

Bioactive Compounds From Natural Sources Second Edition Natural Products As Lead Compounds In Drug Discovery

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Plants that Fight Cancer - Spiridon E. Kintzios 2004-01-15

An increasing amount of cancer research is being directed towards the investigation of plant-derived anticancer compounds, many of which have been used in traditional herbal treatments for centuries. *Plants that Fight Cancer* is an up-to-date, extensive review of plant genera and species with documented anti-tumor and anti-leukaemic properties. Following an overview of the disease and the diverse methods of therapy and clinical testing, the book provides a detailed examination of the plants whose compounds are currently used in conventional cancer treatment, the species which show the greatest potential as future candidates, and other species with established anticancer properties. The third section explores each of more than 150 terrestrial plant genera and species, with a review of their traditional uses, mythology, botany, active ingredients, and product applications, along with photographs and illustrations and an analysis of expected results and risks. The text closes with a discussion of algal extracts and isolated metabolites with anticancer activity, a summary of published research for each species, and chemical structures of the most important compounds.

The Food Industry Innovation School - Helmut Traitler 2015-04-13

Innovation and new product development are increasingly perceived as drivers of profits in the food industry. Companies are dedicating a large amount of resources to these areas and it is crucial that individuals understand how to be part of this new strategy. *Food Industry Innovation School* focuses on key skills needed to drive new ideas from initial concepts through to successful products on the shelf. The author argues that any individual can learn how to lead innovation within complex organizations utilizing companies' commercial and financial resources. The book focuses on the impact of single individuals on company successes. Case studies from the marketplace provide valuable examples of accomplishments and failures. Product development involves a plethora of activities such as R&D, innovation, engineering, packaging and design, manufacturing, logistics and supply chain management, as well as marketing, sales and finance, and the book addresses all these crucial functions undertaken by food companies and manufacturers of other packaged consumer goods. The learning principles and examples (based on the author's personal experience) are valid in many fast-moving consumer goods organizations and so the principles, best practices and solutions offered in the 12 chapters are relevant to a wide audience in the food industry and beyond, including those working in household products, retail, the automotive industry, computers and IT, furniture, and even media and publishing. Read more: <http://www.innovationschool.co/>
The A-Z Guide to Food as Medicine, Second Edition - Diane Kraft 2019-01-22

Reprising The 2017 American Library Association Outstanding Academic Title award-winning *A-Z Guide to Food As Medicine*, this new edition explores the physiological effects of more than 250 foods, food groups, nutrients, and phytochemicals in entries that include: Definition and background information such as traditional medicinal use, culinary facts, and dietary intake and deficiency information Scientific findings on the physiological effects of foods, food groups, and food constituents Bioactive dose when known, such as nutrient Dietary Reference Intakes focusing on 19-to-50-year-old individuals Safety highlights, such as nutrient Tolerable Upper Intake Levels A health professional's comprehensive nutrition handbook that

includes all nutrients, nutrient functions, "good" and "excellent" sources of nutrients, nutrient assessment, and deficiency symptoms, as well as summaries of foods, food groups, and phytochemicals. New to the Second Edition: Disease- and condition-focused Index that leads readers to foods used to manage specific conditions and diseases Focus on practical recommendations for health maintenance and disease prevention, including tables, insets, and updated scientific findings on more than a dozen new foods Accompanying teaching aids and lesson plans available online at <http://www.crcpress.com> Features: Dictionary-style summaries of the physiological effects of foods, food groups, nutrients, and phytochemicals alphabetically listed for quick access Approximately 60 B & W images of foods; informational tables and insets that define or illustrate concepts such as drug terminologies, classes of phytochemicals, and medicinal aspects of foods and of a plant-based diet Over 1,000 scientific references from peer-reviewed sources, including The Academy of Nutrition and Dietetics Evidence Analysis Library, and position statements of major health organizations

Extracting Bioactive Compounds for Food Products - M. Angela A. Meireles 2008-12-16

The demand for functional foods and nutraceuticals is on the rise, leaving product development companies racing to improve bioactive compound extraction methods - a key component of functional foods and nutraceuticals development. From established processes such as steam distillation to emerging techniques like supercritical fluid technology, *Extracting Bioactive Compounds for Food Products: Theory and Applications* details the engineering aspects of the processes used to extract bioactive compounds from their food sources. Covers Bioactive Compounds Found in Foods, Cosmetics, and Pharmaceuticals Each well-developed chapter provides the fundamentals of transport phenomena and thermodynamics as they relate to the process described, a state-of-the-art literature review, and replicable case studies of extraction processes. This authoritative reference examines a variety of established and groundbreaking extraction processes including: Steam distillation Low-pressure solvent extraction Liquid-liquid extraction Supercritical and pressurized fluid extraction Adsorption and desorption The acute view of thermodynamic, mass transfer, and economical engineering provided in this book builds a foundation in the processes used to obtain high-quality bioactive extracts and purified compounds. Going beyond the information traditionally found in unit operations reference books, *Extracting Bioactive Compounds for Food Products: Theory and Applications* demonstrates how to successfully optimize bioactive compound extraction methods and use them to create new and better natural food options.

Nanotechnology and Functional Foods - Cristina Sabliov 2015-04-21

The continued advancement in the sciences of functional foods and nutraceuticals has clearly established a strong correlation between consumption of bioactives and improved human health and performance. However, the efficacy and bioavailability of these bioactive ingredients (e.g., omega-3 oils, carotenoid antioxidants, vitamins, and probiotic bacteria) in foods often remains a challenge, due to their instability in food products and gastrointestinal tract, as well as their limited bioavailability. In some cases, these bioactive ingredients may impart an undesirable organoleptic characteristic to the final product, which hinders acceptance by consumers. In addressing these challenges, development of effective delivery

systems is critical to meet the consumer needs for effective bioactives. The scientific knowledge behind developing effective delivery of bioactive components into modern and wide-ranging food products will be essential to reap their health-promoting benefits and to support the sustained growth of the functional foods market. *Nanotechnology and Functional Foods: Effective Delivery of Bioactive Ingredients* explores the current data on all aspects of nanoscale packing, carrying and delivery mechanisms of bioactive ingredients to functional foods. The book presents various delivery systems (including nano-emulsions, solid lipid nanoparticles, and polymeric nano-particles), their properties and interactions with other food components, and fate in the human body. Later chapters emphasize the importance of consumers attitude towards nano-delivery for the success of the technology and investigate the challenges faced by regulatory agencies to control risks and harmonize approaches worldwide. The wide applicability of bioactive delivery systems with the purpose of improving food quality, food safety and human health will make this book a worthy reference for a diverse range of readers in industry, research and academia.

Emerging Dairy Processing Technologies - Nivedita Datta 2015-04-27

Fluid milk processing is energy intensive, with high financial and energy costs found all along the production line and supply chain. Worldwide, the dairy industry has set a goal of reducing GHG emissions and other environmental impacts associated with milk processing. Although the major GHG emissions associated with milk production occur on the farm, most energy usage associated with milk processing occurs at the milk processing plant and afterwards, during refrigerated storage (a key requirement for the transportation, retail and consumption of most milk products). Sustainable alternatives and designs for the dairy processing plants of the future are now being actively sought by the global dairy industry, as it seeks to improve efficiency, reduce costs, and comply with its corporate social responsibilities. *Emerging Dairy Processing Technologies: Opportunities for the Dairy Industry* presents the state of the art research and technologies that have been proposed as sustainable replacements for high temperature-short time (HTST) and ultra-high temperature (UHT) pasteurization, with potentially lower energy usage and greenhouse gas emissions. These technologies include pulsed electric fields, high hydrostatic pressure, high pressure homogenization, ohmic and microwave heating, microfiltration, pulsed light, UV light processing, and carbon dioxide processing. The use of bacteriocins, which have the potential to improve the efficiency of the processing technologies, is discussed, and information on organic and pasture milk, which consumers perceive as sustainable alternatives to conventional milk, is also provided. This book brings together all the available information on alternative milk processing techniques and their impact on the physical and functional properties of milk, written by researchers who have developed a body of work in each of the technologies. This book is aimed at dairy scientists and technologists who may be working in dairy companies or academia. It will also be highly relevant to food processing experts working with dairy ingredients, as well as university departments, research centres and graduate students.

Biotechnology of Bioactive Compounds - Vijai Kumar Gupta 2015-04-20

Bioactive compounds play a central role in high-value product development in the chemical industry. Bioactive compounds have been identified from diverse sources and their therapeutic benefits, nutritional value and protective effects in human and animal healthcare have underpinned their application as pharmaceuticals and functional food ingredients. The orderly study of biologically active products and the exploration of potential biological activities of these secondary metabolites, including their clinical applications, standardization, quality control, mode of action and potential biomolecular interactions, has emerged as one of the most exciting developments in modern natural medicine. *Biotechnology of Bioactive Compounds* describes the current stage of knowledge on the production of bioactive compounds from microbial, algal and vegetable sources. In addition, the molecular approach for screening bioactive compounds is also discussed, as well as examples of applications of these compounds on human health. The first half of the book comprises information on diverse sources of bioactive compounds, ranging from microorganisms and algae to plants and dietary foods. The second half of the book reviews synthetic approaches, as well as selected bioactivities and biotechnological and biomedical potential. The bioactive compounds profiled include compounds such as C-phycocyanins, glycosides, phytosterols and natural steroids. An overview of the usage of bioactive compounds as antioxidants and anti-inflammatory agents, anti-allergic compounds and in stem cell research is also presented, along with an overview of the

medicinal applications of plant-derived compounds. *Biotechnology of Bioactive Compounds* will be an informative text for undergraduate and graduate students of bio-medicinal chemistry who are keen to explore the potential of bioactive natural products. It also provides useful information for scientists working in various research fields where natural products have a primary role.

Nanotechnology in Edible Food Packaging - Vimal Katiyar 2021-03-27

This volume delivers a systematic overview of nanotechnology in the development of edible food packaging with noteworthy characteristics for improved food quality. It covers current research trends, history outlines, and state of the global market in combination with associated biomaterials and synthesis strategies. The contents detail the use of various emerging bionanostructured materials such as cellulose nanostructures, chitosan nanostructures, and more. It further deliberates an in-depth discussion on various synthesis strategies and routes for the development of edible food packaging in terms of utilizing various nanosystems such as polymeric nanocomposites, nanoencapsulation systems, nanoemulsion systems, and others. Further, it also discusses experimental practices for bionanostructured and edible packaging materials to check the effectivity in terms of offering enhanced shelf life of food products. It also touches upon the socio-techno challenges in-line with developing edible packaging materials using nanotechnology for high performance packaging application. The book is an excellent guide for both the academia and industry especially early career professionals in edible food packaging sectors for selecting proper biomaterial involving biofillers, modifiers, cross linkers, compatibilizers and others to enhance the property of edible food packaging for targeted features. ^

Progress in the Chemistry of Organic Natural Products 108 - A. Douglas Kinghorn 2019-03-28

The first contribution summarizes current trends in research on medicinal plants in Mexico with emphasis on work carried out at the authors' laboratories. The most relevant phytochemical and pharmacological profiles of a selected group of plants used widely for treating major national health problems are described. The second contribution provides a detailed survey of the so far reported literature data on the capacities of selected oxyprenylated phenylpropanoids and polyketides to trigger receptors, enzymes, and other types of cellular factors for which they exhibit a high degree of affinity and therefore evoke specific responses. And the third contribution discusses aspects of endophytic actinobacterial biology and chemistry, including biosynthesis and total synthesis of secondary metabolites produced in culture. It also presents perspectives for the future of microbial biodecovery, with emphasis on the secondary metabolism of endophytic actinobacteria.

Food Waste Recovery - Charis M. Galanakis 2020-12-01

Food Waste Recovery: Processing Technologies, Industrial Techniques, and Applications, Second Edition provides information on safe and economical strategies for the recapture of value compounds from food wastes while also exploring their re-utilization in fortifying foods and as ingredients in commercial products. Sections discuss the exploration of management options, different sources, the Universal Recovery Strategy, conventional and emerging technologies, and commercialization issues that target applications of recovered compounds in the food and cosmetics industries. This book is a valuable resource for food scientists, technologists, engineers, chemists, product developers, researchers, academics and professionals working in the food industry. Covers food waste management within the food industry by developing recovery strategies Provides coverage of processing technologies and industrial techniques for the recovery of valuable compounds from food processing by-products Explores the different applications of compounds recovered from food processing using three approaches: targeting by-products, targeting ingredients, and targeting bioactive applications

Natural Bioactive Compounds - Rajeshwar P. Sinha 2020-10-06

Natural Bioactive Compounds: Technological Advancements deals with the latest breakthroughs in the field of screening, characterization and novel applications of natural bioactive compounds from diverse group of organisms ranging from bacteria, viruses, cyanobacteria, algae, fungi, bryophytes, higher plants, sponges, corals and fishes. Written by some of the most reputed scientists in the field, this book introduces the reader to strategies and methods in the search for bioactive natural products. It is an essential read for researchers and students interested in bioactive natural products, their biological and pharmacological properties, their possible use as chemopreventive or chemotherapeutic agents, and other future potential

applications. Explores natural sources of bioactive compounds, including cyanobacteria, bacteria, viruses, fungi and higher plants Discusses the potential applications of biological products, such as their use in medicine (antibiotics, cancer research, immunology), as food additives, supplements and technological substances Analyzes the contributions of emerging or developing technologies for the study of bioactive natural compounds (characterization and purification)

How Flavor Works - Nak-Eon Choi 2014-12-03

Taste is the number one driving force in the decision to purchase a food product and food consumption is the most critical function for living organisms to obtain the energy and resources essential to their vitality. Flavor and aroma are therefore universally important concepts: intrinsic to human well-being and pleasure, and of huge significance for the multi-trillion dollar global food business. *How Flavor Works: the Science of Taste and Aroma* offers a fascinating and accessible primer on the concepts of flavor science for all who have an interest in food and related topics. Professionals and students of food science and technology who do not already specialize in flavor science will find it a valuable reference on a topic crucial to how consumers perceive and enjoy food products. In this regard, it will also be of interest to product developers, marketers and food processors. Other readers with a professional (eg culinary and food service) or personal interest in food will also find the book interesting as it provides a user-friendly account of the mechanisms of flavor and aroma which will provide new insights into their craft.

Bioactive Compounds from Natural Sources, Second Edition - Corrado Tringali 2011-09-27

The first edition of *Bioactive Compounds from Natural Sources* was published in a period of renewed attention to biologically active compounds of natural origin. This trend has continued and intensified—natural products are again under the spotlight, in particular for their possible pharmacological applications. Largely focusing on natural products as lead compounds in drug discovery, *Bioactive Compounds from Natural Sources, Second Edition: Natural Products as Lead Compounds in Drug Discovery* is actually a completely new volume containing surveys of selected recent advances in an interdisciplinary area covering chemistry of natural products, medicinal chemistry, biochemistry, and other related topics. Written by some of the most reputed scientists in the field, this second edition includes new chapters from authors who contributed to the first edition as well as many chapters compiled by new authors. Introducing the reader to strategies and methods in the search for bioactive natural products, this book covers topics including: Natural sources of bioactive compounds such as aquatic cyanobacteria, filamentous fungi, and tropical plants, The tremendous potentiality of metabolic engineering of natural products biosynthesis The contribution of emerging or developing technologies to the study of bioactive natural compounds, namely computational methods and circular dichroism The potential of natural or natural-derived compounds for specific therapeutic applications: treatment of viral diseases, regulation of hypoxia-inducible factor, antimalarials, modulation of angiogenesis, and antitumor and wound-healing activity Selected examples of natural product families and related synthetic analogues, namely polyphenols and camptothecins Compiled for researchers and Ph.D. students working in interdisciplinary fields, this book will also be appreciated by readers without a background in chemistry interested in bioactive natural products, their biological and pharmacological properties, and their possible use as chemopreventive or chemotherapeutic agents. Conversely, the biological and pharmacological data and methods are accessible by chemists.

Applied Food Protein Chemistry - Zeynep Ustunol 2014-12-19

Food proteins are of great interest, not only because of their nutritional importance and their functionality in foods, but also for their detrimental effects. Although proteins from milk, meats (including fish and poultry), eggs, cereals, legumes, and oilseeds have been the traditional sources of protein in the human diet, potentially any proteins from a biological source could serve as a food protein. The primary role of protein in the diet is to provide the building materials for the synthesis of muscle and other tissues, and they play a critical role in many biological processes. They are also responsible for food texture, color, and flavor. Today, food proteins are extracted, modified, and incorporated into processed foods to impart specific functional properties. They can also have adverse effects in the diet: proteins, such as walnuts, pecans, almonds, and cashews, soybean, wheat, milk, egg, crustacean, and fish proteins can be powerful allergens for some people. *Applied Food Protein Chemistry* is an applied reference which reviews the properties of food proteins and provides in-depth information on important plant and animal proteins

consumed around the world. The book is grouped into three sections: (1) overview of food proteins, (2) plant proteins, and (3) animal proteins. Each chapter discusses world production, distribution, utilization, physicochemical properties, and the functional properties of each protein, as well as its food applications. The authors for each of the chapters are carefully selected experts in the field. This book will be a valuable reference tool for those who work on food proteins. It will also be an important text on applied food protein chemistry for upper-level students and graduate students of food science programs.

Introduction to Natural Products Chemistry - Rensheng Xu 2011-07-20

Natural products chemistry—the chemistry of metabolite products of plants, animals and microorganisms—is involved in the investigation of biological phenomena ranging from drug mechanisms to gametophytes and receptors and drug metabolism in the human body to protein and enzyme chemistry. *Introduction to Natural Products Chemistry* has collected the

Genetic Modification and Food Quality - Robert Blair 2015-06-29

The development of recombinant DNA methods has changed the face of the food industry over the last 50 years. Crops which have been genetically modified are being cultivated in more and more countries and this process is likely to accelerate as desirable traits are identified and transferred to appropriate organisms, and they are cleared by the regulatory authorities. However, the technique has its critics who claim that modification of the genome of the plant (or animal) in this way may pose unknown and unacceptable risks to the human consumer. *Genetic Modification and Food Quality: A Down to Earth Analysis* is the first comprehensive text on how GM production methods influence the quality of foods and feeds, based on a complete and unbiased assessment of the scientific findings. It presents a balanced analysis of the benefits and drawbacks of gene-modified food sources in the human diet. Chapters approach the topic with regard to different food types such as cereal grains, oilseed crops, vegetables, fish and animal products. Assessing the nutritive value as well as the health and safety of GMO foods, this book is a reference for anyone working in the food production industry and will also be of an interest to NGOs, trade associations and consumers who are looking for an objective, balanced study of this contentious issue.

Fundamentals of Food Biotechnology - Byong H. Lee 2014-12-01

Food biotechnology is the application of modern biotechnological techniques to the manufacture and processing of food, for example through fermentation of food (which is the oldest biotechnological process) and food additives, as well as plant and animal cell cultures. New developments in fermentation and enzyme technological processes, molecular thermodynamics, genetic engineering, protein engineering, metabolic engineering, bioengineering, and processes involving monoclonal antibodies, nanobiotechnology and quorum sensing have introduced exciting new dimensions to food biotechnology, a burgeoning field that transcends many scientific disciplines. *Fundamentals of Food Biotechnology*, 2nd edition is based on the author's 25 years of experience teaching on a food biotechnology course at McGill University in Canada. The book will appeal to professional food scientists as well as graduate and advanced undergraduate students by addressing the latest exciting food biotechnology research in areas such as genetically modified foods (GMOs), bioenergy, bioplastics, functional foods/nutraceuticals, nanobiotechnology, quorum sensing and quenching. In addition, cloning techniques for bacterial and yeast enzymes are included in a "New Trends and Tools" section and selected references, questions and answers appear at the end of each chapter. This new edition has been comprehensively rewritten and restructured to reflect the new technologies, products and trends that have emerged since the original book. Many new aspects highlight the short and longer term commercial potential of food biotechnology.

Bioactive Compounds from Natural Sources - Corrado Tringali 2003-09-02

Interest in obtaining biologically active compounds from natural sources has recently spiked due to their low toxicity, complete biodegradability, availability from renewable sources, and in most cases, low cost. Taking an interdisciplinary approach, *Bioactive Compounds from Natural Sources: Isolation, Characterization, and Biological Properties* covers general methods and main topics in the research field of bioactive natural products. The book describes general screening methods, modern HPLC hyphenated techniques, and NMR methods in the structural elucidation of compounds and devotes individual chapters to specific topics of research. Surveys on compounds displaying important pharmacological activities are presented in chapters devoted to Mexican medicinal plants, anti-tumor drugs of natural origin, cancer

chemopreventive flavonoids, and metabolites displaying anti-HIV, antioxidative, antimalarial, and anti-inflammatory activity. The final chapters are devoted to representative examples of research into marine metabolites: immunomodulating marine glycolipids and surveys of bioactive compounds from marine opisthobranchs and Japanese soft corals. With its focus on modern approaches to the isolation of biologically active natural products, this book encourages interdisciplinary work among chemists, pharmacologists, biologists, botanists, and agronomists with an interest in bioactive natural products.

The Search for Biological Active Agent(s) From Actinobacteria, 2nd Edition - Learn-Han Lee

2020-03-27

There is a large market demand for new drugs. The existing chronic or common ailments without cures, development of new diseases with unknown causes, and the widespread existence of antibiotic-resistant pathogens, have driven this field of research further by looking at all potential sources of natural products. To date, microbes have made a significant contribution to the health and well-being of people globally. The discoveries of useful metabolites produced by microbes have resulted in a significant proportion of pharmaceutical products in today's market. Therefore, the investigation and identification of bioactive compound(s) producing microbes is always of great interest to researchers. Actinobacteria are one of the most important and efficient groups of natural metabolite producers. Among the numerous genera, *Streptomyces* have been recognized as prolific producers of useful natural compounds, as they provide more than half of the naturally-occurring antibiotics isolated to-date and continue to emerge as the primary source of new bioactive compounds. Certainly, these potentials have attracted ample research interest and a wide range of biological activities have been subsequently screened by researchers with the utilization of different *In vitro* and *In vivo* model of experiments. Literature evidence has shown that a significant number of interesting compounds produced by Actinobacteria were exhibiting either strong anticancer or neuroprotective activity. The further in depth studies have then established the modulation of apoptotic pathway was involved in those observed bioactivities. These findings indirectly prove the biopharmaceutical potential possessed by Actinobacteria and at the same time substantiate the importance of diverse pharmaceutical evaluations on Actinobacteria. In fact, many novel compounds discovered from Actinobacteria with strong potential in clinical applications have been developed into new drugs by pharmaceutical companies. Together with the advancement in science and technology, it is predicted that there would be an expedition in discoveries of new bioactive compounds producing Actinobacteria from various sources, including soil and marine sources. In light of these current needs, and great interest in the scope of this research, this book seeks to contribute on the investigation of different biological active compound(s) producing actinobacteria which are exhibiting antimicrobial, antioxidant, neuroprotective, anticancer activities and similar.

Medicinal Natural Products - Paul M. Dewick 2002-01-03

This guide covers classes of natural products in medicine, whether derived from plants, micro-organisms or animals. Structured according to biosynthetic pathway, it is written from a chemistry-based approach.

Bioactive Natural Products - Steven M. Colegate 2007-12-14

Bioactive natural products are proving to be a rich source of novel therapeutics to both protect against and combat diseases, as well as serve as lead compounds in crop protection. Following the successful format of the first edition, this volume brings together collective research from many new contributors and emphasizes the rationale behind the

Phytochemical Dictionary - Basant Puri 1998-12-16

A vast array of natural organic compounds, the products of primary and secondary metabolism, occur in plants. This dictionary provides basic information, including structural formulae, on plant constituents. It profiles over 3000 substances from phenolics and alkaloids through carbohydrates and plant glycosides to oils and triterpenoids. For each s

Nutraceutical and Functional Food Processing Technology - Joyce I. Boye 2015-02-04

For several years, the food industry has been interested in identifying components in foods which have health benefits to be used in the development of functional food and nutraceutical products. Examples of these ingredients include fibre, phytosterols, peptides, proteins, isoflavones, saponins, phytic acid, probiotics, prebiotics and functional enzymes. Although much progress has been made in the identification,

extraction and characterisation of these ingredients, there remains a need for ready and near-market platform technologies for processing these ingredients into marketable value-added functional food and nutraceutical products. This book looks at how these ingredients can be effectively incorporated into food systems for market, and provides practical guidelines on how challenges in specific food sectors (such as health claims and marketing) can be addressed during processing. Nutraceutical and Functional Food Processing Technology is a comprehensive overview of current and emerging trends in the formulation and manufacture of nutraceutical and functional food products. It highlights the distinctions between foods falling into the nutraceutical and functional food categories. Topics include sustainable and environmentally-friendly approaches to the production of health foods, guidelines and regulations, and methods for assessing safety and quality of nutraceutical and functional food products. Specific applications of nutraceuticals in emulsion and salad dressing food products, beverages and soft drinks, baked goods, cereals and extruded products, fermented food products are covered, as are novel food proteins and peptides, and methods for encapsulated nutraceutical ingredients and packaging. The impact of processing on the bioactivity of nutraceutical ingredients, allergen management and the processing of allergen-free foods, health claims and nutraceutical food product commercialization are also discussed. Nutraceutical and Functional Food Processing Technology is a comprehensive source of practical approaches that can be used to innovate in the nutraceutical and health food sectors. Fully up-to-date and relevant across various food sectors, the book will benefit both academia and industry personnel working in the health food and food processing sectors.

Global Food Security and Supply - Wayne Martindale 2014-12-15

With the global population projected to reach 9 billion by the year 2050, the need for nations to secure food supplies for their populations has never been more pressing. Finding better supply chain solutions is an essential part of achieving a secure and sustainable diet for a rapidly increasing population. We are now in a position, through methods including life cycle assessment (LCA), carbon footprinting and other tools, to accurately measure and assess our use - or misuse - of natural resources, including food. The impact of new technologies and management systems can therefore improve efficiencies and find new ways to reduce waste. Global Food Security and Supply provides robust, succinct information for people who want to understand how the global food system works. The book demonstrates the specific tools available for understanding how food supply works, addresses the challenges facing a secure and safe global food supply, and helps readers to appreciate how these challenges might be overcome. This book is a concise and accessible text that focuses on recent data and findings from a range of international collaborations and studies. The author provides both a snapshot of global food supply and security today, and a projection of where these issues may lead us in the future. This book will therefore be of particular interest to food policy leaders, commercial managers in the food industry, and researchers and students seeking a better understanding of a rapidly evolving topic.

Plants that Fight Cancer, Second Edition - Spyridon E. Kintzios 2019-06-26

An increasing amount of cancer research is being directed towards the investigation of plant-derived anticancer compounds, many of which have been used in traditional herbal treatments for centuries. *Plants that Fight Cancer* is an up-to-date, extensive review of plant genera and species with documented anti-tumor and anti-leukaemic properties. Following an overview of the disease and the diverse methods of therapy and clinical testing, the book provides a detailed examination of the plants whose compounds are currently used in conventional cancer treatment, the species which show the greatest potential as future candidates, and other species with established anticancer properties. The third section explores each of more than 150 terrestrial plant genera and species, with a review of their traditional uses, mythology, botany, active ingredients, and product applications, along with photographs and illustrations and an analysis of expected results and risks. The text closes with a discussion of algal extracts and isolated metabolites with anticancer activity, a summary of published research for each species, and chemical structures of the most important compounds.

Handbook on Drugs from Natural Sources - H. Panda 2010-10-01

Natural products have played an important role throughout the world in treating and preventing human diseases. Natural product medicines have come from various materials including terrestrial plants,

terrestrial microorganisms, organisms etc. Historical experiences with plants as therapeutic tools have helped to introduce single chemical entries in modern medicine. About 40% of the drugs used are derived from natural sources. Most are pure substances which are isolated from various organisms & used directly or after chemical modification. Natural products will continue to be important in three areas of drug discovery: as targets for production by biotechnology as a source of new lead compounds of novel chemical structure and as the active ingredients of useful treatments derived from traditional systems. Biotechnology will contribute more new natural products for medicinal use. Plants provide a fertile source of natural products many of which are clinically important medicinal agents. Natural products have traditionally provided most of the drugs in use. Despite the achievements of synthetic chemistry and the advances towards rational drug design, natural products continue to be essential in providing medicinal compounds and as starting points for the development of synthetic analogues. With the increasing power of screening programs and the increasing interest in the reservoir of untested natural products, many future drug developments will be based, at least in part, on natural products. The major contents of the book are plant products produced in cell culture, application of genetic engineering to the production of pharmaceuticals, anti-transpirants and plant growth regulators based on, the potential and the problems of marine natural products, marine sterols, plants as a source of anti-inflammatory substances, anti-hepatotoxic principles in oriental medicinal plants, immune stimulants of fungi and higher plants, amanita muscaria in medicinal chemistry, ergot alkaloids and their derivatives in medicinal chemistry and therapy, development of drugs from cannabinoids, etc. This book contains development of new drugs from plants, work on some Thai medicinal plants, plant growth based on jasmonates, marine sterols, bleomycin and its derivatives, drugs from cannabinoids, bioactive compounds from nature, fungi and higher plants, biological active compounds from British Marine, microbial phytotoxins as herbicides and many more. This book will be very helpful to its readers, upcoming entrepreneurs, scientists, existing industries, technical institutions, druggist etc.

Natural Product Extraction - Mauricio A Rostagno 2015-10-09

Natural products are sought after by the food, pharmaceutical and cosmetics industries, and research continues into their potential for new applications. Extraction of natural products in an economic and environmentally-friendly way is of high importance to all industries involved. This book presents a holistic and in-depth view of the techniques available for extracting natural products, with modern and more environmentally-benign methods, such as ultrasound and supercritical fluids discussed alongside conventional methods. Examples and case studies are presented, along with the decision-making process needed to determine the most appropriate method. Where appropriate, scale-up and process integration is discussed. Relevant to researchers in academia and industry, and students aiming for either career path, *Natural Product Extraction* presents a handy digest of the current trends and latest developments in the field with concepts of Green Chemistry in mind.

Anti-Ageing Nutrients - Deliminda Neves 2015-07-07

Ageing is a complex, time-related biological phenomenon that is genetically determined and environmentally modulated. According to even the most pessimistic projections, average lifespan is expected to increase around the world during the next 20 years, significantly raising the number of aged individuals. But increasing life expectancy presents new problems, and industrialized countries are facing a pronounced increase in lifestyle diseases which constitute barriers to healthy ageing. *Anti-Ageing Nutrients: Evidence-based Prevention of Age-Associated Diseases* is written by a multi-disciplinary group of researchers, all interested in the nutritional modulation of ageing mechanisms. Structured in three parts, Part 1 looks at the cellular modifications that underlie senescence of cells and ageing of the organisms; the effects of energy restriction on cellular and molecular mechanisms and in the whole organism; and the epigenetic modifications associated with ageing. Part 2 includes chapters which discuss the nutritional modulation of age-associated pathologies and the functional decline of organs, with a focus on those primarily affected by chronological ageing. Part 3 summarises the knowledge presented in the previous chapters and considers the best diet pattern for the aged individuals. The book reflects the most recent advances in anti-ageing nutrition and will be a valuable resource for professionals, educators and students in the health, nutritional and food sciences.

Chiral Separations - Gerhard K.E. Scriba 2013-01-03

There is a demand for analytical methods that are able to discriminate between enantiomers in order to analyze the enantiomeric purity of compounds from natural or chemical sources not only in pharmaceutical sciences but in any field on bioactive compounds including chemistry, biology, biochemistry, forensic, and environmental sciences and many others. The second edition of *Chiral Separations: Methods and Protocols*, expands upon the previous edition with current methodology, providing an overview and especially practically oriented applications of the most important analytical techniques in chiral separation sciences. New chapters on analytical separation sciences by chromatographic and electrophoretic techniques have been added as has simulated moving bed chromatography as a preparative method. Written in the highly successful *Methods in Molecular Biology*™ series format, the chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, *Chiral Separations: Methods and Protocols, Second Edition* is helpful for analytical chemists working on stereochemical problems in fields or pharmacy, chemistry, biochemistry, food chemistry, molecular biology, forensics, environmental sciences or cosmetics in academia, government or industry.

Preparative Chromatography Techniques - K. Hostettmann 1997-11-04

Over the past few years, increasing attention has been paid to the search for bioactive compounds from natural sources. The success of plant-derived products such as paclitaxel (Taxol) in tumor therapy or artemisinin in the treatment of malaria has provided the impetus for the introduction of numerous research programmes, especially in industry. A great deal of effort is being expended in the generation of novel lead molecules of vegetable, marine and microbial origin by the use of high throughput screening protocols. When interesting hits are found, it is essential to have methods available for the rapid isolation of target compounds. For this reason, both industry and academia need efficient preparative chromatographic separation techniques and experience in their application. Purified natural products are required for complete spectroscopic identification and full characterization of new compounds, for biological testing and for the supply of pharmaceuticals, standards, and starting materials for synthetic work. Obtaining pure products from an extract can be a very long, tedious and expensive undertaking, involving many steps. Sometimes only minute amounts of the desired compounds are at hand and these entities may be labile. Thus it is an advantage to have access to as many different methods as possible in order to aid the isolation process. Although a certain amount of trial and error may be involved, nowadays there is the possibility of devising suitable rapid separation schemes by a judicious choice of the different techniques available.

Bioactive Compounds in Foods - John Gilbert 2009-01-21

Inherent toxicants and processing contaminants are both non-essential, bioactive substances whose levels in foods can be difficult to control. This volume covers both types of compound for the first time, examining their beneficial as well as their undesirable effects in the human diet. Chapters have been written as individually comprehensive reviews, and topics have been selected to illustrate recent scientific advances in understanding of the occurrence and mechanism of formation, exposure/risk assessment and developments in the underpinning analytical methodology. A wide range of contaminants are examined in detail, including pyrrolizidine alkaloids, glucosinolates, phycotoxins, and mycotoxins. Several process contaminants (eg acrylamide and furan), which are relatively new but which have a rapidly growing literature, are also covered. The book provides a practical reference for a wide range of experts: specialist toxicologists (chemists and food chemists), hygienists, government officials and anyone who needs to be aware of the main issues concerning toxicants and process contaminants in food. It will also be a valuable introduction to the subject for post-graduate students.

Trait-Modified Oils in Foods - Frank T. Orthoefer 2015-05-18

In recent years, the food industry has made substantial advances in replacing partially hydrogenated oils, high in trans-fatty acids, in foods. Trait-modified oils were then developed to produce trans-fat free, low saturated functional oils. *Trait-Modified Oils in Foods* offers top line information on the sources, composition, performance, health, taste, and availability of modified next generation oils. Coverage extends to public policy development, discussions of real world transition to healthy oils by food service and food processing industries and the future of trait-modified oils. The book provides solutions to food companies with the potential of improving the health benefits of foods through eliminating trans-fats and reducing

saturated fats from formulations. A landmark resource on modified next-generation, trait-modified oils, this book is essential reading for oil processors, manufacturers and producers, as well as any professional involved in food quality assurance and public health.

Spray Drying Techniques for Food Ingredient Encapsulation - C. Anandharamakrishnan 2015-07-23

Spray drying is a well-established method for transforming liquid materials into dry powder form. Widely used in the food and pharmaceutical industries, this technology produces high quality powders with low moisture content, resulting in a wide range of shelf stable food and other biologically significant products. Encapsulation technology for bioactive compounds has gained momentum in the last few decades and a series of valuable food compounds, namely flavours, carotenoids and microbial cells have been successfully encapsulated using spray drying. Spray Drying Technique for Food Ingredient Encapsulation provides an insight into the engineering aspects of the spray drying process in relation to the encapsulation of food ingredients, choice of wall materials, and an overview of the various food ingredients encapsulated using spray drying. The book also throws light upon the recent advancements in the field of encapsulation by spray drying, i.e., nanospray dryers for production of nanocapsules and computational fluid dynamics (CFD) modeling. Addressing the basics of the technology and its applications, the book will be a reference for scientists, engineers and product developers in the industry.

Natural Sources, Physicochemical Characterization and Applications - Constantin Apetrei 2016-11-30

This volume presents different aspects related to bioactive compounds, starting with their natural state in raw sources, physicochemical characterization and employment in pharmacy and medicine. The volume is divided into three parts. The first part describes the chemical structure of bioactive compounds from different natural sources such as olive oils, wines, and medicinal plants. Special attention has been given to identifying the bioactive composition within variations of these natural sources (for example, extra virgin, ordinary or lampante olive oils). The second part of the volume presents the principal methods used for detecting, identifying and quantifying bioactive compounds. Emphasis is given to the use of different types of sensors or biosensors, and multisensor systems in combination with analytical techniques. The final part explains the principal methods for protection of bioactive compounds and the implication of bioactive compounds in pharmacy. This volume is a useful guide for novice researchers interested in learning research methods to study bioactive compounds. *Frontiers in Bioactive Compounds* brings edited reviews on the analysis and characterization of natural compounds of medicinal interest. Each volume covers useful information on a variety of natural sources as well as analytical techniques. This series is essential reading for analytical and medicinal chemists as well as professionals involved in natural and pharmaceutical product research and development.

Nutrigenomics and Proteomics in Health and Disease - Martin Kussmann 2017-03-21

Now in a revised second edition, *Nutrigenomics and Proteomics in Health and Disease* brings together the very latest science based upon nutrigenomics and proteomics in food and health. Coverage includes many important nutraceuticals and their impact on gene interaction and health. Authored by an international team of multidisciplinary researchers, this book acquaints food and nutrition professionals with these new fields of nutrition research and conveys the state of the science to date. Thoroughly updated to reflect the most current developments in the field, the second edition includes six new chapters covering gut health and the personal microbiome; gut microbe-derived bioactive metabolites; proteomics and peptidomics in nutrition; gene selection for nutrigenomic studies; gene-nutrient network analysis, and nutrigenomics to nutritional systems biology. An additional five chapters have also been significantly remodelled. The new text includes a rethinking of in vitro and in vivo models with regard to their translatability into human phenotypes, and normative science methods and approaches have been complemented by more comprehensive systems biology-based investigations, deploying a multitude of omic platforms in an integrated fashion. Innovative tools and methods for statistical treatment and biological network analysis are also now included.

Natural Product Extraction 2nd edn - Mauricio A. Rostagno 2022-07-20

Natural Product Extraction presents an updated review of the more environmentally benign techniques available for the extraction of natural products.

Phytochemical Dictionary - Herbert Baxter 1998-12-16

A vast array of natural organic compounds, the products of primary and secondary metabolism, occur in plants. This dictionary provides basic information, including structural formulae, on plant constituents. It profiles over 3000 substances from phenolics and alkaloids through carbohydrates and plant glycosides to oils and triterpenoids. For each substance, the author presents the trivial name, synonyms, structural type, chemical structure showing stereochemistry, molecular weight and formula, natural occurrence, biological activity and commercial or other use. Key references are provided for each class and subclass.

Emulsifiers in Food Technology - Viggo Norn 2015-01-20

Emulsifiers are essential components of many industrial food recipes. They have the ability to act at the interface between two phases, and so can stabilise the desired mix of oil and water in a mayonnaise, ice cream or salad dressing. They can also stabilise gas/liquid mixtures in foams. More than that, they are increasingly employed in textural and organoleptic modification, in shelf life enhancement, and as complexing or stabilising agents for other components such as starch or protein. Applications include modifying the rheology of chocolate, the strengthening of dough, crumb softening and the retardation of staling in bread. This volume, now in a revised and updated second edition, introduces emulsifiers to those previously unfamiliar with their functions, and provides a state of the art account of their chemistry, manufacture, application and legal status for more experienced food technologists. Each chapter considers one of the main chemical groups of food emulsifiers. Within each group the structures of the emulsifiers are considered, together with their modes of action. This is followed by a discussion of their production / extraction and physical characteristics, together with practical examples of their application. Appendices cross-reference emulsifier types with applications, and give E-numbers, international names, synonyms and references to analytical standards and methods. This is a book for food scientists and technologists, ingredients suppliers and quality assurance personnel.

Whole Grains and Health - Rikard Landberg 2021-05-24

WHOLE GRAINS AND HEALTH The updated guide to whole grains and their integral role in nutritional health In an increasingly health-conscious society, the potential benefits of whole grain products are of paramount importance to manufacturers, dieticians, and consumers alike. *Whole Grains and Health* covers all aspects of this crucial topic, presenting a data-driven study of whole grains' functional components, associated biomarkers and overall impact upon human health. Now in its second edition, the text has been revised and expanded to include six new chapters and groundbreaking new data. This essential guide features: Summaries of large research projects on the health effects of whole grain in Europe and the US New data on the associations between whole grain consumption and risk of developing chronic diseases Discussions of metabolomics and their use in addressing health effects and finding new biomarkers of both dietary exposure and health effects related to the diet Information on the use of genomics in studies of how gene-expression profiles change in response to whole grain intake Newly identified bioactive compounds in whole grains and whole grain fractions The new EU regulations on health claims that affect whole grain food products Providing information that will be of interest to food scientists, healthcare specialists and food industry professionals alike, the second edition of *Whole Grains and Health* is an essential resource for anyone concerned with the impact whole grains may have upon health.

Phytochemicals from Medicinal Plants - Hafiz Ansar Rasul Suleria 2019-11-15

Phytochemicals from Medicinal Plants: Scope, Applications and Potential Health Claims explores the importance of medicinal plants and their potential benefits for human health. This book looks at bioactive compounds from medicinal plants, the health benefits of bioactive compounds, the applications of plant-based products in the food and pharmaceutical industries. The first section discusses available sources of bioactive compounds from medicinal plants, biochemistry, structural composition, potential biological activities, and how bioactive molecules are isolated from medicinal plants. The authors examine the applications of bioactive molecules from a health perspective, looking at the pharmacological aspects of medicinal plants, the phytochemical and biological activities of different natural products, and ethnobotany/and medicinal properties, and also present a novel dietary approach for disease management. The book goes on to examine the plant-based products are used and can be used in various sectors of the food and pharmaceutical industries.

