

Bioactive Compounds In Plants Benefits And Risks For Man

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Aromatic and Medicinal Plants of Drylands and Deserts - David Ramiro Aguilón-Gutiérrez 2023-05-09

The description and analysis of the Mexican and other countries desertic plants from the point of view of their use in traditional medicine and their potential use in integrative medicine is the overall theme of this book. **Aromatic and Medicinal Plants of Drylands and Deserts: Ecology, Ethnobiology and Potential Uses** describes the historic use of drylands plants, botanical and geological classification, also describes the endemic plants used in traditional medicine, going through the most relevant aspects of biomedicine and integrative medicine. The chemical and bioactive compounds from desertic medicinal and aromatic plants and the analytic techniques to determine chemical and bioactive compounds from the medicinal and aromatic plants are reviewed. Ethnobiology is detailed in the present book as well as the importance of the integrative medicine for the ancient and actual cultures. The book represents an effort to keep the ethnobiological knowledge of communities for the use of traditional desertic plants with the actual analytical techniques to unveil the chemical molecules responsible of the biological or biomedical applications. Features:

- Describes the endemic plants used in traditional medicine
- Includes the chemical and bioactive compounds from desertic medicinal plants
- Addresses the analytic techniques to determine chemical and bioactive compounds
- Represents an effort to keep the ethnobiological knowledge

of communities To execute this book, there are collaborations by authors from different institutions in northern Mexico, which is where the arid and semi-arid ecosystems of the country are found. Although the subject of medicinal plants has been treated from different angles, this book offers a holistic and comprehensive vision of these important organisms of the Mexican desert, thus resulting in an updated work for specialized readers and for those who are beginning in this exciting theme.

Utilisation of Bioactive Compounds from Agricultural and Food Production Waste - Quan V. Vuong 2017-09-07

The large quantity of waste generated from agricultural and food production remains a great challenge and an opportunity for the food industry. As there are numerous risks associated with waste for humans, animals and the environment, billions of dollars are spent on the treatment of agricultural and food waste. Therefore, the utilisation of bioactive compounds isolated from waste not only could reduce the risks and the costs for treatment of waste, but also could potentially add more value for agricultural and food production. This book provides comprehensive information related to extraction and isolation of bioactive compounds from agricultural and food production waste for utilisation in the food, cosmetic and pharmaceutical industries. The topics range from an overview on challenges and opportunities related to agricultural and food waste, the bioactive compounds in the waste, the

techniques used to analyse, extract and isolate these compounds to several specific examples for potential utilisation of waste from agricultural and food industry. This book also further discusses the potential of bioactives isolated from agricultural and food waste being re-utilised in the food, cosmetic and pharmaceutical industries. It is intended for students, academics, researchers and professionals who are interested in or associated with agricultural and food waste.

Endocrine Disrupting Chemicals-induced Metabolic Disorders and Treatment Strategies - Muhammad Sajid Hamid Akash 2020-08-04

This volume offers a detailed and comprehensive analysis of Endocrine Disrupting Chemicals (EDCs), covering their occurrence, exposure to humans and the mechanisms that lead to the pathogenesis of EDCs-induced metabolic disorders. The book is divided into three parts. Part I describes the physiology of the human endocrine system, with special emphasis on various types of metabolic disorders along with risk factors that are responsible for the development of these disorders. Part II addresses all aspects of EDCs, including their role in the induction of various risk factors that are responsible for the development of metabolic disorders. Part III covers up-to-date environmental regulatory considerations and treatment strategies that have been adopted to cure and prevent EDCs-induced metabolic disorders. This section will primarily appeal to clinicians investigating the causes and treatment of metabolic disorders. The text will also be of interest to students and researchers in the fields of Environmental Pharmacology and Toxicology, Environmental Pollution, Pharmaceutical Biochemistry, Biotechnology, and Drug Metabolism/Pharmacokinetics.

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.

Functional Foods and Nutraceuticals - Chukwuebuka Egbuna 2020-08-24

Functional foods and nutraceuticals are food products that naturally offer or have been modified to offer additional health benefits beyond basic nutrition. As such products have surged in popularity in recent years, it is crucial that researchers and manufacturers understand the concepts underpinning functional foods and the opportunity they represent to improve human health, reduce healthcare costs, and support economic development worldwide. *Functional Foods and Nutraceuticals: Bioactive Components, Formulations and Innovations* presents a guide to functional foods from experienced professionals in key institutions around the world. The text provides background information on the health benefits, bioavailability, and safety measurements of functional foods and nutraceuticals. Subsequent chapters detail the bioactive components in functional foods responsible for these health benefits, as well as the different formulations of these products and recent innovations spurred by consumer demands. Authors emphasize product development for increased marketability, taking into account safety issues associated with functional food adulteration and solutions to be found in GMP adherence. Various food preservation methods aimed at enhancing the quality and shelf life of functional food are also highlighted. *Functional Foods and Nutraceuticals: Bioactive Components, Formulations and Innovations* is the first of its kind, designed to be useful to students, teachers, nutritionists, food scientists, food technologists

and public health regulators alike.

Bioactive Compounds in Phytomedicine - Iraj Rasooli 2012-01-18

There are significant concerns regarding the potential side effects from the chronic use of conventional drugs such as corticosteroids, especially in children. Herbal therapy is less expensive, more readily available, and increasingly becoming common practice all over the world. Such practices have both their benefits and risks. However, herbal self-therapy might have serious health consequences due to incorrect self-diagnosis, inappropriate choice of herbal remedy or adulterated herbal product. In addition, absence of clinical trials and other traditional safety mechanisms before medicines are introduced to the wider market results in questionable safe dosage ranges which may produce adverse and unexpected outcomes. Therefore, the use of herbal remedies requires sufficient knowledge about the efficacy, safety and proper use of such products. Hence, it is necessary to have baseline data regarding the use of herbal remedies and to educate future health professionals about various aspects of herbal remedies.

Bioactive Natural Products for Pharmaceutical Applications - Dilipkumar Pal 2020-12-14

This book covers the recent innovations relating to various bioactive natural products (such as alkaloids, glycosides, flavonoids, anthraquinones, steroids, polysaccharides, tannins and polyphenolic compounds, volatile oils, fixed oils, fats and waxes, proteins and peptides, vitamins, marine products, camptothecin, piperines, carvacrol, gedunin, GABA, ginsenosides) and their applications in the pharmaceutical fields related to academic, research and industry.

Therapeutic Implications of Natural Bioactive Compounds - Mukesh Kumar Sharma 2022-09-08

This volume is a comprehensive compilation of contributions on the state of the art knowledge about bioactive compounds including their sources, isolation methods, biological effects, health benefits and potential applications. These bioactive compounds could serve as alternatives in the prevention or treatment of multifactorial diseases for vulnerable population groups. Chapters in the book incorporate the knowledge

based on traditional medicine with recent findings on bioactive molecules and their pharmaceutical implications in neurodegenerative diseases, cancer, COVID 19, diabetes, immunomodulation and farm animal diseases. The book also highlights the latest breakthroughs in the field of screening, characterization, and novel applications of natural bioactive compounds from diverse group of organisms ranging from bacteria, algae, fungi, higher plants, and marine sources. Authors from renowned institutions of India, Japan and China have shared their expertise in the contributed chapters with the goal of enhancing readers' knowledge about the significance of use of bioactives in therapeutics and nutraceuticals. It is an informative reference for researchers, professors, graduate students, science enthusiasts, and all those who wish to gain insights into various aspects of bioactive compounds, and the development of new pharmaceutical constituents and nutraceuticals. Natural Bioactive Compounds from Fruits and Vegetables as Health Promoters Part II - Luis Rodrigues da Silva 2016-05-03

Plants have been widely used to treat diseases, owing to the presence of bioactive compounds (phytochemicals) which play important roles in health promotion and disease prevention. In recent years, advances in chemical extraction techniques, lifestyle and dietary choices for human health have increased the interest in the consumption and study of fruits, vegetables, and foods enriched with bioactive compounds and nutraceuticals. Thousands of dietary phytochemicals, such as flavonoids, phenolic acids, glucosinolates, terpenes and alkaloids, have been identified and categorized further according to a diverse array of biochemical properties. Many of these phytochemicals have been hypothesized to reduce the risk of several pathological conditions which include life threatening diseases such as heart disease and cancer, to name a few. Natural Bioactive Compounds from Fruits and Vegetables as Health Promoters is a 2 book set which presents a summary of different classes of phytochemicals commonly found in common edible food sources. Each chapter details the general chemical structures of compounds, naturally present in specific fruits, vegetables and grains, their

biological importance and mechanisms of action. The book set is an essential handbook for anyone interested in the natural product chemistry of these common crops. Part 1 of this set covers details about different fruits (banana, citrus fruits, pears, etc.). Part 2 covers legumes, nuts, seeds and cereals.

Herbal Medicine - Iris F. F. Benzie 2011-03-28

The global popularity of herbal supplements and the promise they hold in treating various disease states has caused an unprecedented interest in understanding the molecular basis of the biological activity of traditional remedies. *Herbal Medicine: Biomolecular and Clinical Aspects* focuses on presenting current scientific evidence of biomolecular ef

Anticancer Plants: Natural Products and Biotechnological Implements - Mohd Sayeed Akhtar 2018-07-02

This volume provides summarized scientific evidence of the different classes of plant-derived phytocompounds, their sources, chemical structures, anticancer properties, mechanisms of action, methods of extraction, and their applications in cancer therapy. It also discusses endophyte-derived compounds as chemopreventives to treat various cancer types. In addition, it provides detailed information on the enhanced production of therapeutically valuable anticancer metabolites using biotechnological interventions such as plant cell and tissue culture approaches, including in vitro, hairy root- and cell-suspension culture; and metabolic engineering of biosynthetic pathways. *Anticancer Plants: Natural Products and Biotechnological Implements - Volume 2* explores the natural bioactive compounds isolated from plants as well as fungal endophytes, their chemistry, and preventive effects to reduce the risk of cancer. Moreover, it highlights the genomics/proteomics approaches and biotechnological implementations. Providing solutions to deal with the challenges involved in cancer therapy, the book benefits a wide range of readers including academics, students, and industrial experts working in the area of natural products, medicinal plant chemistry, pharmacology, and biotechnology.

Handbook of Plant Food Phytochemicals - Brijesh K. Tiwari 2013-01-02
Phytochemicals are plant derived chemicals

which may bestow health benefits when consumed, whether medicinally or as part of a balanced diet. Given that plant foods are a major component of most diets worldwide, it is unsurprising that these foods represent the greatest source of phytochemicals for most people. Yet it is only relatively recently that due recognition has been given to the importance of phytochemicals in maintaining our health. New evidence for the role of specific plant food phytochemicals in protecting against the onset of diseases such as cancers and heart disease is continually being put forward. The increasing awareness of consumers of the link between diet and health has exponentially increased the number of scientific studies into the biological effects of these substances. The *Handbook of Plant Food Phytochemicals* provides a comprehensive overview of the occurrence, significance and factors affecting phytochemicals in plant foods. A key objective of the book is to critically evaluate these aspects. Evaluation of the evidence for and against the quantifiable health benefits being imparted as expressed in terms of the reduction in the risk of disease conferred through the consumption of foods that are rich in phytochemicals. With world-leading editors and contributors, the *Handbook of Plant Food Phytochemicals* is an invaluable, cutting-edge resource for food scientists, nutritionists and plant biochemists. It covers the processing techniques aimed at the production of phytochemical-rich foods which can have a role in disease-prevention, making it ideal for both the food industry and those who are researching the health benefits of particular foods. Lecturers and advanced students will find it a helpful and readable guide to a constantly expanding subject area.

Fruit and Vegetable Phytochemicals - Elhadi M. Yahia 2017-08-25

Now in two volumes and containing more than seventy chapters, the second edition of *Fruit and Vegetable Phytochemicals: Chemistry, Nutritional Value and Stability* has been greatly revised and expanded. Written by hundreds of experts from across the world, the chapters cover diverse aspects of chemistry and biological functions, the influence of postharvest technologies, analysis methods and important phytochemicals in more than thirty fruits and

vegetables. Providing readers with a comprehensive and cutting-edge description of the metabolism and molecular mechanisms associated with the beneficial effects of phytochemicals for human health, this is the perfect resource not only for students and teachers but also researchers, physicians and the public in general.

Current Advances for Development of Functional Foods Modulating Inflammation and Oxidative Stress - Blanca Hernandez-Ledesma 2021-12-16

Current Advances for Development of Functional Foods Modulating Inflammation and Oxidative Stress presents the nutritional and technological aspects related to the development of functional foods with anti-inflammatory and antioxidant effects. Specifically, analytical approaches for the characterization of anti-inflammatory and antioxidant properties of healthy foods and functional constituents, as well as technological strategies for the extraction of compounds and fractions from raw materials to produce anti-inflammatory and antioxidant ingredients are addressed. In addition, the molecular mechanisms by which foods and their components can modulate inflammation and their oxidative stress effects on disease prevention are explored. Finally, clinical research addressing nutritional needs in pathological subjects with inflammatory diseases are considered. Covers methods of analysis and extraction of anti-inflammatory and antioxidant compounds Offers an overview of the main anti-inflammatory and antioxidant compounds in foods Provides a guide on the mechanisms of action and health benefits of anti-inflammatory and antioxidant dietary bioactives

The Therapeutic Properties of Medicinal Plants - Megh R. Goyal 2019-12-18

This volume provides informative research on the scientific evidence of the health benefits that can be derived from medicinal plants and how their efficacies can be improved. It is divided into three sections that cover the phytochemistry of medicinal plants, disease management with medicinal plants, and novel research techniques in medicinal plants. The pharmacological benefits of several specific plants are discussed, addressing health issues such as metabolic and mental disorders, acute mountain sickness, polycystic ovarian syndrome,

and specific diseases such as Huntington's. It also looks at the role of antioxidants in disease management. Additionally, the book covers recent problems of drug resistance and how medicinal plants can serve as antibiotic, anthelmintic, and antiparasitic drugs that will be helpful for human and animals.

Handbook of Food Chemistry - Peter Chi Keung Cheung 2015-10-19

This handbook is intended to be a comprehensive reference for the various chemical aspects of foods and food products. Apart from the traditional knowledge, this book covers the most recent research and development of food chemistry in the areas of functional foods and nutraceuticals, organic and genetically modified foods, nonthermal food processing as well as nanotechnology. This handbook contains both the basic and advanced chemistry both for food research and its practical applications in various food related industries and businesses. This book is appropriate for undergraduates and postgraduates in the academics and professionals from the various disciplines and industries who are interested in applying knowledge of food chemistry in their respective fields.

Exploring Poisonous Plants - Azamal Husen 2023-03-14

Poisonous plants are used in traditional medicine systems in various healing therapies. They are a rich resource of ingredients used in herbal drug formulations that are also used in the development of synthetic drugs. They are recognized for their antioxidant, anti-inflammation, anti-cancer, and anti-diabetic activities and for many other health benefits. Exploring Poisonous Plants: Medicinal Values, Toxicity Responses, and Therapeutic Uses provides an analysis of the most important poisonous herbs, shrubs, and trees, detailing poisonous plants while demonstrating endorsements for their potential therapeutic values. Features: Presents therapeutic potentials on various poisonous herbs, shrubs, and trees. Provides descriptions of notable toxic compounds and discusses their adverse effects when consumed by animals or people. Gives practical guidance for botanical description, distribution, phytochemical constituents,

pharmacological studies, and traditional and other potential uses of selected poisonous plants. This volume in the Exploring Medicinal Plants series is appropriate for scientists, researchers, and students working with poisonous plants, as well as in areas of economic botany, plant biochemistry, biotechnology, pharmacognosy, pharmaceuticals, industrial chemistry, and nanomedicine.

Phytonutrients in Food - Seyed Mohammad Nabavi 2019-10-03

Phytonutrients in Food: From Traditional to Rational Usage offers an overview of phytonutrients and reveals techniques related to the extraction, separation, identification and quantification of these compounds. The book focuses on the connection between the discovery and characterization of new molecules, explores new applications of well-known compounds and their relative effects for human health, analyses the processes of extraction, identification and production, and explains the protocols and precautions to avoid degradation, significant loss, or production of secondary reactions during production. Intended for researchers, product developers, nutritionists, food chemists, pharmacologists, pharmacists and students studying these topics, this book provides an invaluable reference. Focuses on the connection between the discovery and characterization of new molecules in phytonutrients Explores new applications of well-known compounds and their relative effects on human health Analyzes the processes of extraction, identification and production Explains the protocols and precautions to avoid degradation, significant loss, and the production of secondary reactions during production

Spray Drying Encapsulation of Bioactive Materials - Seid Mahdi Jafari 2021-09-07

Encapsulation of bioactives is a fast-growing approach in the food and pharmaceutical industry. *Spray Drying Encapsulation of Bioactive Materials* serves as a source of information to offer specialized and in-depth knowledge on the most well-known and used encapsulation technology (i.e., spray drying) and corresponding advances. It describes the efficacy of spray drying in terms of its advantages and challenges for encapsulation of bioactive ingredients. Discusses the potential of

this technique to pave the way toward cost-effective, industrially relevant, reproducible, and scalable processes that are critical to the development of delivery systems for bioactive incorporation into innovative functional food products and pharmaceuticals Presents the latest research outcomes related to spray drying technology and the encapsulation of various bioactive materials Covers advances in spray drying technology that may result in a more efficient encapsulation of bioactive ingredients Includes computational fluid dynamics, advanced drying processes, as well as the morphology of the dried particles, drying kinetics analyzers, process controllers and adaptive feedback systems, inline powder analysis technologies, and cleaning-in-place equipment Aimed at food manufacturers, pharmacists, and chemical engineers, this work is of interest to anyone engaged in encapsulation of bioactive ingredients for both nutraceutical and pharmaceutical applications.

Studies in Natural Products Chemistry - Atta-ur-Rahman 2021-09-22

Studies in Natural Products Chemistry, Volume 71 covers the synthesis, testing and recording of the medicinal properties of natural products, providing cutting-edge accounts of the fascinating developments in the isolation, structure elucidation, synthesis, biosynthesis and pharmacology of a diverse array of bioactive natural products. With the rapid developments in spectroscopic techniques and accompanying advances in high-throughput screening techniques, it has become possible to isolate and then determine the structures and biological activity of natural products rapidly, thus opening up exciting opportunities in the field of new drug development to the pharmaceutical industry. Natural products in the plant and animal kingdom offer a huge diversity of chemical structures that are the result of biosynthetic processes that have been modulated over the millennia through genetic effects, hence users will find the detailed information in this book to be a great resource on the topics covered. Focuses on the chemistry of bioactive natural products Contains contributions by leading authorities in the field Presents sources of new pharmacophores

The Benefits of Plant Extracts for Human Health

- Charalampos Proestos 2021-01-13

Nature has always been, and still is, a source of food and ingredients that are beneficial to human health. Nowadays, plant extracts are increasingly becoming important additives in the food industry due to their antimicrobial and antioxidant activities that delay the development of off-flavors and improve the shelf life and color stability of food products. Due to their natural origin, they are excellent candidates to replace synthetic compounds, which are generally considered to have toxicological and carcinogenic effects. The efficient extraction of these compounds from their natural sources and the determination of their activity in commercialized products have been great challenges for researchers and food chain contributors to develop products with positive effects on human health. The objective of this Special Issue is to highlight the existing evidence regarding the various potential benefits of the consumption of plant extracts and plant-extract-based products, with emphasis on in vivo works and epidemiological studies, the application of plant extracts to improving shelf life, the nutritional and health-related properties of foods, and the extraction techniques that can be used to obtain bioactive compounds from plant extracts.

Bioactive Compounds from Plant Origin - Hafiz Ansar Rasul Suleria 2019-11-06

This new volume explores the importance of phytochemicals from plants in therapeutics, focusing on the extraction of bioactive compounds and their applications in human health. Natural products and their bioactive compounds are increasingly utilized in preventive and therapeutic medication as well as for the production of pharmaceutical supplements and, more recently, as food additives to increase the functionality of foods. The first section of the volume describes recent advances in the extraction of bioactive compounds from various sources. It looks at advanced extraction techniques such as enzyme-assisted, microwave-assisted, ultrasound-assisted, pressurized liquid extraction, and supercritical extraction techniques. Part 2, on bioactive compounds and health claims, covers the roles of different bioactive compounds and their health-promoting potential for lifestyle

diseases. This section explains the botany, physical characteristics, uniqueness, uses, distribution, importance, phytochemistry, bioactivities, and future trends of different functional foods.

Medicinal Plants for the Treatment of Metabolic Disorders. Part 3 - Anaberta Cardador Martínez 2020-09-13

This book provides a complete review of multiple metabolic disorders and the use of phytochemicals for their prevention and treatment. When describing each metabolic disorder, all authors describe the main health alterations, providing the most current figures and statistics worldwide; medicinal plants used in traditional medicine for its treatment and scientific information related to their potential to prevent or treat each condition. Authors also include a complete scientific background check, comprehensive analysis of all phytochemicals recommended for each disorder, a description of the mechanism(s) of action and in vivo and/or in vitro studies. Within this volume, a series of 7 plant species, recommended to treat or prevent the previously described disorders, are presented with their botanical information, traditional use in different cultures and countries, and the available scientific information validating their health benefits. Besides, six main metabolic disorders are described, providing a full scientific background for its general understanding, and three study cases are presented, where metabolic disorders are analyzed and approached from different medical and pharmaceutical angles. Chapter 1 - Soybean contains a great nutritional value, which makes it an excellent food for the human diet. It has large amounts of protein and lipids and also provides fiber, calcium, iron, zinc, and several vitamins. For these reasons, the possible benefits of soy consumption for human health have been studied. Although the results obtained to date have not been conclusive, thanks to its high content of isoflavones (phytochemicals with estrogenic activity), soy is attributed with anti-inflammatory, antioxidants and antifungals properties. Moreover, soybeans could provide significant benefits to patients with cardiovascular diseases, cancer, or diabetes. Chapter 2 - Oil, proteins, vitamins, fibers, and phytochemicals present in the

avocado plant have shown the excellent capability of not only addressing the prevalence of these metabolic diseases but also being safe and having minimal side effects. The general objective of this book chapter is to review the bioactive compounds and their action to promote health benefits in the prevention and management of metabolic disorders. Chapter 3 - *Heliopsis longipes* roots, which contain affinin, has been used in traditional cuisine as a spice for its pungent. Due to its tingling and numbing properties, it is frequently applied to heal diverse pains such as toothache, earache, and headache. Within this chapter, its applications on anti-inflammatory activity, local anesthetic, analgesic, anti-mutagenic, and antioxidant activity, will be reviewed. Chapter 4 - The species *Opuntia ficus-indica* (L.) Mill., represents a good source of nutrients and antioxidants in the diet of consumers. This chapter aims to offer a simple and economical alternative formulation of artisan preserves prepared with nopal, in which the antioxidant activity was evaluated. Chapter 5 - Metabolic syndrome is known as a group of metabolic abnormalities that increase the risk of developing cardiovascular diseases and type 2 diabetes. The cost of health for companies is very high for workers who have obesity or metabolic syndrome compared to healthy workers. Metabolic syndrome is closely related to obesity, and this, in turn, is associated with a poor diet (high intake of carbohydrates and fats). This chapter explains the decrement of risk factors in workers of Young Living Ecuador Farm based on the Health Belief Model. Chapter 6 - The objective of this chapter book was to analyze the evidence obtained by clinical studies reported by scientific literature. Clinical studies have employed different components or products of grapes, such as pulp, freeze-dried grape, extracts, wine, and a distinct dose of resveratrol, to demonstrate their biological properties against diabetes mellitus, hypertension, and obesity. Chapter 7 - The main purpose of this chapter is to describe the analysis of whether glycated hemoglobin values could be used as a limit marker for earlier diagnosis of type 2 DM in overweight patients. This was a nonexperimental, analytical, retrospective, longitudinal study of 100 overweight patients diagnosed with type 2 DM. The study was

carried out in 2014 at Teodoro Maldonado Carbo Hospital, Guayaquil, Ecuador. Chapter 8 - Rosemary is classified not only as spice or ornamental but also as a medicinal plant. It is an important source of volatile and non-volatile compounds. The proportion of them varies in function of diverse factors as a region of growth, environment, extraction treatment, and others. Thanks to its composition, rosemary owners several properties such as anti-obesity, anti-diabetes, anti-cancer, among others, thus the importance of this plant over metabolic diseases is presented in this chapter. Chapter 9 - Agave has been used in traditional medicine as an anesthetic, anticonvulsant, antipyretic, urinary antiseptic, cathartic, cicatricial, and regenerative, diuretic, emmenagogue, and eupeptic. Agave extracts and derived agave products have been used to prevent several metabolic diseases, such as diabetes and cancer. However, more studies are needed to support these effects.

Metabolic Engineering for Bioactive

Compounds - Vipin Chandra Kalia 2017-10-07

This book comprehensively discusses the latest research in the area of metabolic engineering. Metabolic engineering solutions for bioactive compounds are now being derived by means of heterologous gene expression, in a wide range of organisms. The book provides an overview of the model systems being employed for metabolic manipulation to yield bioactive molecules, such as single-cell proteins, antibody generation, metabolites, proteases, chaperones, therapeutic proteins, nanomaterials, polymeric conjugates, dendrimers and nanoassemblies, *Escherichia coli*, *Agrobacterium*, *Saccharomyces cerevisiae* and cell lines, etc. In addition, it shares insights into the scope of these methods in the areas of prevention, diagnosis and treatment of diseases, e.g. immunotherapy for curing various diseases like cancer, allergies, autoimmune diseases, etc.

Biological Activity of Natural Products

Jaroslava Švarc-Gajić 2013

Many thousands of years ago, humans were introduced to the toxicants of minerals and plants of microbial origin, and since that time, natural bioactive compounds have been used in traditional medicine for treating different health conditions, but also as aphrodisiacs and as a means of suicide or murder. Modern medicine

acknowledges natural bioactive compounds as valuable medicinal sources for both diagnostic and curative purposes. Natural compounds serve as templates for the production of new drugs with improved pharmacological properties. This book explains the term bioactivity and deals with the bioactive compounds of plants, animals, microbial and marine origin. Their use by traditional medicinal approach, as well as by modern medicine is further elaborated. Both beneficial and toxic properties of different chemical classes, including alkaloids, peptides, terpenoids, bioactive amines etc., are described. Their isolation at the industrial scale is presented through several technological processes which are explained in detail for several compound classes. The research explains how natural sources can be exploited by modern and traditional medicine, and presents the risks and benefits associated with their use. In addition, a new approach to studying bioactivity, that includes computational modelling and softwares for in silico description and prediction, is explained. A chemometric approach to studying bioactivity is demonstrated through several models given for some natural bioactive compounds and their derivatives.

Phytomedicine - Rouf Ahmad Bhat 2021-03-01
Phytomedicine: A Treasure of Pharmacologically Active Products from Plants aims to present updated knowledge of plant-based medicines in terms of their research and development, production, and utilization, from the viewpoint of sustainability and by using the latest technologies. The book explores different phytometabolites on a mass scale, coupled with the efficacy, performance and applicability on target organisms to treat curable and fatal diseases. Readers will find a coherent package of phytotherapeutic information regarding inclusive assortment of research based, scientific amplitude of metabolites from the plant world encompassing various action plans. Information is presented sequentially regarding phytochemistry, biological activity and the serviceable aspects of bioactive compounds. The book also addresses various advancements and achievements of novel drugs from plants using molecular and enzymatic activities, and various technological tools in an ecofriendly fashion. Discusses phytotherapeutic properties for a wide

range of medical conditions, including anti-pyretic, anti-infective, anti-malarial, Anti-AIDS, anti-diabetic, anti-cancerous, immune-modulatory applications Includes a discussion of synergistic effects of formulations and antagonistic drug interactions Addresses advancements and achievements of novel plant-based drugs using molecular, enzymatic activities and various technological tools in an eco-friendly fashion

Natural Bio-active Compounds - Mohd Sayeed Akhtar 2019-09-28

Natural bioactive compounds have become an integral part of plant-microbe interactions geared toward adaptation to environmental changes. They regulate symbiosis, induce seed germination, and manifest allelopathic effects, i.e., they inhibit the growth of competing plant species in their vicinity. In addition, the use of natural bioactive compounds and their products is considered to be suitable and safe in e.g. alternative medicine. Thus, there is an unprecedented need to meet the increasing demand for plant secondary metabolites in the flavor and fragrance, food, and pharmaceutical industries. However, it is difficult to obtain a constant quantity of compounds from the cultivated plants, as their yield fluctuates due to several factors including genotypic variations, the geography, edaphic conditions, harvesting and processing methods. Yet familiarity with these substances and the exploration of various approaches could open new avenues in their production. This book describes the basis of bioactive plant compounds, their mechanisms and molecular actions with regard to various human diseases, and their applications in the drug, cosmetic and herbal industries. Accordingly, it offers a valuable resource for students, educators, researchers, and healthcare experts involved in agronomy, ecology, crop science, molecular biology, stress physiology, and natural products.

Innovative Processing Technologies for Foods with Bioactive Compounds - Jorge J. Moreno 2016-08-05

Natural foods, like fruits and vegetables, represent the simplest form of functional foods and provide excellent sources of functional compounds. Maximizing opportunities to make use of and incorporate these compounds

requires special processing. Fortunately, technologies available to produce food with enhanced active compounds have advanced significantly over the last few years. This book covers the fundamentals as well as the innovations made during the last few years on the emerging technologies used in the development of food with bioactive compounds.

Medicinal and Aromatic Plants - Tariq Aftab
2021-03-27

Before the concept of history began, humans undoubtedly acquired life benefits by discovering medicinal and aromatic plants (MAPs) that were food and medicine. Today, a variety of available herbs and spices are used and enjoyed throughout the world and continue to promote good health. The international market is also quite welcoming for MAPs and essential oils. The increasing environment and nature conscious buyers encourage producers to produce high quality essential oils. These consumer choices lead to growing preference for organic and herbal based products in the world market. As the benefits of medicinal and aromatic plants are recognized, these plants will have a special role for humans in the future.

Until last century, the production of botanicals relies to a large degree on wild-collection. However, the increasing commercial collection, largely unmonitored trade, and habitat loss lead to an incomparably growing pressure on plant populations in the wild. Therefore, medicinal and aromatic plants are of high priority for conservation. Given the above, we bring forth a comprehensive volume, "Medicinal and Aromatic Plants: Healthcare and Industrial Applications", highlighting the various healthcare, industrial and pharmaceutical applications that are being used on these immensely important MAPs and its future prospects. This collection of chapters from the different areas dealing with MAPs caters to the need of all those who are working or have interest in the above topic.

Medicinal Plants and Fungi: Recent Advances in Research and Development -
Dinesh Chandra Agrawal 2017-11-03

This book highlights the latest international research on different aspects of medicinal plants and fungi. Studies over the last decade have demonstrated that bioactive compounds isolated from medicinal fungi have promising antitumor,

cardiovascular, immunomodulatory, anti-allergic, anti-diabetic, and hepatoprotective properties. In the light of these studies, the book includes chapters (mostly review articles) by eminent researchers from twelve countries across the globe working in different disciplines of medicinal plants and fungi. It discusses topics such as the prevention of major neurodegenerative and neurotoxic mechanisms by *Centella asiatica*; the medicinal properties and therapeutic applications of several mushrooms species found in different parts of the world; and fungal endophytes as a source of bioactive metabolites including anticancer and cardioprotective agents. There are also chapters on strategies for identifying bioactive secondary metabolites of fungal origin; the use of genomic information to explore the biotechnological potential of medicinal mushrooms; and solid state fermentation of agro-industrial and forestry residues for the production of medicinal mushrooms. It is a valuable resource for the researchers, professionals and students working in the area of medicinal plants and fungi.

Foods of Plant Origin - Michael E. Netzel
2020-04-02

It is now well accepted that the consumption of plant-based foods is beneficial to human health. Fruits, vegetables, grains, and derived products can be excellent sources of minerals, vitamins, and fiber and usually have a favorable nutrient-to-energy ratio. Furthermore, plant foods are also a rich source of phytochemicals such as polyphenols, carotenoids, and betalains, with potential health benefits for humans. Many epidemiological studies have made a direct link between the consumption of plant foods and health. Human intervention studies have also shown that higher intake/consumption of plant foods can reduce the incidence of metabolic syndrome and other chronic diseases, especially in at-risk populations such as obese people. In addition to its health benefits, plant foods are also used as functional ingredients in food applications such as antioxidants, antimicrobials, and natural colorants. The Special Issue "Foods of Plant Origin" covers biodiscovery, functionality, the effect of different cooking/preparation methods on bioactive (plant food) ingredients, and strategies to improve the nutritional quality of plant foods by adding other

food components using novel/alternative food sources or applying non-conventional preparation techniques.

Analyzing Biomolecular Interactions by Mass Spectrometry - Jeroen Kool 2015-02-09

This monograph reviews all relevant technologies based on mass spectrometry that are used to study or screen biological interactions in general. Arranged in three parts, the text begins by reviewing techniques nowadays almost considered classical, such as affinity chromatography and ultrafiltration, as well as the latest techniques. The second part focusses on all MS-based methods for the study of interactions of proteins with all classes of biomolecules. Besides pull down-based approaches, this section also emphasizes the use of ion mobility MS, capture-compound approaches, chemical proteomics and interactomics. The third and final part discusses other important technologies frequently employed in interaction studies, such as biosensors and microarrays. For pharmaceutical, analytical, protein, environmental and biochemists, as well as those working in pharmaceutical and analytical laboratories.

Plant-Based Functional Foods and Phytochemicals - Megh R. Goyal 2021-03-30

Plant-Based Functional Foods and Phytochemicals: From Traditional Knowledge to Present Innovation covers the importance of the therapeutic health benefits of phytochemicals derived from plants. It discusses the isolation of potential bioactive molecules from plant sources along with their value to human health. It focuses on physical characteristics, uniqueness, uses, distribution, traditional and nutritional importance, bioactivities, and future trends of different plant-based foods and food products. Functional foods, beyond providing basic nutrition, may offer a potentially positive effect on health and cures for various disease conditions, such as metabolic disorders (including diabetes), cancer, and chronic inflammatory reactions. The volume looks at these natural products and their bioactive compounds that are increasingly utilized in preventive and therapeutic medications and in the production of pharmaceutical supplements and as food additives to increase functionality. It also describes the concept of extraction of

bioactive molecules from plant sources, both conventional and modern extraction techniques, available sources, biochemistry, structural composition, and potential biological activities.

Sustainable Agriculture Reviews 45 - Praveen Guleria 2020-09-07

Legumes are a major constituent of vegetarian diets and alleviate malnutrition because they are protein-rich and easily digestible. Moreover, a legume-based diet is much more sustainable than a meat-based diet. Recent research has disclosed major advances in legume agriculture and biotechnology, leading to improved health benefits from nutrients, antioxidants, polyphenolic phytochemicals, phenolic acids, flavonoids and tannins. This book reviews bioactive compounds and their applications, and conventional breeding and biotechnology for legume sustainability and nutritional enhancement.

Human Health Benefits of Plant Bioactive Compounds - Megh R. Goyal 2019-07-23

Focusing on the importance of functional foods and their secondary metabolites for human health, this volume presents new insights with scientific evidence on the use of functional foods in the treatment of certain diseases. The plants covered and their bioactive compounds are easily accessible and are believed to be effective with fewer side effects in comparison with modern drugs in the treatment of different diseases. The plants contain chemical compounds that can modify and modulate biological systems, eliciting therapeutic effects. Some plants and derived products mentioned include black carrot, olive oil, citrus peel, grapes, candy leaf, cereals and grains, and green and black tea. The volume is divided into four sections that cover these topics: Functional foods for human health: the available sources, biochemistry, structural composition, and different biological activities, especially antioxidant activity. Pharmacological aspects of fruits and vegetables: the extraction of bioactive molecules, phytochemistry, and biological activities of a selection of plants. Pharmacological aspects of natural products: bioactive compounds, structural attributes, bioactivity of anthocyanin, piceatannol, and a review of the ethnobotany and medicinal properties of green and black tea.

Pharmacological aspects of cereals and grains: the health benefits of flaxseed, wheatgrass juice, and use and therapeutic potential as supplements for disease management.

Bioactive Compounds from Multifarious Natural Foods for Human Health - Hafiz Ansar Rasul Suleria 2022-08-01

Divided into two sections, the volume first examines health claims of food-based bioactive compounds, which are extra-nutritional constituents that typically occur in small quantities in foods. This section lays out the concepts of extraction of food-based bioactive molecules, along with both conventional and modernized extraction techniques. The book goes to present new research on health claims of bioactive compounds from medicinal plants, their importance, and health perspectives. Both sections cover the various pharmacological and therapeutic aspects of bioactive compounds, along with their methods of extraction, their phytochemistry, their pharmacological and biological activities, their medicinal properties, and their applications for disease management and prevention. This volume sheds new light on the potential of natural and plant-based foods for human health from different technological aspects, contributing to the ocean of knowledge on food science and technology.

Biomolecules and Pharmacology of Medicinal Plants - T. Pullaiah 2022-05

"This two-volume book, *Biomolecules and Pharmacology of Medicinal Plants*, will be a valuable desk reference book on bioactives and pharmacology of medicinal plants. Listing the medicinal plants by species, each of these 77 chapters detail the plants' bioactive phytochemicals and their chemical structures along with their pharmacological activities and properties. These include the plants' antiviral, antibacterial, antifungal, antioxidant, anticancer, anti-inflammatory, anti-diabetic, hepatoprotective, cardioprotective, and nephroprotective properties. Bioactive compounds typically occur in small amounts, and they have more subtle effects than nutrients. Bioactive compounds influence cellular activities that modify the risk of disease and cure and alleviate disease symptoms. These compounds can act as antioxidants, enzyme inhibitors and inducers, inhibitors of receptor activities, and

inducers and inhibitors of gene expression among other actions. A wide array of biological activities and potential health benefits of medicinal plants have been reported, which include antiviral, antimicrobial, antioxidant, anti-cancer, anti-inflammatory, antidiabetic properties as well as protective effects on the liver, kidney, heart, and nervous system. The volumes will be a must-have reference for pharmacy institutes and pharmacy professors, phytochemists and research scholars, botanists working with medicinal plants, and postgraduate students of pharmacy and medicine round the world. The comprehensive information presented here provides an invaluable source to aid in the development of new drugs"--

Medicinal Plants - Recent Advances in Research and Development - Hsin-Sheng Tsay 2016-10-25

Since ancient times, plants have been used as a prime natural source of alternative medicines and have played an important role in our lives. The old tradition of medicinal plant application has turned into a highly profitable business in the global market, resulting in the release of a large number of herbal products. People have tried to find different sources of medicines to alleviate pain and cure different illnesses. Due to severe constraints of synthetic drugs and the increasing contraindications of their usage, there is a growing interest world over in the usage of natural products based on medicinal herbs, hence, there is an ever expanding market of herbs and herbal based medicinal preparations all over the world. This has culminated into an exponential increase in number of research groups in different geographical locations and generation of volume of research data in the field in a short span of time. The path breaking advancement in research methods and interdisciplinary approaches is giving birth to newer perspectives. Therefore, it becomes imperative to keep pace with the advancement in research and development in the field of medicinal herbs. There are a large number of researchers in different parts of the world working on various aspects of medicinal plants and 'herbal medicines'. The idea is to bring their recent research work into light in the form of a book. The proposed book contains chapters by the

eminent researchers in different countries and working with different disciplines of medicinal plants. Articles pertain to different disciplines such as: 1. Resources and conservation of medicinal plants 2. Biosynthesis and metabolic engineering of medicinal plants 3. Tissue culture, propagation and bioreactor technology of medicinal plants 4. Phytochemical research on medicinal plants 5. Herbal medicines and plant-derived agents in cancer prevention and therapy 6. Herbal medicines and plant-derived agents in metabolic syndrome management 7. Herbal medicines and plant-derived agents in modulation of immune-related disorders 8. Herbal medicines and hepatotoxicity The book will prove itself an asset for the researchers, professionals and also students in the area of medicinal plants and mechanism of their action.

Health Benefits of Secondary

Phytocompounds from Plant and Marine

Sources - Hafiz Ansar Rasul Suleria 2021-01-21

This new volume, Health Benefits of Secondary Phytocompounds from Plant and Marine Sources, looks at a selection of important issues and research topics on phytochemicals in plant-based therapeutics, covering bioactive compounds from both plant and marine sources. Natural products and their bioactive compounds are increasingly utilized in preventive and therapeutic medication, as pharmaceutical supplements, as well as in functional foods and nutraceuticals, all of which have potentially

positive effects on health and have preventive and curative properties for various diseases and health conditions. The first section of the book, on Bioactive Compounds from Plant Sources, describes the concept of extraction of bioactive molecules from plant sources, both conventional and modern extraction techniques, available sources, biochemistry, structural composition, and potential biological activities. Advanced extraction techniques, such as enzyme-assisted, microwave-assisted, ultrasound-assisted, pressurized liquid extraction, and super critical extraction techniques, are described in detail.

Health Benefits of Organic Food - D. Ian Givens 2008

This book is the result of a Workshop. The objective of this Workshop was to address three key issues: the quantifiable effects of organic in comparison with conventionally produced food on human health; the environment impact on these possible health benefits; and how the public perceives these benefits. To address these issues, the Workshop examined such factors as the role of certain nutrients (e.g. nitrate and long-chain n-3 polyunsaturated fatty acids) in the prevention and promotion of chronic disease, the potential health benefits of bioactive compounds in plants (e.g. flavonoids), the prevalence of food-borne pesticides and pathogens and how both local and global environmental factors may affect any differences between organic and conventionally produced foods.