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Plant Secondary Metabolites for Human Health
Therapeutic Use of Medicinal Plants and their Extracts: Volume 2
A Compendium of Essays on Alternative Therapy
Recent Trends in Biological Sciences: Research and Applications (NSRTBS–2016)
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Medicinal Plants

Handbook of Research on Natural Products and Their Bioactive Compounds as Cancer Therapeutics
Phytomedicine

BRICE CARNEY

Translational Medicine
Elsevier
Phytochemicals provides original research work and reviews on the sources of phytochemicals, and their roles in disease prevention, supplementation, and accumulation in fruits and vegetables. The roles of anthocyanin, flavonoids, carotenoids, and taxol are presented in separate chapters. Antioxidative and free radicle scavenging activity of phytochemicals is also discussed. The medicinal properties of Opuntia, soybean, sea buckthorn, and gooseberry are presented in a number of chapters. Supplementation of plant extract with phytochemical properties in broiler meals is discussed in one chapter. The final two chapters include the impact of agricultural practices and novel processing technologies on the accumulation of phytochemicals in fruits and vegetables. This book mainly focuses on medicinal plants and the disease-preventing

properties of phytochemicals, which will be a useful resource to the reader.

Pharmacological Assays of Plant-Based Natural Products Springer This volume provides information on how to select and screen plants for their medicinal properties. It describes phytopharmacological techniques for extracting and qualitatively and quantitatively analyzing a plant's phytochemicals. After a detailed in vitro investigation including nutritional and anti-nutritional analyses, medicinal properties were tested with various in vivo models for anti-inflammatory, analgesic, anti-pyretic, anticancer and anti-diabetic properties, as well as wound healing, neurodegenerative diseases, etc. Compound identification and purification techniques include, among others, TLC and column chromatography, as well as molecular docking with specific proteins.

Bioactive Phytochemicals CRC Press This timely and original handbook paves the way to success in plant-based drug development, systematically addressing the issues facing a pharmaceutical scientist who wants to turn a plant compound into a safe and effective drug. Plant

pharmacologists from around the world demonstrate the potentials and pitfalls involved, with many of the studies and experiments reported here published for the first time. The result is a valuable source of information unavailable elsewhere.

Anticancer Plants: Natural Products and Biotechnological Implements

CRC Press

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 Plant Origin* CRC Press 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. *Plant-derived Bioactives* John Wiley & Sons Phytochemicals as Lead Compounds for New Drug Discovery presents complete coverage of the recent advances in the discovery of phytochemicals from medicinal plants as models to the

development of new drugs and chemical entities. Functional bioactive compounds of plant origin have been an invaluable source for many human therapeutic drugs and have played a major role in the treatment of diseases around the world. These compounds possess enormous structural and chemical diversity and have led to many important discoveries. This book presents fundament concepts and factors affecting the choice for plant-based products, as well as recent advances in computer-aided drug discovery and FDA drug candidacy acceptance criteria. It also details the various bioactive lead compounds and molecular targets for a range of life-threatening diseases including cancer, diabetes, and neurodegenerative diseases. Written by a global team of experts, Phytochemicals as Lead Compounds for New Drug Discovery is an ideal resource for drug developers, phytochemists, plant biochemists, food and medicinal chemists, nutritionists and toxicologists, chemical ecologists, taxonomists, analytical chemists, and other researchers in those fields. It will also be very valuable to professors, students, and researchers in

this domain. - Presents fundamental concepts and factors affecting choice for plant-based products - Details the FDA drug candidacy acceptance criteria, including bottlenecks and way forward - Highlights recent advances in computational -based drug discovery - Focuses on the discovery of new drugs and potential druggable targets for the treatment of chronic diseases of world importance

Herbs, Spices and Medicinal Plants

Springer

With increasing energy prices and the drive to reduce CO2 emissions, food industries are challenged to find new technologies in order to reduce energy consumption, to meet legal requirements on emissions, product/process safety and control, and for cost reduction and increased quality as well as functionality. Extraction is one of the promising innovation themes that could contribute to sustainable growth in the chemical and food industries. For example, existing extraction technologies have considerable technological and scientific bottlenecks to overcome, such as often requiring up to 50% of investments in a new plant and more than 70% of total process energy used in food, fine

chemicals and pharmaceutical industries. These shortcomings have led to the consideration of the use of new "green" techniques in extraction, which typically use less solvent and energy, such as microwave extraction. Extraction under extreme or non-classical conditions is currently a dynamically developing area in applied research and industry. Using microwaves, extraction and distillation can now be completed in minutes instead of hours with high reproducibility, reducing the consumption of solvent, simplifying manipulation and work-up, giving higher purity of the final product, eliminating post-treatment of waste water and consuming only a fraction of the energy normally needed for a conventional extraction method. Several classes of compounds such as essential oils, aromas, anti-oxidants, pigments, colours, fats and oils, carbohydrates, and other bioactive compounds have been extracted efficiently from a variety of matrices (mainly animal tissues, food, and plant materials). The advantages of using microwave energy, which is a non-contact heat source, includes more

effective heating, faster energy transfer, reduced thermal gradients, selective heating, reduced equipment size, faster response to process heating control, faster start-up, increased production, and elimination of process steps. This book will present a complete picture of the current knowledge on microwave-assisted extraction (MAE) of bioactive compounds from food and natural products. It will provide the necessary theoretical background and details about extraction by microwaves, including information on the technique, the mechanism, protocols, industrial applications, safety precautions, and environmental impacts.

Anticancer Plants: Mechanisms and Molecular Interactions

CRC Press

This book is focused on clarifying the anticancer effects (i.e., apoptotic, antiproliferative, antimetastatic, antiangiogenic) and mechanisms of most of the medicinal plants found in the world against solid and/or hematological cancers.

Handbook of Vegetables and Vegetable Processing

BoD – Books on Demand

Water Extraction of Bioactive Compounds: From Plants to

Drug Development draws together the expert knowledge of researchers from around the world to outline the essential knowledge and techniques required to successfully extract bioactive compounds for further study. The book is a practical tool for medicinal chemists, biochemists, pharmaceutical scientists and academics working in the discovery and development of drugs from natural sources. The discovery and extraction of bioactive plant compounds from natural sources is of growing interest to drug developers, adding greater fuel to a simultaneous search for efficient, green technologies to support this. Particularly promising are aqueous based methods, as water is a cheap, safe and abundant solvent. Water Extraction of Bioactive Compounds: From Plants to Drug Development is a detailed guide to the fundamental concepts and considerations needed to successfully undertake such processes, supported by application examples and highlighting the most influential variables. Beginning with an introduction to plants as sources of drugs, the book highlights the need for a

move towards both more rational and greener techniques in the field, and presents multiple innovative water-based strategies for the discovery and extraction of bioactive constituents of botanicals. A broad range of available techniques are reviewed, including conventional and pressurized hot water extraction techniques, intensified processes such as microwave-assisted, ultrasound-assisted processes, and enzyme assisted extraction, and processes using combined techniques. - Covers the theoretical background and range of techniques available to researchers, helping them to select the most appropriate extraction method for their needs - Presents up-to-date and cutting edge applications by international experts - Highlights current use and future potential for industrial scale applications - Offers a thorough introduction to plants as sources of drugs, highlighting strategies for the discovery of novel bioactive constituents of botanicals *Bioactive Phytocompounds :New Approaches in the Phytosciences* Springer Nature The latest research on the health benefits and optimal

processing technologies of herbs and spices This book provides a comprehensive overview of the health benefits, analytical techniques used, and effects of processing upon the physicochemical properties of herbs and spices. Presented in three parts, it opens with a section on the technological and health benefits of herbs and spices. The second part reviews the effect of classical and novel processing techniques on the properties of herbs/spices. The third section examines extraction techniques and analytical methodologies used for herbs and spices. Filled with contributions from experts in academia and industry, Herbs, Spices and Medicinal Plants: Processing, Health Benefits and Safety offers chapters covering thermal and non-thermal processing of herbs and spices, recent developments in high-quality drying of herbs and spices, conventional and novel techniques for extracting bioactive compounds from herbs and spices, and approaches to analytical techniques. It also examines purification and isolation techniques for enriching bioactive phytochemicals, medicinal properties of herbs and spices, synergy in

whole-plant medicine, potential applications of polyphenols from herbs and spices in dairy products, biotic and abiotic safety concerns, and adverse human health effects and regulation of metal contaminants in terrestrial plant-derived food and phytopharmaceuticals. Covers the emerging health benefits of herbs and spices, including their use as anti-diabetics, anti-inflammatories, and anti-oxidants Reviews the effect of classical and novel processing techniques on the properties of herbs and spices Features informed perspectives from noted academics and professionals in the industry Part of Wiley's new IFST Advances in Food Science series Herbs, Spices and Medicinal Plants is an important book for companies, research institutions, and universities active in the areas of food processing and the agri-food environment. It will appeal to food scientists and engineers, environmentalists, and food regulatory agencies. *Medicinal Plants* John Wiley & Sons Handbook of Vegetables and Vegetable Processing, Second Edition is the most comprehensive guide on vegetable technology for processors,

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

biology and classification, physiology, biochemistry, flavor and sensory properties, microbial safety and HACCP principles, nutrient and bioactive properties In-depth descriptions of key processes including, minimal processing, freezing, pasteurization and aseptic processing, fermentation, drying, packaging, and application of new technologies Entire chapters devoted to important aspects of over 20 major commercial vegetables including avocado, table olives, and textured vegetable proteins This important book will appeal to anyone studying or involved in food technology, food science, food packaging, applied nutrition, biosystems and agricultural engineering, biotechnology, horticulture, food biochemistry, plant biology, and postharvest physiology. *Phytochemicals* John Wiley & Sons Biotechnological Production of Bioactive Compounds provides insights on the most recent innovations, trends, concerns, solutions and practical challenges encountered in the fields of enzyme technology and nanobiotechnology for the production of bioactive materials with

extra health benefits. As nanobiotechnology has improved the bioactive extraction process significantly, many bioactives, including bioflavonoids, omega-3 fatty acids, biopigments and low calorie sugar substitutes are a pivotal part of the food industry. The book highlights the production of extra health benefits "bioactives'' from plants and microbes and explains how the extraction efficiency of bioactives molecules improves significantly with the recent advances in nanobiotechnology. Researchers in the fields of biochemical engineering, biotechnology, bioremediation, environmental sustainability and those in pharma industries will find the information in this book very helpful and illuminating. - Outlines technological advances in bioactives extraction - Covers bioflavonoids, biopigments, omega-3-fatty acids and low sugar substitutes - Explains the mechanisms of Green cargo (biogenic nanoparticles) for the delivery of bioactive molecules

Naturally Occurring Bioactive Compounds

Springer

Plants produce a vast number of bioactive compounds with different chemical scaffolds, which

modulate a diverse range of molecular targets and are used as drugs for treating numerous diseases. Most present-day medicines are derived either from plant compounds or their derivatives, and plant compounds continue to offer limitless reserves for the discovery of new medicines. While different classes of plant compounds, like phenolics, flavonoids, saponins and alkaloids, and their potential pharmacologic al applications are currently being explored, their curative mechanisms are yet to be understood in detail. This book is divided into 2 volumes and offers detailed information on plant-derived bioactive compounds, including recent research findings. Volume 1, “Plant-derived Bioactives: Chemistry and Mode of Action” discusses the chemistry of highly valued plant bioactive compounds and their mode of actions at the molecular level. Volume 2, “Plant-derived Bioactives: Production, Properties and Therapeutic Applications” explores the sources, biosynthesis, production, biological properties and therapeutic applications of plant bioactives. Given their scope, these books are valuable resources for members of the scientific community

wishing to further explore various medicinal plants and the therapeutic applications of their bioactive compounds. They appeal to scholars, teachers and scientists involved in plant product research, and facilitate the development of new drugs. Modern Phytomedicine CRC Press Phytomedicine has become more important and gained constant improvement today for the betterment of health. Herbal medicine plays a significant role in the development of new drugs, contrary to the modern medicinal systems. For more than a decade, there has been a drastic improvement in phytomedicine across the world. This growth has reached a higher level in development by pharmaceutical industries everywhere. People have drifted toward herbal medication and practices for their food and health care. Therefore, in order to create abundant interest in the research of phytosciences , this book is one of the better reference tools. The bioactive compounds in plants need to be explored to know the scientific value and therapeutic properties of the medicinal plants against many diseases. This book contains chapters that are relevant to

the advanced research in herbal medicines and will enlighten readers to the importance of medicinal plants as daily sources of nutrition and cures for diseases. This book highlights the unique features of the plants that have not been studied so far for their therapeutic potential. To prove the efficacy of medicinal plants, they have to be studied, examined, and scientifically verified. Hence, this book will better serve the researchers working under different aspects of phytomedicine. Features • The information provided through scientific validation is useful to study the pharmacological activity of herbals and their administration in the modern era. • The readers can find clear understanding in the research and development of phytopharmaceutical drugs. • The ideas incorporated in each chapter reveal the knowledge gained in studying the biological activities of the compounds present in the plant, which are indeed most worthy for the development of drugs. • The harvesting of new ideology toward modern scientific technologies that are employed in the field of pharmacologic

al research. Bioactive Compounds from Natural Sources Springer Nature Functional and Preservative Properties of Phytochemicals examines the potential of plant-based bioactive compounds as functional food ingredients and preservative agents against food-spoiling microbes and oxidative deterioration. The book provides a unified and systematic accounting of plant-based bioactive compounds by illustrating the connections among the different disciplines, such as food science, nutrition, pharmacology, toxicology, combinatorial chemistry, nanotechnology and biotechnological approaches. Chapters present the varied sources of raw materials, biochemical properties, metabolism, health benefits, preservative efficacy, toxicological aspect, safety and Intellectual Property Right issue of plant-based bioactive compounds. Written by authorities within the field, the individual chapters of the book are organized according to the following practical and easy to consult format: introduction, chapter topics and text, conclusions (take-home lessons), and references cited for further reading. - Provides

collective information on recent advancements that increase the potential use of phytochemicals - Fosters an understanding of plant-based dietary bioactive ingredients and their physiological effects on human health at the molecular level - Thoroughly explores biotechnology, omics, and bioinformatics approaches to address the availability, cost, and mode of action of plant-based functional and preservative ingredients Bioactive Phytochemicals from Himalayas: A Phytotherapeutic Approach Allied Publishers 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. **Plant Secondary Metabolites for Human Health** CRC Press

• The seminar was conducted to throw light on Recent Trends in Biological Sciences: Research and Applications (NSRTBS-2016). • To provide a forum, to bridge researchers, practitioners and professionals from the industry, academic and government Institutions to discourse on research and recent development. • To have in-depth assessment of the challenges involved in the dynamic and fast moving field of biological research. **Therapeutic Use of Medicinal Plants and**

their Extracts: Volume 2 Academic Press Bioactive Phytochemicals from Himalayas: A Phytotherapeutic Approach covers herbal medicines from the Himalayan mountains. Chapters in this book detail molecular mechanisms and experimental tools and techniques for research on plants in this region. Phytochemical experts guide the readers through the role of Himalayan plants in therapy for metabolic diseases like cancer and diabetes, hepatic diseases, inflammatory diseases, and neurodegenerative diseases. Some chapters focus on diseases and how various plants from Himalayan origin are beneficial in these diseases. This compilation,with professional contributors, aims to inform a wide scientific community from various research fields about basic research on medicinal plants with a focus on Himalayan herbs. The book also serves as a handbook for pharmacologists working on the broad therapeutic aspects of these plants. *A Compendium of Essays on Alternative Therapy* CRC Press To quantify antioxidants in natural sources, the application of chromatography techniques with different

detectors followed by skillful sample preparation is necessary. Analysis of Antioxidant-Rich Phytochemicals is the first book that specifically covers and summarizes the details of sample preparation procedures and methods developed to identify and quantify various types of natural antioxidants in foods. Focusing on the principle of quantification methods for natural antioxidants, the book reviews and summarizes current methods used in the determination of antioxidant-rich phytochemicals in different sources. Chapter by chapter, the distinguished team of authors describes the various methods used for analysis of the different antioxidant-rich phytochemicals – phenolic acids; carotenoids; anthocyanins; ellagitannins, flavonols and flavones; catechins and procyanidins; flavanones; stilbenes; phytosterols; and tocopherols and tocotrienols. Going beyond extensive reviews of the scientific literature, the expert contributors call on their accumulated experience in sample extraction and analysis to outline procedures, identify potential problems in dealing with different samples, and offer trouble-

shooting tips for the analysis. Analysis of Antioxidant-Rich Phytochemicals covers the important food applications and health-promoting functions of the major antioxidant phytochemicals, presents general analysis principles and procedures, and systematically reviews and summarizes the various analytical methods necessary for each type of natural antioxidant in different food sources. **Recent Trends in Biological Sciences: Research and Applications (NSRTBS–2016)** IGI Global This reference work gives a compete overview of the different stages of drug development using a translational approach. The book is structured in different parts, following the different stages in drug development. Almost half of the work is dedicated to core of drug discovery using a translational approach, the identification of appropriate targets and screening methods for the identification of compounds interacting with these targets. The rest of book covers the whole downstream pipeline after the identification of lead compounds, such as bioavailability issues, identification of appropriate drug delivery

venues, production and scaling issues and preclinical trials. As has been the case with other works in the encyclopedia, the book is made up of long, comprehensive and authoritative chapters, written by outstanding researchers in the field.

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