitions, case studies, applications, literature reviews, and coverage of recent developments, this book will be a welcomed resource for food scientists, including those working in sustainability, agriculture and engineering. Promotes a circular economy by discussing the valorization of these compounds Features case studies that enable the reader to understand the potential of several polyphenols and the possibilities regarding their incorporation into several matrixes Presents tools for the development of new lines of research or in support of ongoing investigations with solutions for existing challenges The goal of all drying research and development is to develop cost-effective innovative processes that yield high-quality dried products with less energy consumption and reduced environmental impact. With the literature on drying widely scattered, Advanced Drying Technologies for Foods compiles under one cover concise, authoritative, up-to-date assessments of modern drying technologies applied to foods. This book assembles a number of internationally recognized experts to provide critical reviews of advanced drying technologies, their merits and limitations, application areas and research opportunities for further development. Features: Provides critical reviews of advanced drying technologies Discusses the merits and limitations of a variety of food drying technologies Explains drying kinetics, energy consumption and quality of food products Reviews the principles and recent applications of superheated steam drying The first four chapters deal with recent developments in field-assisted drying technologies. These include drying techniques with the utilization of electromagnetic fields to deliver energy required for drying, for example, microwave drying, radio frequency drying, electrohydrodynamic drying, and infrared radiation drying. The remainder of this book covers a wide assortment of recently developed technologies, which include pulse drying, swell drying, impinging stream drying, and selected advances in spray drying. The final chapter includes some innovative technologies which are gaining ground and are covered in depth in a number of review articles and handbooks, and hence covered briefly in the interest completeness. This book is a valuable reference work for researchers in academia as well as industry and will encourage further research and development and innovations in food drying technologies.

The use of Instant Controlled Pressure Drop (D.I.C.) in food processing operations is relatively new when compared with other conventional or innovative technologies. In addition to existing applications such as drying, texturing and decontamination, D.I.C. technology has been shown to be highly appropriate for an ever-growing number of uses and with a wide range of raw materials. Some examples are post-harvesting and drying of fruits and vegetables; cereal steaming; extraction of essential oils and active molecules, where D.I.C. may be combined with supercritical fluids, ultrasound or microwaves; and the hydrolysis of cellulose and the transesterification of lipids. This book presents a complete picture of current knowledge on the use of D.I.C. in food processing, preservation and extraction. It provides a comprehensive compilation, summarizing the fundamentals of D.I.C. technology, current developments, new research findings, safety precautions and environmental impacts. It will also contribute to widening the scope of D.I.C. technology through the inclusion of some much-needed examples of industrial applications. Each chapter of the book is complementary to the other chapters. They all are based on presentations of reputed international researchers and address the latest progress in the field. Professor Karim ALLAF heads a research team working on the intensification of eco-processes at La Rochelle University. He is a physicist and an expert in the thermodynamics of "instantaneity". Dr. Tamara ALLAF is the R&D manager of ABCAR-DIC Process Company. A chemical engineer, she obtained her Ph.D. in innovative extraction processes.

Green Food Processing Techniques: Preservation, Transformation and Extraction advances the ethics and practical objectives of "Green Food Processing" by offering a critical mass of research on a series of methodological and technological tools in innovative food processing techniques, along with their role in promoting the sustainable food industry. These techniques (such as microwave, ultrasound, pulse electric field, instant controlled pressure drop, supercritical fluid processing, extrusion...) lie on the frontier of food processing, food chemistry, and food microbiology, and are thus presented with tools to make preservation, transformation and extraction greener. The Food Industry constantly needs to reshape and innovate itself in order to achieve the social, financial and environmental demands of the 21st century. Green Food Processing can respond to these challenges by enhancing shelf life and the nutritional quality of food products, while at the same time reducing energy use and unit operations for processing, eliminating wastes and byproducts, reducing water use in harvesting, washing and processing, and using naturally derived ingredients. Introduces the strategic concept of Green Food Processing to meet the challenges of the future of the food industry Presents innovative techniques for green food processing that can be used in academia, and in industry in R&D and processing Brings a multidisciplinary approach, with significant contributions from eminent scientists who are actively working on Green Food Processing techniques

Botanicals

Nanotechnology Applications in Dairy Science

Integrated Processing Technologies for Food and Agricultural By-Products

Recent Advances in Environmental Science from the Euro-Mediterranean and Surrounding Regions

Biobased Products from Food Sector Waste

Handbook of Drying of Vegetables and Vegetable Products

The processing of food is no longer simple or straightforward, but is now a highly inter-disciplinary 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. Feeding our globally expanding population is one of the most critical challenges of our time and improving food and agricultural production efficiencies is a key factor in solving this problem. Currently, one-third of food produced for humans is wasted, and for every pound of food produced, roughly an equal amount of nonfood by-product is also generated, creating a significant environmental impact. In Integrated Processing Technologies for Food and Agricultural By-Products experts from around the world present latest developments, recognizing that while some by-products have found use as animal feed or are combusted for energy, new technologies which integrate conversion of production and processing by-products into higher-value food or nonfood products, nutraceuticals, chemicals, and energy

resources will be a critical part of the transition to a more sustainable food system. Organized by agricultural crop, and focusing on those crops with maximum economic impact, each chapter describes technologies for value-added processing of by-products which can be integrated into current food production systems. Integrated Processing Technologies for Food and Agricultural By-Products is a valuable resource for industry professionals, academics, and policy-makers alike. Provides production-through-processing coverage of key agricultural crops for a thorough understanding and translational inspiration Describes and discusses major by-product sources, including physical and chemical biomass characterizations and associated variability in detail Highlights conversions accomplished through physical, biological, chemical, or thermal methods and demonstrates examples of those technologies Technological Interventions in Processing of Fruits and Vegetables presents a wide selection of the latest concepts in the fast-changing field of processing of fruits and vegetables (FAV). It provides key information on many new and different techniques used for processing of fruits and vegetables while also exploring the pros and cons of the various methods. There is an urgent need to explore and investigate waste in the processing of fruits and vegetables and how different processing technologies can be used most effectively. This volume, in short, conveys the key concepts and role of different technology in processing of fruits and vegetables, keeping mind the special processing requirements of fruits and vegetables, waste issues, nutritional value, and consumer concerns. This volume offers a wealth of information on today's technology for fruit and vegetable processing and will be a valuable resource for industry professionals, agricultural/food processing researchers, faculty and upper-level students, and others.

"Let food be thy medicine and medicine be thy food" said Hippocrates, the father of medicine approximately 2500 years ago. Is food also medicine? Are products that intend to cure diseases medicinal products and not food? Do we know the combination of foods or food components with functional properties that can help promote the well-being or reduce the risk of chronic diseases? In general terms, all foods are functional because they provide the nutrients necessary for a healthy diet. So what are the components that functional foods have beyond their nutrition value? What is the definition of functional foods? What scientific research is needed to validate health claims for functional foods? This book will provide answers to all of these questions. It is important for scientists to have the opportunities to study the relationship between a food type or a food active component and the improved state of health or reduction of diseases. The communication of health benefits to consumers is of critical importance so that they have the knowledge to make informed choices about the foods they eat and enjoy.

Methods and Techniques for Quality & Authenticity
Packaging, Processing, and Preservation
Thermal Food Engineering Operations

Functional Foods

Proceedings of Euro-Mediterranean Conference for Environmental Integration (EMCEI-1), Tunisia 2017

Advances, Methods, and Applications

The first comprehensive book on intermittent drying, **Intermittent and Nonstationary Drying Technologies: Principles and Applications** demonstrates the benefits of this process and covers key issues, including technologies, effect of operating parameters, mathematical modelling, energy-efficiency, and product quality. It discusses such topics as periodic drying, conventional and intermittent food drying processes and food quality, relationship among intermittency of drying, microstructural changes, and food quality, microwave assisted pulsed fluidized and spouted bed drying, and cellular level water distribution. Aimed at food engineers, chemical product engineers, pharmaceutical engineers and technologists, plant design engineers, and researchers and students in these areas, this useful reference helps readers:

The international trade in plants is growing steadily as the worldwide demand for natural and botanical raw materials increases. Customers value natural products and botanicals as "green" alternatives—safer ingredients for their families which also represent an environmentally and socially responsible choice for the planet. In order to build assurance into the sourcing of natural ingredients, R&D organizations must have valid scientific matrices to authenticate the quality of those ingredients, provide traceability, and minimize risk. An assemblage of insight from expert contributors, **Botanicals: Methods and Techniques for Quality & Authenticity** compiles a range of methods and techniques that can be used to help guide quality and authenticity determinations. Topics include: Metabolic profiling, authentication of botanicals by morphology, and genetic methods of botanical authentication Tools for building models for the authentication of materials How multivariate statistics can play a role in determining botanical quality and authenticity Radiocarbon and stable isotope ratio analysis and emerging stable isotope tools NMR (nuclear magnetic resonance) spectroscopy, NIR (near-infrared), and HPTLC (high-performance thin-layer chromatography) methods for analysis The use of electronic sensing instruments and applications for analysis The contributors also discuss the challenge of identifying a botanical extract or preparation on the basis of its chemical content and discuss quality issues faced by botanicals used as cosmetic ingredients. The book provides you with a range of traditional, taxonomic, and newer analytical tools to assure the quality, authenticity, and traceability of botanical raw materials for dietary supplements, cosmetics, and natural products research.

Food Processing and Preservation Technology: Advances, Methods, and Applications confronts the challenges of food preservation by providing new research and information on the use of novel processing and preservation technologies during production, processing, and transportation in the food industry for the improvement of shelf life and the safety of foods. The book is organized in two main parts. The first section focuses on novel and nonthermal processing of food and food products. It looks at dielectric heating and ohmic heating as well as three-dimensional printing of foods and ozonization of food products. Part two delves into process interventions for food processing and preservations, discussing the applications of diverse novel food processing. The authors discuss drying technologies, advances in food fermentation technologies, mechanization of traditional indigenous products for preservation of food and safety, and different properties and concepts of bakery products. Key features: Examines different properties and attributes of some bakery foods, etc. Elucidates on novel nonthermal processing techniques

and their mechanisms of actions for minimal loss of food nutrients and for food safety Discusses a variety of modern technologies that aim to reduce the spoilage of food products This volume presents valuable research on food processing, quality control, and safety measures for food products by means of novel processing and preservation technologies during production, processing, and transportation in the food industry.

Polyphenols: Properties, Recovery, and Applications covers polyphenol properties, health effects and new trends in recovery procedures and applications. Beginning with coverage of the metabolism and health effects of polyphenols, the book then addresses recovery, analysis, processing issues and industrial applications. The book not only connects the properties and health effects of polyphenols with recovery, processing and encapsulation issues, but also explores industrial applications that are affected by these aspects, including both current applications and those under development. Covers the properties and health effects of polyphenols, along with trends in recovery procedures and applications Addresses recovery, analysis and processing issues Concludes with coverage of the industrial applications of polyphenols

Handbook of Food Preservation

Preservation, Transformation and Extraction

Bioplastics, Biocomposites, and Biocascading

Microbial Decontamination of Food

Conventional and Advanced Food Processing Technologies

Extraction is an important operation in food engineering, enabling the recovery of valuable soluble components from raw materials. With increasing energy costs and environmental concerns, industry specialists are looking for improved techniques requiring less solvents and energy consumption. Enhancing Extraction Processes in the Food Industry is a

The handbook provides an understanding of consolidated processing and biorefinery systems for the production of bio-based chemicals and value-added bioproducts from renewable sources. The chapters look at a variety of bioenergy technological advances and improvements in the energy and materials sectors that aim to lower our dependence of fossil fuels and consequently reduce greenhouse gas (GHG) emissions. The volume looks at a selection of processes for the production of energy and biomaterials, including the Fischer–Tropsch process, gasification, pyrolysis, combustion, fermentation from renewable sources (such as, plants, animals and their byproducts), and others. Applications that are explored include transportation fuels, biodiesel production, wastewater treatment, edible packaging, bioplastics, physical rehabilitation, tissue engineering, biomedical applications, thermal insulation, industrial value compounds, and more. All of the topics covered in this publication address consolidated processes that play a pivotal

role in the production of bioenergy and biomaterials because these processes require fewer unitary operations needed in the process, leading to a more direct method of production. This type of production system contributes to decreasing negative effects on the environment, lowering costs, saving energy and time, and improving profitability and efficiency. This volume will be valuable for the industrial sector, for researchers and scientists, as well as for faculty and advanced students.

An increased demand for waste upcycling has prompted the food industry to become more efficient in its handling of waste. Efficient utilization of food waste is of concern to consumers, environmentalists, and policy makers. In the past, food waste has been used for the production of bio-gas and bio-fuels, fertilizers and animal feed. Biobased products from food sector waste: Bioplastics, biocomposites, and biocascading proposes an innovative use of food waste—as filler in a bioplastic matrix. The upcycling of food industry waste to produce new composites has a number of beneficial features, including (i) avoiding the cost of waste disposal; (ii) reducing bio-based composites price; (iii) avoiding using edible resources as a starting material for bio-based composites (to eliminate competition between biomass use for food, feed, and material use); (iv) producing a non-food bio-based output different from existing outputs (bio-fuels or bio-energy). The production of value-added items supports the development of a circular and sustainable economy in a thriving bio-based sector via the emergence of food value chains. The authors explore the safety of bio-based products. Using an evidence-based approach, they detail the volatile profile of biobased products and underline the absence of priority air pollutants released by fossil plastics, which pose a significant public health threat. The volume also delves into socioeconomic considerations and environmental concerns related to the upcycling of food by-products. Finally, the authors address how advances in digital technology can make food waste upcycling a negative-cost process.

One of the biggest challenges facing the food industry and society is the reduction of food waste. Annually, all over the world, millions of tons of agro-food waste are produced, and their efficient management and valorization represents one of the main objectives of EU actions towards sustainable development. The book compiles information on the possibilities of the recovery of valuable compounds from food waste and their valorization in different food and non-food applications, as well as new preservation methods for optimizing food waste reduction.

32nd European Symposium on Computer Aided Process Engineering

Green Food Processing Techniques
Advanced Drying Technologies for Foods
Polyphenols: Properties, Recovery, and Applications
Advances in Computer Science and Engineering
ESCAPE-32

Extraction processes are essential steps in numerous industrial applications from perfume over pharmaceutical to fine chemical industry. Nowadays, there are three key aspects in industrial extraction processes: economy and quality, as well as environmental considerations. This book presents a complete picture of current knowledge on green extraction in terms of innovative processes, original methods, alternative solvents and safe products, and provides the necessary theoretical background as well as industrial application examples and environmental impacts. Each chapter is written by experts in the field and the strong focus on green chemistry throughout the book makes this book a unique reference source. This book is intended to be a first step towards a future cooperation in a new extraction of natural products, built to improve both fundamental and green parameters of the techniques and to increase the amount of extracts obtained from renewable resources with a minimum consumption of energy and solvents, and the maximum safety for operators and the environment.

The diverse segments of the snack industries that generate close to \$520 billion of annual sales are adapting to new consumer's expectations, especially in terms of convenience, flavor, shelf life, and nutritional and health claims. Snack Foods: Processing, Innovation, and Nutritional Aspects was conceptualized to thoroughly cover practical and scientific aspects related to the chemistry, technology, processing, functionality, quality control, analysis, and nutrition and health implications of the wide array of snacks derived from grains, fruits/vegetables, milk and meat/poultry/seafood. This book focuses on novel topics influencing food product development like innovation, new emerging technologies and the manufacturing of nutritious and health-promoting snacks with a high processing efficiency. The up-to-date chapters provide technical reviews emphasising flavored salty snacks commonly used as finger foods, including popcorn, wheat-based products (crispbreads, pretzels, crackers), lime-cooked maize snacks (tortilla chips and corn chips), extruded items (expanded and half products or pellets), potato chips, peanuts, almonds, tree nuts, and products derived from fruits/vegetables, milk, animal and marine sources. Key Features: Describes traditional and novel processes and unit operations used for the industrial production of plant and animal-based snacks. Depicts major processes employed for the industrial production of raw materials, oils, flavorings and packaging materials used in snack food operations. Contains relevant and updated information about quality control and nutritional attributes and

health implications of snack foods. Includes simple to understand flowcharts, relevant information in tables and recent innovations and trends. Divided into four sections, Snack Foods aims to understand the role of the major unit operations used to process snacks like thermal processes including deep-fat frying, seasoning, packaging and the emerging 3-D printing technology. Moreover, the book covers the processing and characteristics of the most relevant raw materials used in snack operations like cereal-based refined grits, starches and flours, followed by chapters for oils, seasoning formulations and packaging materials. The third and most extensive part of the book is comprised of several chapters which describe the manufacturing and quality control of snacks mentioned above. The fourth section is comprised of two chapters related to the nutritional and nutraceutical and health-promoting properties of all classes of snacks discussed herein.

A valuable reference presenting many processes that facilitate lipid extraction from micro-organisms. Amongst the techniques included are Folch, Bligh and Dyer methods, and the Soxhlet technique as well as intensified green processes (ultrasound, microwave, supercritical fluid extraction, agro-solvent, accelerated solvent extraction, enzyme-assisted extraction, instant controlled pressure drop, pulse electric field). In addition to a section featuring the analysis of fatty acids by Gas Chromatography and lipids by High-Performance Thin-Layer Chromatography (HPTLC), this brief contains a valuable bibliography on microorganisms (classes, structures) and their applications as a source of value added oils and compounds for food and non-food applications such as biojet fuel.

This book presents a complete picture of the current state-of-the-art in alternative and green solvents used for laboratory and industrial natural product extraction in terms of the latest innovations, original methods and safe products. It provides the necessary theoretical background and details on extraction, techniques, mechanisms, protocols, industrial applications, safety precautions and environmental impacts. This book is aimed at professionals from industry, academicians engaged in extraction engineering or natural product chemistry research, and graduate level students. The individual chapters complement one another, were written by respected international researchers and recognized professionals from the industry, and address the latest efforts in the field. It is also the first sourcebook to focus on the rapid developments in this field.

From Fundamental to Industrial Applications

Green Extraction in Separation Technology

Microstructure of Dairy Products

Handbook of Vegetables and Vegetable Processing

Food Processing and Preservation Technology

Enhancing Extraction Processes in the Food Industry

Food processing technologies are an essential link in the food chain. These technologies are many and varied, changing in popularity with changing consumption patterns and product popularity. Newer process technologies are also being evolved to provide the added advantages. Conventional and Advanced Food Processing Technologies fuses the practical (application, machinery), theoretical (model, equation) and cutting-edge (recent trends), making it ideal for industrial, academic and reference use. It consists of two sections, one covering conventional or well-established existing processes and the other covering emerging or novel process technologies that are expected to be employed in the near future for the processing of foods in the commercial sector. All are examined in great detail, considering their current and future applications with added examples and the very latest data. Conventional and Advanced Food Processing Technologies is a comprehensive treatment of the current state of knowledge on food processing technology. In its extensive coverage, and the selection of reputed research scientists who have contributed to each topic, this book will be a definitive text in this field for students, food professionals and researchers.

Provides the most recent developments in microscopy techniques and types of analysis used to study the microstructure of dairy products This comprehensive and timely text focuses on the microstructure analyses of dairy products as well as on detailed microstructural aspects of them. Featuring contributions from a global team of experts, it offers great insight into the understanding of different phenomena that relate to the functional and biochemical changes during processing and subsequent storage. Structured into two parts, Microstructure of Dairy Products begins with an overview of microscopy techniques and software used for microstructural analyses. It discusses, in detail, different types of the following techniques, such as: light microscopy (including bright field, polarized, and confocal scanning laser microscopy) and electron microscopy (mainly scanning and transmission electron microscopy). The description of these techniques also includes the staining procedures and sample preparation methods developed. Emerging microscopy techniques are also covered, reflecting the latest advances in this field. Part 2 of the book focuses on the microstructure of various dairy foods, dividing each into sections related to the microstructure of milk, cheeses, yogurts, powders, and fat products, ice cream and frozen dairy desserts, dairy powders and selected traditional Indian dairy products. In addition, there is a review of the localization of microorganism within the microstructure of various dairy products. The last chapter discusses the challenges and future trends of the microstructure of dairy products. Presents complete coverage of the latest developments in dairy product microscopy techniques Details the use of microscopy techniques in structural analysis An essential purchase for companies, researchers, and other professionals in the dairy sector Microstructure of Dairy Products is an excellent resource for food scientists, technologists, and chemists—and physicists, rheologists, and microscopists—who deal in dairy products.

Issues in Applied Agriculture / 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Applied Agriculture. The editors have built Issues in Applied Agriculture: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Applied Agriculture in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Applied Agriculture: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>. This book provides authoritative information, techniques and data necessary for the appropriate understanding of biomass and biowaste (understood as contaminated biomass) composition and behaviour while processed in various conditions and technologies. Numerous techniques for characterizing biomass, biowaste and by-product streams exist in literature. However, there lacks a reference book where these techniques are gathered in a single book, although such information is in increasingly high demand. This handbook provides a wealth of characterization methods, protocols, standards, databases and references relevant to various biomass, biowaste materials and by-products. It specifically addresses sampling and preconditioning methods, extraction techniques of elements and molecules, as well as biochemical, mechanical and thermal characterization methods. Furthermore, advanced and innovative methods under development are highlighted. The characterization will allow the analysis, identification and quantification of molecules and species including biomass feedstocks and related conversion products. The characterization will also provide insight into physical, mechanical and thermal properties of biomass and biowaste as well as the resulting by-products.

Technologies to Recover Polyphenols from AgroFood By-products and Wastes

Green Extraction of Natural Products

Modern Techniques and Solvents for the Extraction of Microbial Oils

Food Additives and Human Health

Handbook of Industrial Drying

Snack Foods

Subcritical water is a green extraction solvent compared to conventional extraction solvents. While experimental results on subcritical water extraction (SWE) technology have been published piecemeal, there has been no comprehensive review of the state of the art. Green Extraction in Separation Technology fills that gap, serving to cover extracting with subcritical water as an environmentally

friendly solvent. FEATURES Presents new technologies for extracting natural compounds from plants and compares the advantages and disadvantages versus SWE Explains research on SWE over the last 15 years Offers an overview of the solubility of different compounds in SWE and related theoretical content Discusses modeling of SWE and describes the development of a new model for this process This monograph is aimed at researchers and advanced students in chemical and biochemical engineering.

This new volume, *Nanotechnology Applications in Dairy Science*, is designed to provide new insight into the utilization of nanotechnology in dairy science and food science. It focuses on applications of nanotechnology in packaging and drying of dairy and meat products, nanofiltration use in the dairy industry, and whey processing and dairy encapsulation. In addition, this book will facilitate the necessary understanding of the different aspects and concerns with regard to the new technological advances that nanotechnologies are contributing to the dairy industry. It also addresses several of the challenges that are overcome by the continuing development of nanotechnology applications in the food and dairy industries. Nanotechnology has the potential to provide healthier, safer, and better tasting foods as well as improved food packaging. It will also play a major role in food safety and agricultural sustainability. Nanotechnology application in the food industry has also contributed to the exponential progress in research and new material formulations due to its unique physicochemical properties useful to a number of other fields.

32nd European Symposium on Computer Aided Process Engineering: ESCAPE-32 contains the papers presented at the 32nd European Symposium of Computer Aided Process Engineering (ESCAPE) event held in Toulouse, France. It is a valuable resource for chemical engineers, chemical process engineers, researchers in industry and academia, students and consultants for chemical industries who work in process development and design. Presents findings and discussions from the 32nd European Symposium of Computer Aided Process Engineering (ESCAPE) event

This volume includes the papers presented during the 1st Euro-Mediterranean Conference for Environmental Integration (EMCEI) which was held in Sousse, Tunisia in November 2017. This conference was jointly organized by the editorial office of the Euro-Mediterranean Journal for Environmental Integration in Sfax, Tunisia and Springer (MENA Publishing Program) in Germany. It aimed to give a more concrete expression to the Euro-Mediterranean integration process by supplementing existing North-South programs and agreements with a new multilateral scientific forum that emphasizes in particular the vulnerability and proactive remediation of the Euro-Mediterranean region from an environmental point of view. This volume gives a general and brief overview on current research focusing on emerging environmental issues and challenges and its applications to a variety of problems in the Euro-Mediterranean zone and surrounding regions. It contains over five hundred and eighty carefully refereed short contributions to the conference. Topics covered include (1) innovative approaches and methods for environmental

sustainability, (2) environmental risk assessment, bioremediation, ecotoxicology, and environmental safety, (3) water resources assessment, planning, protection, and management, (4) environmental engineering and management, (5) natural resources: characterization, assessment, management, and valorization, (6) intelligent techniques in renewable energy (biomass, wind, waste, solar), (7) sustainable management of marine environment and coastal areas, (8) remote sensing and GIS for geo-environmental investigations, (9) environmental impacts of geo/natural hazards (earthquakes, landslides, volcanic, and marine hazards), and (10) the environmental health science (natural and social impacts on Human health). Presenting a wide range of topics and new results, this edited volume will appeal to anyone working in the subject area, including researchers and students interested to learn more about new advances in environmental research initiatives in view of the ever growing environmental degradation in the Euro-Mediterranean region, which has turned environmental and resource protection into an increasingly important issue hampering sustainable development and social welfare.

Air, Gas, and Water Pollution Control Using Industrial and Agricultural Solid Wastes Adsorbents

Alternative Solvents for Natural Products Extraction

Processing, Innovation, and Nutritional Aspects

Food Preservation and Waste Exploitation

Improving the Sensory, Nutritional and Technological Profile of Conventional and Gluten-Free Pasta and Bakery Products

Issues in Applied Agriculture: 2011 Edition

Air and water pollution occurs when toxic pollutants of varying kinds (organic, inorganic, radioactive and so on) are directly or indirectly discharged into the environment without adequate treatment to remove these potential pollutants. There are a total of 13 book chapters in three sections contributed by significant number of expert authors around the world, aiming to provide scientific knowledge and up-to-date development of various solid wastes based cost-effective adsorbent materials and its sustainable application in the removal of contaminates/pollutants from air, gas and water. This book is useful for the professions, practicing engineers, scientists, researchers, academics and undergraduate and post-graduate students' interest on this specific area. Key Features:

- Exclusive compilation of information on use of industrial and agricultural waste based adsorbents for air and water pollution abatement.
- Explores utilization of industrial solid wastes in adsorptive purification and agricultural and agricultural by-products in separation and purification.
- Discusses cost-effective solid wastes based emerging adsorbents.
- Alternative adsorbents in the removal of a wide range of contaminants and pollutants from water is proposed.
- Includes performance of unit operations in waste effluents treatment.

Cereal-based products such as pasta and baked goods represent staple foods for human nutrition. Due to their worldwide diffusion, these products can be carriers of nutrients and bioactive compounds; therefore, they lend themselves very well to the fortification process. Furthermore, among new formulations of cereal-based food, gluten-free products have become popular even among people without celiac disease who have chosen a gluten-free lifestyle. The improvement of well-being,

sustainable lifestyles, and waste control are also aims of the United Nations for the Agenda 2030, which has motivated food scientists and industrial producers to research new and healthier formulations for pasta and baked goods preparations. In this context, researchers are also encouraged to use agro-industrial by-products of high added value for food fortification. The Special Issue “ Improving the Sensory, Nutritional and Technological Profile of Conventional and Gluten-Free Pasta and Bakery Products ” collected ten original articles focused on new types of gluten-free pasta or baked product formulations as well as agro-industrial by-product utilization. The final aim was the preparation of valuable products from a nutritional, technological, and sensory viewpoint.

Food is contaminated in the production chain and is the point of concern among the consumers and industries. There is also a considerable increase in foodborne outbreaks, which possess the challenge to industry associated with the production of processed food. Various strategies are used to prevent the contamination during postharvest stage, storage and distribution. Different methods are exploited for degrading or eliminating the microbial contamination from food commodities. The conventional techniques used for decontamination demanded a considerable requirement for novel technologies, which are efficient, environmental friendly, and cost-effective. Novel technologies efficiently remove the contamination without adversely affecting the nutritional properties and sensory characteristics of food material. There is a lack of scientific information on the microbial decontamination of different food commodities such as fruits, vegetables, cereals, sprouts, microgreens, meat, poultry, milk, nut, spices etc. under one umbrella. The application of conventional and novel technologies for improving the food safety of individual food commodities will be addresses in this book. Written by several experts in the field, this book is a valuable source for students, scientists, and professionals in food science, food microbiology, food technology, food processing, and other allied sciences.

By far the most commonly encountered and energy-intensive unit operation in almost all industrial sectors, industrial drying continues to attract the interest of scientists, researchers, and engineers. The Handbook of Industrial Drying, Fourth Edition not only delivers a comprehensive treatment of the current state of the art, but also serves as a

Theory and Practice

Instant Controlled Pressure Drop (D.I.C.) in Food Processing

Principles and Applications

Technological Interventions in the Processing of Fruits and Vegetables

Handbook of Vegetables and Vegetable Processing, Second Edition is the most comprehensive guide on vegetable technology for processors, producers, and users of vegetables in food manufacturing. This complete handbook contains 42 chapters across two volumes, contributed by field experts from across the world. It provides contemporary information that brings together current knowledge and practices in the value-chain of vegetables from production through consumption. The book is unique in the sense that it includes coverage of production and postharvest technologies, innovative processing technologies, packaging, and quality management. Handbook of Vegetables and Vegetable Processing, Second Edition covers recent developments in the areas of vegetable breeding and production, postharvest physiology and storage, packaging and shelf life extension, and traditional and novel processing technologies (high-pressure processing, pulse-electric field, membrane separation, and ohmic heating). It also offers in-depth coverage of processing, packaging, and the nutritional quality of vegetables as well as information on a

broader spectrum of vegetable production and processing science and technology. Coverage includes biology and classification, physiology, biochemistry, flavor and sensory properties, microbial safety and HACCP principles, nutrient and bioactive properties In-depth descriptions of key processes including, minimal processing, freezing, pasteurization and aseptic processing, fermentation, drying, packaging, and application of new technologies Entire chapters devoted to important aspects of over 20 major commercial vegetables including avocado, table olives, and textured vegetable proteins This important book will appeal to anyone studying or involved in food technology, food science, food packaging, applied nutrition, biosystems and agricultural engineering, biotechnology, horticulture, food biochemistry, plant biology, and postharvest physiology.

During last couple of decades, a great deal of research has explored what exactly plants contain (bioactives) and how these molecules may interact with human physiology at the molecular level. It is extremely important to know what happens to plant bioactives or their biological activities when processed or isolated under various reaction conditions. Huge numbers of extraction or food manufacturing methodologies are adversely affecting the quality of these phytonutrients so there is a prompt need to highlight these processes/methods and replace them with more novel, efficient, green, or eco-friendly ones. A Centum of Valuable Plant Bioactives is a comprehensive resource on the top 100 plant bioactives available. Chapters are grouped together by bioactives, with sections on carotenes, xanthophylls, terpenoids, steroids, polyphenols and more. This is an essential guide for botanists, food technologists and chemists, nutritionists and pharmacists. Highlights the top 100 plant bioactives, their biogenesis, distribution, extraction/purification, and metabolism Contains the latest advances in botanic biology, analytical chemistry and food technology Explores potential applications including food additives, digestion and health, chemoprevention and biotherapy This handbook provides a comprehensive overview of the processes and technologies in drying of vegetables and vegetable products. The Handbook of Drying of Vegetables and Vegetable Products discusses various technologies such as hot airflow drying, freeze drying, solar drying, microwave drying, radio frequency drying, infrared radiation drying, ultrasound assisted drying, and smart drying. The book's chapters are clustered around major themes including drying processes and technologies, drying of specific vegetable products, properties during vegetable drying, and modeling, measurements, packaging & safety. Specifically, the book covers drying of different parts and types of vegetables such as mushrooms and herbs; changes to the properties of pigments, nutrients, and texture during drying process; dried products storage; nondestructive measurement and monitoring of moisture and morphological changes during vegetable drying; novel packaging; and computational fluid dynamics.

Thermal Food Engineering Operations Presenting cutting-edge information on new and emerging food engineering processes, Thermal Food Engineering Operations, the first volume in the new series, "Bioprocessing in Food Science," is an essential reference on the modeling, quality, safety, and technologies associated with food processing operations today. As the demand for healthy food increases in the current global scenario, manufacturers are searching for new possibilities for occupying a greater share in the rapidly changing food market. Compiled reports and updated knowledge on thermal processing of food products are imperative for commercial enterprises and manufacturing units. In the current scenario, academia, researchers, and food industries are working in a scattered manner and different technologies developed at each level are not compiled to implement for the benefits of different stakeholders. However, advancements in bioprocesses are required at all levels for the betterment of food industries and consumers. This series of groundbreaking edited volumes will be a comprehensive compilation of all the research that has been carried out so far, their practical applications, and the future scope of research and development in the food bioprocessing industry. This first volume includes all the conventional and novel thermal technologies based on conduction, convection, and

radiation principles and covers the basics of microbial inactivation with heat treatments, aseptic processing, retorting, drying, dehydration, combined high-pressure thermal treatments, and safety and quality concerns in food processing. Before studying the novel non-thermal processes and the concept of minimal processing, comprehensive knowledge about the conventional thermal technologies is desired along with benefits, constraints, equipment, and implementation of these technologies. Whether for the engineer, scientist, or student, this series is a must-have for any library. This outstanding new volume: Discusses food safety and quality and thermal processing, laying the groundwork for further study and research Provides case studies of solid-liquid and supercritical fluid extraction Explores pasteurization, ohmic heating, irradiation, and more Presents cutting-edge information on new and emerging food engineering processes Audience: Process and chemical engineers, chemists, engineers in other disciplines, managers, researchers, scientists, students, and teachers working in the field of food engineering and processing