

## Marine Nutraceuticals And Functional Foods Crnetchbase

Bioactive Lipids presents bioactive lipids from a functional food development perspective. This book provides a direct line of information to the reader regarding bioactive lipids from a nutraceuticals and functional foods development perspective. Included case studies enable readers to understand the potential of several dietary lipids and the possibilities regarding their incorporation into several food matrices. Researchers, lecturers and students from the food science and technology and nutrition fields will find this book to be extremely useful in their work. Reviews the health benefits of several lipids and dietary sources, providing bioactive targets for therapeutical purposes Provides readers with the necessary tools for the development of new lines of research for supporting ongoing investigations with solutions for existing challenges Includes case studies to present solutions for bioactive lipids incorporation into food matrices, and consequently to functional foods and nutraceuticals development

There is a great deal of consumer interest in natural bioactive substances due to their health benefits. Offering the potential to provide valuable nutraceuticals and functional food ingredients, marine-derived compounds are an abundant source of nutritionally and pharmacologically active agents, with both chemical diversity and complexity. Functional ingredients derived from marine algae, invertebrates, vertebrates, and microorganisms can help fill the need for novel bioactives to treat chronic conditions such as cancer, microbial infections, and inflammatory processes. With contributions from an international group of experts, Marine Nutraceuticals: Prospects and Perspectives provides a comprehensive account of marine-derived nutraceuticals and their potential health benefits. These include antioxidant, anticancer, antiviral, anticoagulant, antidiabetic, antiallergic, anti-inflammatory, antihypertensive, antibacterial, and radioprotective properties. The book focuses on various types of marine-derived compounds—such as secondary metabolites like phlorotannins and fucoxanthin, carotenoid pigments, chito-oligosaccharide derivatives from chitin and chitosan, bioactive peptides, and polysaccharides—presenting an overview of their nutraceutical activities. Chapters address neuroprotective properties of seaweeds, bioactive compounds in abalone, marine products and autoimmune disease, chitosan for weight management, anticancer actions of omega-3 fatty acids, chitosan in dentistry, and much more. The book discusses the sources, isolation and purification, chemistry, functional interactions, applications, and industrial perspectives of marine-derived nutraceuticals. The inaugural book in the new CRC Press series, Nutraceuticals: Basic Research/Clinical Applications, it provides a state-of-the-art reference for all readers interested in this growing field—a rich source for new compounds with promising uses in the nutraceutical, medicinal, and functional food industries.

Seafoods covers selected but vital topics of fish processing with an emphasis on quality, technology and nutraceutical applications in an up-to-date survey. The aspects of seafood quality covered range from the impact of slaughter procedures, through protein functionality, texture, flavour, histamine toxicity to the practical evaluation of quality and measurement. Technological aspects concentrate on automation in processing, waste-water treatment and reuse of scraps. Marine nutraceuticals/functional foods are discussed in detail. This book is highly recommended for scientists and technologists in the seafood industries, plus fish processing professionals, quality managers, and nutritionists..

Two of the most popular nutraceutical products on the market, omega-3 oil and glucosamine, were originally derived from waste products. Discarded oil from the manufacture of fishmeal became wildly popular as omega-3, a polyunsaturated fat, and the fully hydrolyzed chitosan from shrimp and crab shell, glucosamine, found wide use in joint health. Hundreds of tons of marine by-products are available annually and previous commercial success, together with an overall consumer interest in novel healthy food ingredients, are driving both research and commercialization in the area of marine nutraceuticals. Edited by pioneers in the field, Marine Nutraceuticals and Functional Foods details information on a variety of commercially available and newly developing value-added products. Beginning with an overview of current marine nutraceuticals, the book discusses the origin of omega-3 oils, their beneficial effects on brain health, and their stabilization and delivery into functional foods. It covers the derivation and use of chitin, chitosan, and partially hydrolyzed chitosan as fat- and cholesterol absorbing agents and provides a detailed review of the health benefits and methods for the production of glucosamine. Providing an overview of the ACE-inhibitory and blood pressure reducing properties of marine proteins, it considers the functional constituents of marine algae and seaweed, including its carotenoids, and examines the cancer preventing potential of shark cartilage. The book also analyzes the use of marine microorganisms as a renewable resource and marine sources of calcium. The final chapter describes the discovery and development of a novel immunoenhancing polysaccharide complex derived from the microalgae, Chlorella. An unparalleled single-source reference to the discovery, development, and use of value-added products from marine sources, Marine Nutraceuticals and Functional Foods provides the foundation for continuing the dramatic growth in this exciting field.

Applications in Functional Foods

Current Advances for Development of Functional Foods Modulating Inflammation and Oxidative Stress

The Food-to-supplement Paradigm

Marine Nutraceuticals

Marine Carbohydrates: Fundamentals and Applications, Part A

Therapeutic and Nutritional Uses of Algae

*Considered Mother Nature’s medicine cabinet in many areas of the world, marine organisms have been known from time immemorial to possess curative powers. But until recently, their bioactive compounds, nutraceutical properties, and commercial potential remained undiscovered. Bringing together widely scattered literature, Marine Products for Healthcare: Functional and Bioactive Nutraceutical Compounds from the Ocean discusses the importance of marine products as a source of nutraceuticals, food additives, and other useful ingredients in health protection and product formulation The book begins with a discussion of the general characteristics of functional foods and an overview of the functionality of marine fishery products. It includes detailed discussions on nutraceutical and other functional properties of their seafood components including proteins, bioactive peptides, polyunsaturated fatty acids, polysaccharides, chondroitin, carotenoids, minerals, and shell waste products. Other chapters examine the role of seaweeds as food supplements, additives, and bioactive compounds; microalgae and corals rich in nutrients, pigments, and therapeutic agents; and secondary metabolites of corals, particularly sponges, that have potential as lifesaving drugs. The book also explores recent developments in food fortification, packaging, and drug delivery systems with particular reference with marine ingredients and concludes with a delineation of the safety hazards posed by some marine products. The science of discovering health promoting compounds from marine sources and techniques for extracting and purifying these chemicals is advancing. More than just a review of the science and market base available for the development of marine nutraceutical/functional food, this book provides a greater understanding of how consumer attitude and legal concerns will impact the kind of products that can be made.*

*Marine Carbohydrates: Fundamentals and Applications brings together the diverse range of research in this important area which leads to clinical and industrialized products. The volume, number 73, focuses on marine carbohydrates in isolation, biological, and biomedical applications and provides the latest trends and developments on marine carbohydrates. Advances in Food and Nutrition Research recognizes the integral relationship between the food and nutritional sciences and brings together outstanding and comprehensive reviews that highlight this relationship. Volumes provide those in academia and industry with the latest information on emerging research in these constantly evolving sciences.*

*Innovative and Emerging Technologies in the Bio-marine Food Sector: Applications, Regulations, and Prospects presents the use of technologies and recent advances in the emerging marine food industry. Written by renowned scientists in the field, the book focuses primarily on the principles of application and the main technological developments achieved in recent years. It includes technological design, equipment and applications of these technologies in multiple processes. Extraction, preservation, microbiology and processing of food are extensively covered in the wide context of marine food products, including fish, crustaceans, seafood processing waste, seaweed, microalgae and other derived by-products. This is an interdisciplinary resource that highlights the potential of technology for multiple purposes in the marine food industry as these technological approaches represent a future alternative to develop more efficient industrial processes. Researchers and scientists in the areas of food microbiology, food chemistry, new product development, food processing, food technology, bio-process engineers in marine based industries and scientists in marine related areas will all find this a novel resource. Presents novel innovative technologies in the Bio-marine food sector, including principles, equipment, advantages, disadvantages, and future technological prospects Explores multi-purpose uses of technologies for extraction, functional food generation, food preservation, food microbiology and food processing Provides industrial applications tailored for the marine biological market to foster new innovative applications and regulatory requirements*

*Bioactive ingredients in foods and their pharmacological and health effects. Functional Foods and bioactives of microbial, plant and animal origin, including probiotics, herbs, spices, vegetables, specialty fruits, seafood and milk components. Impact on the microbiome, emerging metabolic pathways and prevention of chronic and infectious diseases.Techniques for functional food development and evaluation.Regulatory and safety considerations. This volume presents basic and advanced technical information on the sources, mechanisms and safety of food bioactives in the etiology and prevention of chronic and infectious diseases. In this context, it offers details useful not only for understanding but also improving the functionality of foods. It reviews advances in multiple phytochemicals and food ingredients known for positive effects on human physiology, including interactions with the human microbiome. Metabolomic and proteomic techniques are explored as ways of improving the understanding of mechanisms of action, and increasing the therapeutic effectiveness of selected food ingredients. Special attention is given to chemistry, molecular structure and pharmacological effects of bioactive ingredients. Bioactives from a wide range of foods are investigated, including pro- and prebiotics, fungi, yeasts, herbs, spices, fruits, vegetables, seafood and many more. The text provides systematic information needed to develop and validate commercial products incorporating functional ingredients.*

*Marine Products for Healthcare*

*Nutraceutical and Specialty Lipids and their Co-Products*

*Nutraceutical and Functional Food Regulations in the United States and Around the World*

*Natural Ingredients for Healthy Diets*

*Handbook of Nutraceuticals and Natural Products*

**This timely desk reference focuses on marine-derived bioactive substances which have biological, medical and industrial applications. The medicinal value of these marine natural products are assessed and discussed. Their function as a new and important resource in novel, anticancer drug discovery research is also presented in international contributions from several research groups. For example, the potential role of Spongistatin, Apratoin A, Eribulin mesylate, phlorotannins, fucoidan, as anticancer agents is explained. The mechanism of action of bioactive compounds present in marine algae, bacteria, fungus, sponges, seaweeds and other marine animals and plants are illustrated via several mechanisms. In addition, this handbook lists various compounds that are active candidates in chemoprevention and their target actions. The handbook also places into context the demand for anticancer nutraceuticals and their use as potential anti-cancer pharmaceuticals and medicines. This study of advanced and future types of natural compounds from marine sources is written to facilitate the understanding of Biotechnology and its application to marine natural product drug discovery research.**

**Marine Nutraceuticals and Functional FoodsCRC Press**

**The global market for seafood products continues to increase year by year. Food safety considerations are as crucial as ever in this sector, and higher standards of quality are demanded even as products are shipped greater distances around the world. The current global focus on the connection between diet and health drives growth in the industry and offers commercial opportunities on a number of fronts. There is great interest in the beneficial effects of marine functional compounds such as omega-3 polyunsaturated fatty acids. Seafoods are well-known as low calorie foods, and research continues into the nutritional effects on, for example, obesity and heart disease. In addition, by-products of marine food processing can be used in nutraceutical applications. This book is a resource for those interested in the latest advances in the science and technology of seafood quality and safety as well as new developments in the nutritional effects and applications of marine foods. It includes chapters on the practical evaluation of seafood quality; novel approaches in preservation techniques; flavour chemistry and analysis; textural quality and measurement; packaging; the control of food-borne pathogens and seafood toxins. New research on the health-related aspects of marine food intake are covered, as well as the use of seafoods as sources of bioactives and nutraceuticals. The book is directed at scientists and technologists in academia, government laboratories and the seafood industries, including quality managers, processors and sensory scientists. 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.**

**Functional Ingredients from Algae for Foods and Nutraceuticals**

**Nutraceutical Proteins and Peptides in Health and Disease**

**Bioactive Components, Formulations and Innovations**

**Applications, Regulations, and Prospects**

**Handbook of Seafood Quality, Safety and Health Applications**

**Volume 3: Functional Foods and Nutraceuticals**

Marine Carbohydrates: Fundamentals and Applications brings together the diverse range of research in this important area which leads to clinical and industrialized products. The volume, number 72, focuses on marine carbohydrates in isolation, biological, and biomedical applications and provides the latest trends and developments on marine carbohydrates. Advances in Food and Nutrition Research recognizes the integral relationship between the food and nutritional sciences and brings together outstanding and comprehensive reviews that highlight this relationship. Volumes provide those in academia and industry with the latest information on emerging research in these constantly evolving sciences.

This volume on medicinal foods from the sea narrates the bioactive principles of various marine floral (vertebrate and Invertebrate), faunal (Macro and Micro algal) and microbial sources. Contributions from eminent scientists worldwide explain about the latest advance implications in the development and application of marine originated functional foods, as potential pharmaceuticals and medicines for the benefit of humankind by meeting the present nutraceutical demands. The latest important information for food scientists and nutritionists Peer-reviewed articles by a panel of respected scientists The go-to series since 1948

An essential treatment of nutraceuticals and natural products, their preparation techniques, and applications In Handbook of Nutraceuticals and Natural Products: From Concepts to Application, a team of distinguished researchers delivers a one-stop resource describing the preparation techniques and functional uses of nutraceuticals and natural products with a focus on the technologies involved. The book includes coverage of the biological, medicinal, and nutritional properties and applications of functional foods, as well as the advanced technologies used in the extraction and functionalization of nano components and the nanomaterial and nanochemical aspects of the products. The authors discuss developmental research as well as user-level benefits of nutraceuticals and natural products and thoroughly review the market analyses, quality assurance processes, and regulations relevant to nutraceuticals and natural products. They also cover: Thorough introductions to nutraceuticals, functional foods, liposomal technology, prebiotics, and lycopene and its active drug delivery Comprehensive explorations of nutraceutical compounds from marine microalgae and poly lysine as an antimicrobial agent Practical discussions of a nutraceuticals approach to treating cancer-cachexia and early life nutrition and epigenetics In-depth examinations of encapsulation and delivery of nutraceuticals and bioactive compounds by nanoliposomes and tocosomes as promising nanocarriers Perfect for chemists, biochemists, food scientists, and materials scientists, Nutraceuticals and Natural Products: From Concepts to Application will also earn a place in the libraries of medical scientists working in academia or industry, as well as nutritionists, dietitians, and biochemistry graduate students studying nutraceuticals.

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

Natural Remedy

Algae for Food

Implications and Applications: Animals and Microbes

Nutraceuticals and Functional Foods in Human Health and Disease Prevention

Innovative and Emerging Technologies in the Bio-marine Food Sector

Functional Foods and Nutraceuticals in Metabolic and Non-communicable Diseases

*The three volumes in this handbook highlight new research and current trends in food science and technology, looking at the most recent innovations, emerging technologies, and strategies focusing on taking food design to sustainable levels. In particular, the handbook focuses on modernization in the food industry, sustainable packaging, food bioprocesses, food fermentation, food microbiology, functional foods and nutraceuticals, natural products, nano- and microtechnology, healthy product composition, innovative processes and bioprocesses for utilization of by-products, development of novel preservation alternatives, extending the shelf life of fresh products, alternative processes requiring less energy or water, among other topics. Volume 3 of the 3-volume set focuses on functional foods and nutraceuticals. The chapters examine nutraceuticals as treatment for cancer and neurodegenerative diseases, trends in functional food in noncommunicable diseases, synergism in food trends, bioactive peptides, agave fructans as a functional component in foods, and more.*

*Nutraceuticals are described as products extracted, purified or produced from a plant, animal or marine source (e.g. antioxidants from blueberries, elk velvet, fish oils), or produced from dried, powdered, or pressed plant material and demonstrated to have a physiological benefit, or to provide protection against chronic disease. Recent trends in functional foods and supplements have demonstrated that bioactive molecules play a major therapeutic role in human disease. Nutritionists and biomedical and food scientists are working together to discover new bioactive molecules that have increased potency and therapeutic benefits. Marine life constitutes almost 80% of the world biota with thousands of bioactive compounds and secondary metabolites derived from marine invertebrates such as tunicates, sponges, molluscs, bryozoans, sea slugs and many other marine organisms. Nutraceutical products have a highly competitive market and price compared with conventional therapies; in particular their market share is increasing in many regions including the United States of America (USA), Europe, Japan, Asia Pacific, Middle East and Latin America. Marine Nutraceuticals: Prospects and Perspectives covers the state of the art information on marine nutraceuticals substances and examines the current status and future potential of natural marine compounds. It discusses the sources, isolation and purification, chemistry, functional interactions, applications, and industrial perspectives of marine-derived nutraceuticals.The book summaries the widely available marine-based nutraceuticals and recent research carried out for the purposes of isolation, identification and characterization of marine-derived bioactive compounds with various therapeutic potentials. Marine nutraceuticals products represent a large portion of the global market and are derived from a diverse range of sources that provide a myriad of bioactive molecules. Marine sources have received great attention recently; research on marine-derived molecules has discovered new bioactive compounds with important properties increasing their applicability as nutraceuticals in the food and supplement industries.This book provides state-of-the-art tool for all readers interested in this growing field-a valuable source for new compounds with promising uses in the nutraceutical, medicinal, and functional food industries.*

*Functional foods and nutraceuticals, dietary supplements, and natural antioxidants have established their potential roles in the protection of human health against disease. Nutraceuticals and Functional Foods in Human Health and Disease Prevention examines the benefits, efficacy, and success of properly designed nutraceuticals and functional foods in human health and their possible application in disease prevention. The book demonstrates diverse disease pathophysiology and how nutraceuticals and functional food can be used to combat and prevent disease. The book discusses global food habits and trends, safety and toxicology, and how food addiction or overindulgence of food can lead to a variety of disease states. It then highlights how supplements help in disease prevention. Although a significant number of nutraceuticals and functional foods have demonstrated their efficacy, a large number of supplements are still surviving on false claims. Therefore, the editors underscore risks and benefits, and why government regulatory agencies are so critical of these nutraceutical supplements. With the global nutraceuticals market expected to reach \$204.8 billion by 2017, what once seemed a very niche sector has become big business. An overview of nutraceuticals and functional foods and their application in human health, this book exhaustively covers antioxidants, functional foods, and nutraceuticals in human health and disease prevention. With contributions from experts and pioneers, the book gives insight into the role of functional foods in optimal diet and exercise.*

*This book provides valuable coverage on various immunomodulatory research associated with nutraceutical studies, from plant to animal and marine sources. The book focuses on the various properties of nutraceutical and functional foods, from dietary fibers to fungus, marine sources, ginseng, and several others. Its content is also dedicated to the nutraceutical potential and applications of these modulators. The first section of this book focuses mainly on the recent developments in nutraceutical and functional food associated with various immunomodulators. The next section covers the micronutrients and macronutrients level in order to share important data and help readers gain a basic understanding of the techno-functional, nutraceutical potential and applications of nutritional treatment*

*under specific disease conditions. A detailed overview providing the structural and functional properties related to immunomodulators will be highly beneficial for academics and advanced-level students in immunology, food science, clinical medicine, and life sciences.*

*Handbook of Research on Food Science and Technology*

*Marine Nutraceuticals and Functional Foods*

*Functional and Bioactive Nutraceutical Compounds from the Ocean*

*Bioactive Proteins and Peptides as Functional Foods and Nutraceuticals*

*Concepts and Applications*

*Marine Medicinal Foods*

There is a great deal of consumer interest in natural bioactive substances due to their health benefits. Offering the potential to provide valuable nutraceuticals and functional food ingredients, marine-derived compounds are an abundant source of nutritionally and pharmacologically active agents, with both chemical diversity and complexity. Functio

Most foods are considered functional in terms of providing nutrients and/or energy to sustain basic life, but nutraceuticals and functional foods are defined dietary foods that prevent or reverse a diseased state. Nutraceuticals and functional foods are intensively researched for their role in maintaining health and prevention of diseases. Increasing public awareness of the link between diet and health has boosted the consumption of these foods to unparalleled levels, particularly in countries where the population is ageing and health care costs are rising. The science behind these foods is growing rapidly not only because of the increasing number of new substances or type of novel foods, but also the regulatory bodies requiring more and more evidence on efficacy, mode-of-action and safety. The nutraceuticals market is growing rapidly, with a 2016 forecast value of \$207 billion, according to a new report available on [companiesandmarkets.com](http://companiesandmarkets.com). The latest trend in nutraceuticals and functional foods sector has been the recovery of nutraceuticals from discarded fruits and vegetables. For example, a wave of possible new functional ingredients is being developed by the Irish Agriculture and Food Development Authority (Teagasc), some of which are derived from waste products. One of their findings has shown that onion peels, a common by-product of food processing, have a higher antioxidant activity than their flesh. Onions are rich in quercetin, a potent antioxidant, also found in apples, berries and other vegetables. This has opened a completely new research area by deriving the potentially important nutraceuticals and functional foods in much higher concentrations than their principal parts. In fact, this would bring in the verbatim of sustainable nutraceutical and functional food sector by putting the focus on the valuable wastes and their value-addition.

Marine Antioxidants: Preparations, Syntheses, and Applications provides the most updated and comprehensive knowledge on utilizing marine-derived substances for cosmeceutical, pharmaceutical, and nutraceutical developments. This book will deliver the isolation procedures and biological activity of marine-derived antioxidant substances. This book is written by international experts on the antioxidant material from actinobacteria, crustaceans, diatoms, fish, microalgae, microbes, and mangrove-associated marine organisms and seagrasses. It details marine-derived bioactive antioxidants substances are in the form of proteins, peptides, polysaccharides, lipids. In addition, the book also provides the latest information on the mechanistic pathways of antioxidant substances with various diseases and nutritional perspectives. Marine Antioxidants: Preparations, Syntheses, and Applications is an essential resource for marine biotechnologists and marine biologists who want to better understand isolation procedures and antioxidant applications. Researchers interested in pharmaceutical nutrients, polymer science, and cosmeceuticals industries scientists, as well as students and academics, will also benefit from this book. Explores under-utilized marine products for commercial applications Offers isolated information and biological applications of each identified marine antioxidant Discusses the latest approaches to treatments of diseases, such as diabetes, arthritis, and cancer, using marine resources

Functional foods and nutraceuticals have received considerable interest in the past decade largely due to increasing consumer awareness of the health benefits associated with food. Diet in human health is no longer a matter of simple nutrition: consumers are more proactive and increasingly interested in the health benefits of functional foods and their role in the prevention of illness and chronic conditions. This, combined with an aging population that focuses not only on longevity but also quality of life, has created a market for functional foods and nutraceuticals. A fully updated and revised second edition, Genomics, Proteomics and Metabolomics in Nutraceuticals and Functional Foods reflects the recent upsurge in "omics" technologies and features 48 chapters that cover topics including genomics, proteomics, metabolomics, epigenetics, peptidomics, nutrigenomics and human health, transcriptomics, nutriethics and nanotechnology. This cutting-edge volume, written by a panel of experts from around the globe reviews the latest developments in the field with an emphasis on the application of these novel technologies to functional foods and nutraceuticals.

Cultivation, Processing and Nutritional Benefits

Bioactive Lipids

Prospects and Perspectives

Preparations, Syntheses, and Applications

Functional Foods and Nutraceuticals

Quality, Technology and Nutraceutical Applications

This book addresses new applications of omega-3 fatty acids from both plant and marine sources in food supplements and pharmaceuticals and covers three basic areas: structure and function, production and processing, and health effects. The authors review the latest clinical evidence on the impact of consumption of omega-3 polyunsaturated fatty acids on prevalent human diseases such as inflammation-related illnesses in general and cardiovascular illnesses in particular. They also examine technologies to purify marine oils and protect them against oxidation as well as novel techniques for their incorporation into foods. Covers the role omega-3 plays in general health and disease and includes several reviews on the latest clinical evidence Explains different methods to deliver omega-3 to the consumer, through various methods including food fortification, nutritional supplements, and more Considerations for the processing of omega-3 oils to minimize conditions that could destroy the nutritional properties.

Nutraceutical and Functional Food Components: Effects of Innovative Processing Techniques, Second Edition highlights the impact of recent food industry advances on the nutritional value, functional properties, applications, bioavailability, and bioaccessibility of food components. This second edition also assesses shelf-life, sensory characteristics, and the profile of food products. Covering the most important groups of food components, including lipids, proteins, peptides and amino acids, carbohydrates, dietary fiber, polyphenols, carotenoids, vitamins, aromatic compounds, minerals, glucosinolates, enzymes, this book addresses processing methods for each. Food scientists, technologists, researchers, nutritionists, engineers and chemists, agricultural scientists, other professionals working in the food industry, as well as students studying related fields, will benefit from this updated reference. Focuses on nutritional value, functional properties, applications, bioavailability and bioaccessibility of food components Covers food components by describing the effects of thermal and non-thermal technologies Addresses shelf-life, sensory characteristics and health claims

Functional Foods and Nutraceuticals in Metabolic and Non-communicable Diseases presents strategies for the prevention of non-communicable diseases and undernutrition through the use of functional foods and nutraceuticals. Research has shown that the use of certain functional foods and nutraceuticals, including spices, herbs, and millets, animal foods and plant foods can play a role in the treatment and prevention of various diseases and in health promotion. Finally, the book explores epigenetic modulation as a new method for the development of functional foods and functional farming. Intended for nutritionists, food scientists and those working in related health science professions, this book contributes to the discussions focused on nutritional transition, globalization, how to administer foods in the treatment of metabolic syndrome, hypertension, diabetes, heart attacks, neuropsychiatric disorders, bone and joint diseases, and carcinogenesis. Places emphasis on food diversity to provide perfect combinations of nutritional ingredients Presents the utility and necessity of functional food production for health promotion Offers suggestions to increase functional food production while simultaneously decreasing production costs

Algae have a long history of use as foods and for the production of food ingredients. There is also increasing interest in their exploitation as sources of bioactive compounds for use in functional foods and nutraceuticals. Functional ingredients from algae for foods and nutraceuticals reviews key topics in these areas, encompassing both macroalgae (seaweeds) and microalgae. After a chapter introducing the concept of algae as a source of biologically active ingredients for the formulation of functional foods and nutraceuticals, part one explores the structure and occurrence of the major algal components. Chapters discuss the chemical structures of algal polysaccharides, algal lipids, fatty acids and sterols, algal proteins, phlorotannins, and pigments and minor compounds. Part two highlights biological properties of algae and algal components and includes chapters on the antioxidant properties of algal components, anticancer agents derived from marine algae, anti-obesity and anti-diabetic activities of algae, and algae and cardiovascular health. Chapters in part three focus on the extraction of compounds and fractions from algae and cover conventional and alternative technologies for the production of algal polysaccharides. Further chapters discuss enzymatic extraction, subcritical water extraction and supercritical CO2 extraction of bioactives from algae, and ultrasonic- and microwave-assisted extraction and modification of algal components. Finally, chapters in part four explore applications of algae and algal components in foods, functional foods and nutraceuticals including the design of healthier foods and beverages containing whole algae, prebiotic properties of algae and algae-supplemented products, algal hydrocolloids for the production and delivery of probiotic bacteria, and cosmeceuticals from algae. Functional ingredients from algae for foods and nutraceuticals is a comprehensive resource for chemists, chemical engineers and medical researchers with an interest in algae and those in the algaculture, food and nutraceutical industries interested in the commercialisation of products made from algae. Provides an overview of the major compounds in algae, considering both macroalgae (seaweeds) and microalgae Discusses methods for the extraction of bioactives from algae Describes the use of algae and products derived from them in the food and nutraceutical industries

Omega-3 Oils

Genomics, Proteomics and Metabolomics in Nutraceuticals and Functional Foods

Marine Carbohydrates: Fundamentals and Applications, Part B

Nutraceutical and Functional Food Components

Nutraceuticals and Functional Foods

Nutraceuticals and Functional Foods in Immunomodulators

*Reports of the beneficial health effects of some peptides have begun to make their way into the scientific literature. Peptides can act as immunomodulators, and have been shown to have a positive influence on calcium absorption, and on regulation of serum cholesterol. A number of peptides may also possess antimicrobial properties that enhance the body's defense mechanisms, and others may produce inhibitory effects for angiotensin-1-converting enzyme (ACE), leading to novel treatments for blood pressure conditions, heart failure, and diabetes. Modern food biotechnology may also allow for the production of highly important products for those suffering life-altering food allergies. A compendium of cutting-edge information for research scientists and clinicians Nutraceutical Proteins and Peptides in Health and Disease is the first book that provides comprehensive discussions on bioactive proteins and peptides in the area of nutraceutical and functional foods. It looks at protein and peptide impact on the body's absorption, defense, regulating, and nervous systems, then delves into hypo-allergenic foods and modern approaches to nutraceutical research and production. With 32 chapters written by 63 scientists working at the frontier of this revolutionizing field, it includes state-of-the-art information on-- The cholesterol-lowering capabilities of proteins and peptides Opioid-like peptides The antibodies found in milk and egg yolks Enzymes derived from traditional Asian fermented foods found useful in novel thrombolytic therapy ACE-inhibitory peptides Enzymatic treatments used to create anti-allergenic food Recent developments in proteomics that are making certain processes economically feasible, including those employed in the binding of bioactive peptides Nutraceutical Proteins and Peptides in Health and Disease provides a compendium of cutting-edge information that can be put to direct use in research, therapy, and production. Biochemists, nutritional scientists, food scientists, and health professionals, as well as graduate students in these fields, will find this book highly useful.*

*"Functional food or medicinal food is any fresh or processed food claimed to have a health-promoting and/or disease-preventing property beyond the basic nutritional function of supplying nutrients, although there is no consensus on an exact definition of the term. This is an emerging field in food science, in which such foods are usually accompanied by health claims for marketing purposes, such as a company's 'cereal is a significant source of fiber. Studies have shown that an increased amount of fiber in one's diet can decrease the risk of certain types of cancer in individuals.' Functional foods are sometimes called nutraceuticals, a portmanteau of nutrition and pharmaceutical, and can include food that has been genetically modified. The general category includes processed food made from functional food ingredients, or fortified with health-promoting additives, like "vitamin-enriched" products, and also fresh foods (e.g., vegetables) that have specific claims attached. Fermented foods with live cultures are often also considered to be functional foods with probiotic benefits."*

*This fully revised and updated edition begins with insights into the scope, importance and continuing growth opportunities in the nutraceutical and functional food industries and explores the latest regulatory changes and their impacts. The book demonstrates the global scenario of the acceptance and demand for these products and explores the regulatory hurdles and claim substantiation of these foods and dietary supplements, as well as addressing the intricate aspects of manufacturing procedures. As the public gains confidence in the quality of these products based on sophisticated quality control, a broad spectrum of safety studies and GRAS, peer-reviewed publications and cutting-edge human clinical studies have emerged. An increasing number of additional populations around-the-world now recognize the efficacy and functions of nutraceuticals and functional foods as established by those scientific research studies. As a result, a number of structurally and functionally active novel nutraceuticals and several new functional beverages have been introduced into the marketplace around the world. Features fully revised and updated information with current regulations from around the world, including GRAS status and DSHEA regulators Offers 45% new content including three new chapters –NSF: Ensuring the Public Health and Safety Aspects of Nutraceuticals and Functional Foods; Role of the United States Pharmacopoeia in the Establishment of Nutraceuticals and Functional Food Safety; An Overview on the New Dietary Ingredient (NDI) and Generally Recognized as Safe (GRAS) Status, and the addition of cGMP regulations for dietary supplements Includes insight into working with regulatory agencies, processes and procedures Provides a link to the contact information for most regulatory bodies for readers wishing to gain further knowledge*

*Algae for Food: Cultivation, Processing and Nutritional Benefits Algae are a primitive, living photosynthetic form and they are the oldest living organism. In the marine ecosystem, algae are the primary producers that supply energy required to a diverse marine organism and especially seaweed provides a habitat for invertebrates and fishes. There have been significant advances in many areas of phycology. This book describes the advances related to food and nutrition of algae achieved during the last decades, it also identifies gaps in the present knowledge and needs for the future. The 17 chapters, grouped into 6 parts, are written by phycologists. More insight on industrial exploitation of algae and their products is supported by current studies and will help academia. The first part explains new technologies to improve the microalgal biomass, strain improvement and different methods of seaweed cultivation. In the second part, food and nutraceutical applications of algae, food safety aspects, green nanotechnology and formulation methods for the extraction and isolation of algal functional foods are described. The third part deals with pigments and carotenoids while the fourth part exploits the isolation and application of hydrocolloids, nutritional implications of algal polysaccharides and the characterization and bioactivity of fucoidans. In the fifth part, the biomedical potential of seaweed followed by agricultural applications of algae are well described. The book is an important resource for scholars that provides knowledge on wide range of topics. Key Features Covers important fields of algae from biomass production to genetic engineering aspects of algae Useful in the field of algal biotechnology, aquaculture, marine micro and macrobiology, microbial biotechnology and bioprocess technology Focuses on the therapeutic and nutritional areas of algae*

Seafoods

Nutraceuticals and Human Health

Enhancing the Therapeutic Efficacy of Herbal Formulations

Flavors for Nutraceutical and Functional Foods

Handbook of Anticancer Drugs from Marine Origin

Marine Antioxidants

Algae have been used since ancient times as food, fodder, fertilizer and as source of medicine. Nowadays seaweeds represent an unlimited source of the raw materials used in pharmaceutical, food industries, medicine and cosmetics. They are nutritionally valuable as fresh or dried vegetables, or as ingredients in a wide variety of prepared foods. In particular, seaweeds contain significant quantities of protein, lipids, minerals and vitamins. There is limited information about the role of algae and algal metabolites in medicine. Only a few taxa have been studied for their use in medicine. Many traditional cultures report curative powers from selected alga, in particular tropical and subtropical marine forms. This is especially true in the maritime areas of Asia, where the sea plays a significant role in daily activities. Nonetheless, at present, only a few genera and species of algae are involved in aspects of medicine and therapy. Beneficial uses of algae or algal products include those that may mimic specific manifestations of human diseases, production of antibiotic compounds, or improvement of human nutrition in obstetrics, dental research, thalassotherapy, and forensic medicine.

Novel drug delivery systems cover the approaches, formulation, technologies, and modes for transporting any pharmaceutical compound throughout the body to safely get the desired effect. A growing area of research is the use of herbal formulations for disease therapy. In combining these two areas of research, that of novel drug delivery systems and that of herbal formulations, the usefulness of herbs is not only proved but its future applications and effectiveness are studied. The move towards herbal-based novel drug delivery systems can benefit society in a multitude of advantageous ways. Enhancing the Therapeutic Efficacy of Herbal Formulations discusses and explores the ways of preparing herbal formulations loaded in novel drug delivery systems and the resultant improvement in efficacy of the effected drugs/herbs already available on the market. The chapters will highlight traditional and herbal formulations, the effects of novel drug delivery systems on herbal formulations, and the safe and effective preparation and effects of herbal formulations as a therapeutic intervention. This book is ideal for pharmacists, doctors, and researchers specializing in herbal therapeutics, along with practitioners, researchers, academicians, and students interested in how herbal-based novel drug delivery systems can benefit society.

Bioactive Seaweed Substances for Functional Food Applications: Natural Ingredients for Healthy Diets presents various types of bioactive seaweed substances and introduces their applications in functional food products. Presenting summaries of the substances derived from seaweed, this book systematically explores new ingredients and the bioactive substances that are both environmentally friendly and highly beneficial to human health. This evidence-based resource offers an abundance of information on the applications of seaweed as a solution to meet an increasing global demand for sustainable food sources. It is an essential reference for anyone involved in seaweed substance research, seaweed processing, and food and health disciplines. Discusses the use of bioactive seaweed substances as a new class of food ingredients Outlines the use of seaweed as gelling agents used for food restructuring, coating and encapsulation Systematically explores new ingredients and the bioactive substances that are both environmentally friendly and highly beneficial to human health

Nutraceuticals is a broad umbrella term used to describe any product derived from food sources with extra health benefits in addition to the basic nutritional value found in foods. This book is a comprehensive look at two themes in the area: technical and biological considerations. Technical considerations include an in-depth look at the process of bioactive identification and extraction and factors controlling bioactive concentrations in food. It also includes details of how these products are regulated and the steps necessary to utilize these products in human populations. Biological considerations include looking at how these products can be used in the prevention and treatment of chronic diseases, and a discussion on the process of formulations and how these influence bioavailability. This will be the first book to comprehensively examine the entire process of nutraceutical development from food to supplement creation and all the important considerations in between. This serves as an excellent and up-to-date reference for food scientists, food chemists, researchers in nutraceuticals and human nutrition.

Effects of Innovative Processing Techniques

Functional Foods, Nutraceuticals and Natural Products

#### **Bioactive Seaweeds for Food Applications**

**Bioactive Proteins and Peptides as Functional Foods and Nutraceuticals** highlights recent developments of nutraceutical proteins and peptides for the promotion of human health. The book considers fundamental concepts and structure-activity relations for the major classes of nutraceutical proteins and peptides. Coverage includes functional proteins and peptides from numerous sources including: soy, Pacific hake, bovine muscle, peas, wheat, fermented milk, eggs, casein, fish collagen, bovine lactoferrin, and rice. The international panel of experts from industry and academia also reviews current applications and future opportunities within the nutraceutical proteins and peptides sector.

Flavors are an integral part of nutraceutical formulations. Flavors offer significant advantage to Nutraceuticals when it comes to palatability and get an edge over other products in an extremely competitive nutraceutical market. Flavors for Nutraceuticals and Functional Foods addresses different natural ingredients/botanicals used in various functional foods and nutraceutical products. The techniques of incorporating flavors in Nutraceutical products can be classified as conventional and using recently developed modern techniques such as nanotechnology are also covered in different chapters. These techniques are mainly used for masking the taste of nutraceutical and functional food products. The book discusses the basics of flavors and the significance of the flavor industry in relation to Nutraceuticals. This book covers various processes involved in incorporating flavor and improving product acceptability. It provides an overview on the potential applications of the main terpene based flavors as part of nutraceuticals formulations. This book will serve as a reference to academicians and industry people who are involved in Nutraceutical formulations and marketing.

While certain saturated and trans fats continue to face scrutiny as health hazards, new evidence indicates that, in addition to supplying foods with flavor and texture, fats also provide us with dietary components that are absolutely critical to our well-being. The importance of essential fatty acids and fat-soluble vitamins and other minor components delivered by lipids is well known, as are the benefits and essentiality of long-chain omega-3 and omega-6 fatty acids. And now, with new research connecting lipids to heart health, mental health, and brain and retina development, the market has responded by providing health-conscious consumers with lipid foods, including spreads, breads, cereals, juices, and dairy products. Nutraceutical and Specialty Lipids and their Co-Products presents a thorough assessment of the current state of the chemistry, nutrition, and health aspects of specialty fats and oils. Fereidoon Shahidi, editor-in-chief of the Journal of Food Lipids and a past chair and co-founder of the Nutraceuticals and Functional Foods Division of the Institute of Food Technologists, brings together top researchers to address the potential application and delivery of lipids in functional foods. Sharing much of their own research, they offer an unparalleled view of the field that covers basic lipid chemistry, as well as the most progressive findings concerning the nutritional value of beneficial lipids. They include research on cereal grain, marine, fruit seed, and tree nut oils, as well as oilseed medicinals, fat replacers, and many other sources of lipids. They also consider stability issues and the latest tools being used for lipids purification. Covering the full range of these essential diet components, this cutting-edge volume serves to meet the needs of scientists and students in research and product development, as well as health and nutrition specialists.