[DOC] Exploring Novel Bioactive Compounds From Marine Microbes

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Biotechnology of Bioactive Compounds-Vijai Kumar Gupta 2015-01-22 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.
Drugs from the Sea-Nobuhiro Fusetani 2000-01-01 The present book consists of three parts: discovery, development and production of drugs from marine organisms. Marine bacteria, fungi, microalgae, sponges and opisthobranch mollusks have attracted much attention as sources of potential drugs, which is described in the first part. A pain-killing drug developed from the venom of a cone shell is a recent highlight of marine natural product research; the interesting story of its discovery is provided. The second part features an anticancer drug with a novel mode of action which was originally isolated from a songe and a potential antiosteoporotic drug of a hexacoral origin. But the most serious problem for development of drugs from the sea remains supply. Two possible solutions, production by fermentation and by aquaculture, are described in the third part. Identification and culture of symbiotic bacteria which are responsible for the production of bioactive sponge metabolites are the main objectives for many researchers.
Microbial Applications Vol.1-Vipin Chandra Kalia 2017-05-03 This contributed volume sheds new light on waste management and the production of biofuels. The authors share insights into microbial applications to meet the challenges of environmental pollution and the ever- growing need for renewable energy. They also explain how healthy and balanced ecosystems can be created and maintained using strategies ranging from oil biodegration and detoxification of azo dyes to biofouling. In addition, the book illustrates how the metabolic abilities of microorganisms can be used in microbial fuel-cell technologies or for the production of biohydrogen. It inspires young researchers and experienced scientists in the field of microbiology to explore the application of green biotechnology for bioremediation and the production of energy, which will be one of the central topics for future generations.
Mutagenesis: exploring novel genes and pathways-N.B. Tomlekova 2014-06-17 Current successes in omics research have accelerated the production of high quality foods. Various mutation methodologies have been developed to achieve this progress, showing the importance of mutagenesis for food security. 'Mutagenesis: exploring novel genes and pathways' describes the latest achievements in induced mutagenesis, with a particular focus on the development of crops. The book details experimental studies on functions of particular genes of interest, the mechanisms involved in physiological processes, and occurring chemical reactions. Also, the creation of new mutants and lines by use of genomic data banks is discussed. The book will be of mutual interest to end-users in modern breeding programs as well as to scientific research.
YOUMARES 9 - the Oceans: Our Research, Our Future-Simon Jungblut 2020-01-01
Advances in Endophytic Fungal Research-Bhim Pratap Singh 2019-02-12 Plant endophytes are a potential source for the production of bioactive compounds that can fight against devastating diseases in both plants and humans. Among these endophytic microorganisms, endophytic fungi are one of the dominant group of microorganisms with a potential role in plant growth promotion and the discovery of noble bioactive natural products. Endophytic fungi possess several bioactivities like anticancer, antimicrobial, insecticidal, plant growth stimulants, crop protection, phytoremediation, etc. Presence of modular biosynthetic genes clusters like PKS and NRPS in several endophytic fungi underscores the need to understand and explore such organisms. This volume presents and demonstrates the applied aspects of endophytic fungi. Practical applications of such endophytes are discussed in detail, including studies in pharmaceutical development and agricultural management of important microbial diseases. The beneficial effects that endophytic fungi provide to host plants—enhancing growth, increasing fitness, strengthening tolerance to abiotic and biotic stresses through secondary metabolites—are also discussed. The reader is provided with a comprehensive and detailed understanding of such relationships between endophytic fungi and their host.
Handbook of Algal Technologies and Phytochemicals-Gokare A. Ravishankar 2019-07-12 Key features: The most comprehensive resource available on the biodiversity of algal species, their industrial production processes and their use for human consumption in food, health and varied applications. Emphasis on basic and applied research, addressing aspects of scale-up for commercial exploitation for the development of novel phytochemicals (phytochemicals from algae). Addresses the underexplored and underutilized potential of chemicals from marine sources for health benefits. Each chapter, written by expert contributors from around the world, includes Summary Points, Figures and Tables, as well as up-to-date references. The first book in this two-volume set explores the diversity of algal constituents for health and disease applications. The commercial value of chemicals of value to food and health is about $6 billion annually, of which 30 percent relates to micro and macro algal metabolites and products for health food applications. This comprenhensive volume looks in detail at algal genomics and metabolomics as well as mass production of microalgae. As a whole, the two-volume set covers all micro and macro algal forms and their traditional uses; their constituents which are of value for food, feed, specialty chemicals, bioactive compounds for novel applications, and bioenergy molecules. Bio-business and the market share of algae-based products are also dealt with, providing global perspectives.
Antibiotics-Claudio O. Gualerzi 2013-09-05 Most of the antibiotics now in use have been discovered more or less by chance, and their mechanisms of action have only been elucidated after their discovery. To meet the medical need for next-generation antibiotics, a more rational approach to antibiotic development is clearly needed. Opening with a general introduction about antimicrobial drugs, their targets and the problem of antibiotic resistance, this reference systematically covers currently known antibiotic classes, their molecular mechanisms and the targets on which they act. Novel targets such as cell signaling networks, riboswitches and bacterial chaperones are covered here, alongside the latest information on the molecular mechanisms of current blockbuster antibiotics. With its broad overview of current and future antibacterial drug development, this unique reference is essential reading for anyone involved in the development and therapeutic application of novel antibiotics.
From Monsoons to Microbes-National Research Council 1999-05-05 What can sharks teach us about our immune system? What can horseshoe crabs show us about eyesight? The more we learn about the ocean, the more we realize how critical these vast bodies of water are to our health and well-being. Sometimes the ocean helps us, as when a marine organism yields a new medical treatment. At other times, the ocean poses the threat of coastal storm surges or toxic algal blooms. From Monsoons to Microbes offers a deeper look into the oceans that surround us, often nurturing yet sometimes harming humankind. This book explores the links among physical oceanography, public health, epidemiology, marine biology, and medicine in understanding what the ocean has to offer. It will help readers grasp such important points as: How the ocean's sweeping physical processes create long-term phenomena such as El Nino and short-term disastrous events such as tsunamis--including what communities can do to prepare. What medicines and nutritional products have come from the ocean and what the prospects are for more such discoveries. How estuaries work--where salt and fresh water meet--and what can go wrong, as in the 7,000 square mile "dead zone" at the out-flow of the Mississippi River. How the growing demand for seafood and the expansion of ocean-going transport has increased our exposure to infectious agents--and how these agents can be tracked down and fought. Why "red tides" of toxic algae suddenly appear in previously unaffected coastal areas, and what happens when algal toxins find their way into our food supply or the air we breathe. The book recommends ways we can implement exciting new technologies to monitor the physics, chemistry, and biology of the ocean to recognize change as it happens. From the impact of worldwide atmospheric warming to the significance of exotic bacteria from submarine hydrothermal vents, the ocean has many depths left to explore.
Mining of Microbial Wealth and MetaGenomics-Vipin Chandra Kalia 2017-10-30 The existence of living organisms in diverse ecosystems has been the focus of interest to human beings, primarily to obtain insights into the diversity and dynamics of the communities. This book discusses how the advent of novel molecular biology techniques, the latest being the next-generation sequencing technologies, helps to elucidate the identity of novel organisms, including those that are rare. The book highlights the fact that oceans, marine environments, rivers, mountains and the gut are ecosystems with great potential for obtaining bioactive molecules, which can be used in areas such as agriculture, food, medicine, water supplies and bioremediation. It then describes the latest research in metagenomics, a field that allows elucidation of the maximum biodiversity within an ecosystem, without the need to actually grow and culture the organisms. Further, it describes how human-associated microbes are directly responsible for our health and overall wellbeing.“/p>
Bioactive Food as Dietary Interventions for Cardiovascular Disease-Ronald Ross Watson 2012-10-22 One major example of the synergy of bioactive foods and extracts is their role as an antioxidant and the related remediation of cardiovascular disease. There is compelling evidence to suggest that oxidative stress is implicated in the physiology of several major cardiovascular diseases including heart failure and increased free radical formation and reduced antioxidant defences. Studies indicate bioactive foods reduce the incidence of these conditions, suggestive of a potential cardioprotective role of antioxidant nutrients. Bioactive Food as Dietary Interventions for Cardiovascular Disease investigates the role of foods, herbs and novel extracts in moderating the pathology leading to cardiovascular disease. It reviews existing literature, and presents new hypotheses and conclusions on the effects of different bioactive components of the diet. Addresses the most positive results from dietary interventions using bioactive foods to impact cardiovascular disease Documents foods that can affect metabolic syndrome and other related conditions Convenient, efficient and effective source that allows readers to identify potential uses of compounds – or indicate those compounds whose use may be of little or no health benefit Associated information can be used to understand other diseases that share common etiological pathways
Microbial Diversity in Ecosystem Sustainability and Biotechnological Applications-Tulasi Satyanarayana 2019-09-06 This volume comprehensively reviews recent advances in our understanding of the diversity of microbes in various types of terrestrial ecosystems, such as caves, deserts and cultivated fields. It is written by leading experts, and highlights the culturable microbes identified using conventional approaches, as well as non-culturable ones unveiled with metagenomic and microbiomic approaches. It discusses the role of microbes in ecosystem sustainability and their potential biotechnological applications. The book further discusses the diversity and utility of ectomycorrhizal and entomopathogenic fungi and yeasts that dwell on grapes, it examines the biotechnological applications of specific microbes such as lichens, xylan- and cellulose-saccharifying bacteria and archaea, chitinolytic bacteria, methanogenic archaea and pathogenic yeasts.
Bio-exploitation of Filamentous Fungi-Stephen B. Pointing 2001 The focus of this exciting new book is on identifying existing and potential applications for filamentous fungi. Selected topics at the forefront of current fungal biotechnology research, namely bioactive compounds and agricultural applications, are covered in depth by acknowledged experts in their field. Other emerging fungal technologies such as bioremediation are also reviewed, together with associated subjects such as the ownership of genetic resources.
International Journal of Systematic and Evolutionary Microbiology-
Microbial Endophytes-Ajay Kumar 2019-09-27 Microbial Endophytes: Prospects for Sustainable Agriculture discusses the practical and theoretical aspects regarding the use of endophytic microorganisms in agriculture, providing insights on the biotechnological applications associated with long-term crop production. Chapters deal with the various aspects of endophytic microorganisms, including isolation, enumeration, characterization procedures, diversity analysis, and their role as biofertilizer, biocontrol agent and microbial inoculants. Framed to discuss the present and future potential of microbial endophytes in biotic and abiotic stress management, bioremediation, bioactive compounds production, and in nanotechnology, this book provides a single-volume resource that will be valuable to academics and researchers interested in microbiology, agricultural sciences and biotechnology. Explores aspects of sustainable agriculture by using endophytic microorganism such as bacteria, fungi and actinobacteria Presents insights into the use of endophytes as biofertilizer and biocontrol agents in sustainable agriculture Relates endophyte organisms and nano-technology
Natural Products and Drug Discovery-Subhash C. Mandal 2018-02-16 Natural Products and Drug Discovery: An Integrated Approach provides an applied overview of the field, from traditional medicinal targets, to cutting-edge molecular techniques. Natural products have always been of key importance to drug discovery, but as modern techniques and technologies have allowed researchers to identify, isolate, extract and synthesize their active compounds in new ways, they are once again coming to the forefront of drug discovery. Combining the potential of traditional medicine with the refinement of modern chemical technology, the use of natural products as the basis for drugs can help in the development of more environmentally sound, economical, and effective drug discovery processes. Natural Products & Drug Discovery: An Integrated Approach reflects on the current changes in this field, giving context to the current shift and using supportive case studies to highlight the challenges and successes faced by researchers in integrating traditional medicinal sources with modern chemical technologies. It therefore acts as a useful reference to medicinal chemists, phytochemists, biochemists, pharma R&D professionals, and drug discovery students and researchers. Reviews the changing role of natural products in drug discovery, integrating traditional knowledge with modern molecular technologies Highlights the potential future role of natural products in preventative medicine Supported by real world case studies throughout
Natural Products-Lixin Zhang 2007-11-17 A fresh examination of the past successes of natural products as medicines and their new future from both conventional and new technologies. High-performance liquid chromatography profiling, combinatorial synthesis, genomics, proteomics, DNA shuffling, bioinformatics, and genetic manipulation all now make it possible to rapidly evaluate the activities of extracts as well as purified components derived from microbes, plants, and marine organisms. The authors apply these methods to new natural product drug discoveries, to microbial diversity, to specific groups of products (Chinese herbal drugs, antitumor drugs from microbes and plants, terpenoids, and arsenic compounds), and to specific sources (the sea, rainforest, and endophytes). These new opportunities show how research and development trends in the pharmaceutical industry can advance to include both synthetic compounds and natural products, and how this paradigm shift can be more productive and efficacious.
Cold Pressed Oils-Mohamed Fawzy Ramadan 2020-07-23 Cold Pressed Oils: Green Technology, Bioactive Compounds, Functionality, and Applications creates a multidisciplinary forum of discussion on recent advances in chemistry and the functionality of bioactive phytochemicals in lipids found in cold pressed oils. Chapters explore different cold pressed oil, focusing on cold press extraction and processing, composition, physicochemical characteristics, organoleptic attributes, nutritional quality, oxidative stability, food applications, and functional and health-promoting traits. Edited by a team of experts, the book brings a diversity of developments in food science to scientists, chemists, nutritionists, and students in nutrition, lipids chemistry and technology, agricultural science, pharmaceuticals, cosmetics, nutraceuticals and many other fields. Thoroughly explores novel and functional applications of cold pressed oils Shows the difference between bioactive compounds in cold pressed oils and oils extracted with other traditional methods Elucidates the stability of cold pressed oils in comparison with oils extracted using other traditional methods
Food Proteins and Bioactive Peptides-Maria Hayes 2018-06-01 This book is a printed edition of the Special Issue "Food Proteins and Bioactive Peptides" that was published in Foods
Endophytes for a Growing World-Trevor R. Hodkinson 2019-03-31 Discusses the role of endophytes in food security, forestry and health. It outlines their general biology, spanning theory to practice.
Endophytes and Secondary Metabolites-Sumita Jha 2019-09-28 This reference work presents an authoritative review of endophytes and their applications to human welfare. Endophytes have become a class of interesting and curious microorganisms due to their intimate intra- and intercellular association with plants for competence, survival and reproduction. They can be bacteria or fungi, and they are usually non-pathogenic to their host. Endophytes have important applications in agriculture and industry, namely, they can help with plant growth, act as biocontrol agents and biosurfactant and secondary metabolite producers, and they are also rich sources of bioactive natural products. Novel and beneficial effects of endophytes are constantly emerging, and this book, divided into four sections, provides readers with the latest developments in this fast expanding field. In the first section, readers will discover the biology of the major groups of endophytes, followed by a summary of conventional and molecular tools for endophytes’ identification in Section II. The production of high-value metabolites by endophytes will be explored in the third section of this book, and in the final section, readers will find several case studies, examples and prospects for endophytes’ application in agriculture and industry. Written by leading international authors, this reference work will appeal to a wide readership, from students and researchers in the field of botany, biotechnology and agriculture to professionals interested in the production and applications of endophytic metabolites.
Bioactive Compounds from Marine Foods-Blanca Hernández-Ledesma 2013-09-30 Part of the IFT Press series, this book reviews the myriadpublished information on bioactive components derived from marinefoods, enabling researchers and product developers to selectappropriate functional ingredients for new products. Chapters cover foods and food ingredients from both animal andplant marine sources, focusing on those which demonstratebiological properties and whose constituent compounds have beenisolated and identified as potentially active. This book furtheraddresses the biological activities of PUFAs (Polyunsaturated fattyacids), oils, phospholipids, proteins and peptides,

fibres,carbohydrates, chitosans, vitamins and minerals, fucoxantin,polyphenols, phytosterols, taurine, amongst others. Thesecomponents, found in a variety of marine-derived foods, have beendemonstrated to have preventative properties with regard tohypertension, oxidative stress, inflammation, cardiovasculardiseases, cancer and other human diseases. Extraction methods and analysis techniques are also addressed.Intended for food scientists, food technologists and food engineersin academia, industry and government, this book reviews thesubstantial quantity of current research in this fast-moving andcommercially valuable sector of food and nutrition science.

Microbial Diversity in the Genomic Era-Surajit Das 2018-09-20 Microbial Diversity in the Genomic Era presents insights on the techniques used for microbial taxonomy and phylogeny, along with their applications and respective pros and cons. Though many advanced techniques for the identification of any unknown bacterium are available in the genomics era, a far fewer number of the total microbial species have been discovered and identified to date. The assessment of microbial taxonomy and biosystematics techniques discovered and practiced in the current genomics era with suitable recommendations is the prime focus of this book. Discusses the techniques used for microbial taxonomy and phylogeny with their applications and respective pros and cons Reviews the evolving field of bacterial typing and the genomic technologies that enable comparative analysis of multiple genomes and the metagenomes of complex microbial environments Provides a uniform, standard methodology for species designation

Cave Microbiomes: A Novel Resource for Drug Discovery-Naowarat Cheeptham 2012-10-06 This book details recent findings in the field of cave microbiology and builds on fast-paced efforts to exploit an unconventional and underexplored environment for new microorganisms which may provide an untapped source of drugs: microorganisms from caves.

Bamboo Shoot-Nirmala Chongtham 2020-10-27 Bamboo is an ordinary plant with extraordinary properties. With its high growth rate and self-renewing ability, bamboo’s sustainability is unparalleled. Bamboo is an important resource for a healthy planet, and its shoots hold manifold nutritional benefits. Based on 18 years of research, Bamboo Shoot: Superfood for Nutrition, Health and Medicine details health-promoting bioactive compounds found in bamboo and offers practical guidance on how this vegetable, bamboo shoot, is used for food fortification. Already a delicacy in many Asian countries, bamboo shoots aid in the prevention of cardiovascular disease, cancer, diabetes, hypertension and obesity. Exploring the tradition and culture of bamboo in Asian countries, this book also provides information on the science behind the nutritional value of bamboo shoots. Written by individuals with expertise in bamboo shoot nutrition and fully illustrated in colour, this book reveals the antioxidant activity of bamboo shoots and discusses the potential for bamboo to be used as an ingredient in functional foods and nutraceuticals. This highly practical book discusses processing and packaging of shoots for long term storage and using bamboo in the development of novel food products. Features: Elucidates the nutrients and phytochemicals in over 30 bamboo species and includes a glossary of scientific names Highlights the nutraceutical and antioxidant properties of bamboo Describes novel healthy food products fortified with bamboo shoots and provides food recipes using bamboo Explains how bamboo can help countries achieve their sustainable development goals, from poverty reduction, food security, improved nutrition and prevention of diseases to climate change mitigation and inclusive green economic development Aimed at professionals in the nutrition and food processing industry, this book appeals to those with an interest in incorporating bamboo into a healthier lifestyle. Endorsements This is a unique book interestingly crafted to highlight the important nutritional, health and medicinal aspects of Bamboo, an area that is greatly underexplored. It will bring awareness that bamboo shoots are a low calorie, high fibre nutritious vegetable packed with vitamins and minerals. - Prof. Cherla Sastry, Founding Director General INBAR and Adjunct Professor, University of Toronto, Canada This book brings a series of answers to all questions related to bamboo as a superfood [and will] enlighten readers how to transform bamboo shoots using either traditional or modern techniques, how to package them and how to use them as a functional and nutraceutical food. It also provides a series of cooking recipes for healthy eating while we enjoy our food. - Ximena Londoño, Founder, A Bamboo and Guadua Paradise, Colombia

Phytochemicals-Toshiki Asao 2018-11-07 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.

Postharvest Biology and Technology for Preserving Fruit Quality-Daniel Valero 2010-05-12 Interest in the postharvest behavior of fruits and vegetables has a history as long as mankind's. Once we moved past mere survival, the goal of postharvest preservation research became learning how to balance consumer satisfaction with quantity and quality while also preserving nutritional quality. A comprehensive overview of new postharvest techno

Drug Discovery and Development-Omboon Vallisuta 2015-06-03 It is very important for scientists all over the globe to enhance drug discovery research for better human health. This book demonstrates that various expertise are essential for drug discovery including synthetic or natural drugs, clinical pharmacology, receptor identification, drug metabolism, pharmacodynamic and pharmacokinetic research. The following 5 sections cover diverse chapter topics in drug discovery: Natural Products as Sources of Leading Molecules in Drug Discovery; Oncology and Drug Discovery; Receptors Involvement in Drug Discovery; Management and Development of Drugs against Infectious Diseases; Advanced Methodology.

Alternative and Replacement Foods-Alexandru Mihai Grumezescu 2018-03-17 Alternative and Replacement Foods, Volume 17, a volume in the Handbook of Food Bioengineering series, presents the most up-to-date research on synthetic and replacement food components for scientists and researchers. The book helps them understand the significant impact of these foods on the length and quality of life of consumers. It presents a solid resource that brings together multidisciplinary research and its relationship to various disciplines. Readers will find a broad range of potential outcomes discussed, such as food safety, human and animal health benefits, and the development of new and novel foods through the bio-fortification of nutrients in foods. Discusses how specialty food products improve diet and heath Summarizes advances in dietary supplements, probiotics and nutraceuticals Includes research advances on snacks, vegan diets, gluten-free foods and more Provides identification and research studies on anti-obesity foods Presents information on alternative protein sources

Exploring the Nutrition and Health Benefits of Functional Foods-Shekhar, Hossain Uddin 2016-07-22 Health and nutrition have become global focal points as the population continues to grow exponentially. While providing food for the global population is crucial, it is also necessary to provide options that are nutritious in order to promote healthier lifestyles around the world. Exploring the Nutrition and Health Benefits of Functional Foods provides a comprehensive overview of how dietary nutrition can impact people’s lives, prevent disease, and maintain an overall healthier lifestyle. Highlighting theoretical and practical attributes of different functional foods and how they are utilized globally, this book is an essential reference for researchers, academics, students, policy makers, government officials, and technology developers.

Microbiology and Technology of Fermented Foods-Robert W. Hutkins 2008-02-28 While many food science programs offer courses in the microbiology and processing of fermented foods, no recently published texts exist that fully address the subject. Food fermentation professionals and researchers also have lacked a single book that covers the latest advances in biotechnology, bioprocessing, and microbial genetics, physiology, and taxonomy. In Microbiology and Technology of Fermented Foods, Robert Hutkins has written the first text on food fermentation microbiology in a generation. This authoritative volume also serves as a comprehensive and contemporary reference book. A brief history and evolution of microbiology and fermented foods, an overview of microorganisms involved in food fermentations, and their physiological and metabolic properties provide a foundation for the reader. How microorganisms are used to produce fermented foods and the development of a modern starter culture industry are also described. Successive chapters are devoted to the major fermented foods produced around the world with coverage including microbiological and technological features for manufacture of these foods: Cultured Dairy Products Cheese Meat Fermentation Fermented Vegetables Bread Fermentation Beer Fermentation Wine Fermentation Vinegar Fermentation Fermentation of Foods in the Orient Examples of industrial processes, key historical events, new discoveries in microbiology, anecdotal materials, case studies, and other key information are highlighted throughout the book. Comprehensively written in a style that encourages critical thinking, Microbiology and Technology of Fermented Foods will appeal to anyone dealing in food fermentation – students, professors, researchers, and industry professionals.

Marine Pharmacognosy-Se-Kwon Kim 2012-12-06 Diverse and abundant, marine-derived bioactive compounds offer a plethora of pharmacologically active agents with the potential to produce valuable therapeutic entities. Marine-derived organisms, including some macroalgae, microalgae, blue-green algae, invertebrates, and vertebrates-valued in traditional Chinese medicine since ancient times-are now

Surface Coating and Modification of Metallic Biomaterials-Cuie Wen 2015-03-31 Despite advances in alternative materials, metals are still the biomaterial of choice for a number of clinical applications such as dental, orthopedic and cardiac implants. However, there are a number of intrinsic problems associated with implanting metal in the biological environment, such as wear, corrosion, biocompatibility and toxicity, which must be addressed. Modern technology has enabled scientists to modify metal surfaces or apply special coatings to metals to improve their performance safety. Surface Coating and Modification of Metallic Biomaterials will discuss the most important modification techniques and coatings for metals, first covering the fundamentals of metals as a biomaterial and then exploring surface modification techniques and coatings. An expansive overview of surface modification techniques for biomedical use In-depth exploration of issues arising from metal biomaterial use Includes examples of applications in a clinical setting

Marine Microorganisms-Leo M.L. Nollet 2016-09-19 The marine environment covers 70% of the earth’s surface and accounts for 98% of the potentially habitable space. The bioactives from marine microorganisms include antibiotic compounds, polysaccharides, inhibitors, enzymes, peptides, and pigments. These are used in various fields of biology that range from nutraceuticals to cosmeceuticals. Recent scientific investigations have revealed that marine microbial compounds exhibit various beneficial biological effects, such as anti-inflammatory, anti-cancer, anti-HIV, anti-hypertensive, and anti-diabetic. Marine Microorganisms: Extraction and Analysis of Bioactive Compounds sheds light on the extraction, clean-up, and detection methods of major compounds from marine organisms. The book includes information on the different classes of marine microorganisms and the different bioactives that can be extracted from bacteria, fungi and microalgae. Divided into 7 chapters, the book covers bioactive marine natural products, such as marine microbes, seaweeds, and marine sponges as potential sources of drug discovery, and focuses on analysis methods of the biocomponents from marine microorganisms. A useful reference tool for researchers and students, this book provides current knowledge about isolation and analysis methods of the bioactives and provides insight into the various bioactives of marine microbes toward nutraceutical and pharmaceutical development.

The Marine Microbiome-Lucas J. Stal 2016-06-03 This book describes the state-of-the-art concerning the ‘marine microbiome’ and its uses in biotechnology. The first part discusses the diversity and ecology of marine microorganisms and viruses, including all three domains of life: Bacteria, Archaea, and Eukarya. It discusses whether marine microorganisms exist and, if so, why they might be unique. The second part presents selected marine habitats, their inhabitants and how they influence biogeochemical cycles, while the third discusses the utilization of marine microbial resources, including legal aspects, dissemination, and public awareness. The marine microbiome is the total of microorganisms and viruses in the ocean and seas and in any connected environment, including the seafloor and marine animals and plants. The diversity of microbial life remains unquantified and largely unknown, and could represent a hidden treasure for human society. Accordingly, this book is also intended to connect academics and industry, providing essential information for microbiologists from both fields.

Exploring Parasite Genomes-David Rollinson 1999-12-09 Summarises the current state of various parasite genome projects and the bioinformatics of parasite genome analysis.

Biotechnological Production of Bioactive Compounds-Madan L. Verma 2019-07-20 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

Microbial Secondary Metabolites: Recent Developments and Technological Challenges-Bhim Pratap Singh 2019-08-02 Research on microbes plays an essential role in the improvement of biotechnological and biomedical areas. It has turned into a subject of expanding significance as new organisms and their related biomolecules are being characterized for several applications in health and agriculture. Microbial biomolecules confer the ability of microbes to cope with a range of adverse conditions. However, these biomolecules have several advantages over the plant origin, which makes them a suitable target in drug discovery and development. The reasons could be that microbial sources can be genetically engineered to enhance the production of desired natural production by large-scale fermentation. The interaction between microbes and their biotic and abiotic environment is fundamental to numerous processes taking place in the biosphere. The natural environments and hosts of these microorganisms are extremely diverse being reflected by the fact that microbes are widespread and occur in nearly every biological community on Earth. This metabolic versatility makes microbes interesting objects for a range of economically important biotechnological applications. Most of the biotechniques are established but inefficient genetic engineering strategies are still a bottleneck for selected microbe producing industrial scale biomolecules. Therefore, untapped microbial biodiversity and related metablomics, give a noteworthy wellspring of biologicals for the advancement of meds, immunizations, enhanced plants and for other natural applications. The present eBook volume contains articles on microbial secondary metabolites, microbial biosynthetic potential including biosynthetic gene expression, and metagenomics obtained from microorganism isolated unique from habitats like marine sources, endophytes, thermal springs, deserts, etc.

Drug Discovery from Natural Products-Olga Genilloud 2012 An integrated review of the most recent trends in natural products drug discovery and key lead candidates that are outstanding for their chemistry and biology in novel drug development.

Antioxidants in Foods and Its Applications-Emad Shalaby 2018-07-11 Free radicals are atoms or molecules containing unpaired electrons. Damage occurs when the free radical encounters another molecule and seeks to find another electron to pair its unpaired electron. Free radicals can cause mutation in different biological compounds such as protein, nucleic acids, and lipids, and the damage caused by the free radicals lead to various diseases (cancer, cardiovascular disease, aging, etc.). Antioxidants are helpful in reducing and preventing damage from free radical reactions because of their ability to donate electrons, which neutralize the radical without forming another. Ascorbic acid, for example, can lose an electron to a free radical and remain stable itself by passing its unstable electron around the antioxidant molecule. Unfortunately, new data indicate that the synthetic antioxidants used in the industry could have carcinogenic effects on human cells, thus fueling an intense search for new, natural, and efficient antioxidants. Therefore, the current book discusses the role and source of antioxidant compounds in nutrition and diets. Also, the current book includes nine chapters contributed by experts around the world, and the chapters are categorized into two sections: "Antioxidant Compounds and Biological Activities" and "Natural Antioxidants and Applications."

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