Nutraceuticals Woodhead Publishing Series In Food Science Technology

Function Ingredients From Algae For Foods And Nutraceuticals Woodhead Publishing Series In Food Science Technology And Nutrition

Natural Products from Marine Algae: Scientific Literature Reviews on Generally Recognized as Safe (GRAS) Food Ingredients, AlgaeAlgal Biorefinery: An Integrated Approach Algal Biorefinery Basic Protocols in Encapsulation of Food Ingredients in the Field of Food and Agricultural Techniques and Delivery Systems for Food Ingredients and Nutraceuticals Marine Nutraceuticals and Functional FoodHandbook of Research on Food Science and Technology Cultured Microalgae for the Food Industry Handbook of Marine MacroalgaeControl Techniques Drives and Controls Handbook Therapeutic and Nutritional Uses of Algae Marine Functional Food and Microalgae Handbook of Microalgae and Macroalgae Composites The Role of Alternative and Innovative Food Ingredients and Products in Consumer Wellness Innovative and Emerging Technologies in the Bio-marine Food Sector Marine Nutraceuticals Microalgae Biotechnology for Food, Health and High Value Products Microalgae Biotechnology: Marine Phenolics Foodomics Bioactive Seaweeds for Food Applications Functional Ingredients from Algae for Foods and Nutraceuticals Algae for Food Biological Activities of Active Ingredients from Green Macroalgae Bioactive Marine Algal In Wastewater Treatment Algae: Biomaterials Fermented Foods Part II Single Cell Oils: Seaweed Sustainability Handbook of Food Proteins Recent Advances in Micro- and Macroalgae Processing Bioactive Compounds from Marine Foods Functional Ingredients from Algae for Foods and Nutraceuticals Handbook of Algal Technologies and Phytochemicals "Microalgae Biotechnology for Food, Health and High Value Products" presents the latest technological innovations in microalgae production, market status of algal biomass-based products, and future prospects for microalgae applications. It provides stimulating overviews from different perspectives of application that demonstrate how rapidly the commercial production of microalgae-based food, health and high value products is advancing. It also addresses a range of open questions and challenges in this field. The book highlights the latest advances of interest to those already working in the field, while providing a valuable resource for those readers beginning to explore the potential of microalgae as a sustainable source of both specialty and commercial products. It offers a valuable asset for commercial algae producers, algae product developers, scientific researchers and students who are dedicated to the advancement of microalgae biotechnology for applications in health, diet, nutrition, cosmetics, biomaterials etc. This book, research on seaweed's aspects of health, sea vegetables and seaweeds as ingredients in functional foods and consumer acceptance of (marine) functional food. Algae are very simple chlorophyll-containing thallophytic aquatic plants which lack leaves, stems, roots, vascular systems and sexual organs of higher plants. There are wide range of compounds that are used or could be potentially employed as functional ingredients from green macroalgae. The authors develop the book focusing on the chemical and structural nature of seaweeds the book brings the potentially valuable bioactive nature to the fore. Novel compounds isolated from seaweeds are reviewed to provide an invaluable reference for anyone working in the field. Two of the most popular nutraceuticals 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

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File Type PDF Functional Ingredients From Algae For Foods And Nutraceuticals

Nutritional and 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 marine microalgae, marine sponges and marine sponges as a resource of food ingredients. It further 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, Nutraceuticals and Functional Foods provides the foundation for continuing the dramatic growth in this area. Part of The Nutraceuticals Series, this volume provides information series of the most promising functional ingredients derived from marine foods, enabling researchers and product developers to select appropriate functional ingredients for new products. Chapters cover foods and ingredients from both animal and plant marine sources, focusing on those which demonstrate biological properties and whose constituent compounds have been isolated and identified in the past. The book also pays particular attention to the anaerobic digestion-based and Organosolv biorefineries. The last part of the book is devoted to the potential of chemicals from marine sources for health benefits. Each chapter, written by expert contributors from around the world, includes a Dictionary of Terms, Key Facts, Summary Points, Figures and Tables, as well as up-to-date references. This book will be an important resource for students, nutritionists, physicians, scientists, environmentalists, pharmacists and nutritionists, to one platform to explore the beneficial aspects and challenges for an algal-based biorefinery. Chapters address cutting-edge issues surrounding algal cultivation, including genetic modifications of algal strains, design and optimization of photobioreactors and open-pond systems, algal oil extraction techniques for biodiesel (from microalgal, jet fuels and biocompatible) oils). Finally, the book considers the potential environmental impacts for establishing a sustainable algal biorefinery through lifecycle analysis, techno-economic assessment and supply chain management. This book will be an important resource for students, academics and professionals interested in algal cultivation, biofuels and agricultural engineering, and renewable energy and sustainability: Food and Health: Functionality: Applications Includes a wide range of micro and macro algae for food and feed production and provides perspectives on seaweed farming for sustainability. In addition to harvesting and processing information, the book discusses the potential of seaweed in human nutrition and its nutraceutical properties. Offers different perspectives by presenting examples of commercial utilization of wild-harvested or cultivated algae, marine and freshwater seaweeds Discusses seasonal and cultivar variations in seaweeds for a better understanding of their implications in commercial applications Includes a wide range of micro and macro algae for food and feed production and provides perspectives on seaweed farming for sustainability. This book enables readers to understand the theoretical aspects, key steps and scientific techniques with a detailed mechanism to produce biofuels from algae. Each chapter provides the latest developments and recent advancements starting from algal cultivation techniques to the production of value-added green fuels. This book brings together contributions from both national and international experts, including chemical and biological engineers, biotechnologists, process engineers, environmentalists, pharmacists and nutritionists, to one platform to explore the beneficial aspects and challenges for an algal-based biorefinery. Chapters address cutting-edge issues surrounding algal cultivation, including genetic modification of algal strains, design and optimization of photobioreactors and open-pond systems, algal oil extraction techniques for biodiesel (from microalgal, jet fuels and biocompatible) oils). Finally, the book considers the potential environmental impacts for establishing a sustainable algal biorefinery through lifecycle analysis, techno-economic assessment and supply chain management. This book will be an important resource for students, academics and professionals interested in algal cultivation, biofuels and agricultural engineering, and renewable energy and sustainability: Food and Health: Functionality: Applications The rapidly emerging field of foodomics examines food and nutrition by applying advanced “-omics” technologies in order to improve people’s health, well-being, and knowledge. Using tools from genomics, transcriptomics, epigenomics, proteomics, and metabolomics, foodomics offers researchers new analytical approaches to solve a myriad of current challenges in nutrition and food science research. This book offers an overview of foodomics principles and applications. Next, the book covers: Modern instruments and methods of proteomics, including the study and characterization of food quality, antioxidant food supplements, and food allergens Advanced mass spectrometry-based methods to study transgenic foods and the microbial metabolome Mass spectrometry-based metabolomics in nutrition and health research Foodomics’ impact on our current understanding of micronutrients (phenolic compounds and folates), optimal nutrition, and personalized nutrition and diet related diseases Principles and practices of lipidomics and green foodomics Use of chemometrics in mass spectrometry and foodomics The final chapter of Foodomics explores the potential of systems biology approaches in food and nutrition research. All the chapters conclude with references to the primary literature, enabling readers to explore individual topics in greater depth. With contributions from a team of leading pioneers in foodomics, this book enables students and professionals in food science and nutrition to take advantage of the latest tools to advance their research and open up new areas of food and nutrition investigation. This book offers a comprehensive review on biomass resources, extraction processes, and conversion to the production of a myriad of products and biorefineries from agriculture, wood processing residues and transport logistics of plant biomass. In the second part, expert contributors present biorefinery concepts of different biomass feedstocks, including vegetable-oils, sugarcane, starch, lignocellulose and microalgae. Readers will find here a summary of the syngas utilization and the bio-oil characterization and potential use as an alternative renewable fuel and source for chemical feedstocks. Particular attention is also given to the anaerobic digestion-based and Organosolv biorefineries. The last part of the book examines relevant products and components such as alcohols, hydrocarbons, bioplastics and lignin, and offers a sustainability evaluation of biorefineries. 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 well-being. This book covers all aspects of scaling up for commercial production of these species for the development of novel phycotoxins (phycotoxins 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 a Dictionary of Terms, Key Facts, Summary Points, Figures and Tables, as well as up-to-date references. A new book in the Bioremediation series, and the懒洋洋 set to examine the uses of marine algae for biofuels and other products of economic value. It also looks at aspects such as macro- and micro algal impact on marine ecosystem and remote sensing of algal blooms. The commercial value of chemicals of value to food and health is about $6 billion annually, of which 30 percent relates to marine and micro algal metabolites and products for health food and cosmetics. A whole series of diversity exists, including oils, food and alcoholic beverages, chemical, and preservation
And Nutrition

Algal Biotechnology presents an authoritative and comprehensive overview of the various applications, the book looks at the economic feasibility, market trends and considerations, and health benefits of algae and their applications in food, pharmaceuticals and cosmetic products. Microalgae and their applications in bioenergy and bioenergy molecules. Bio-business and the market share of algae-based products are also dealt with, providing global perspectives. This two-volume work presents comprehensive, accurate information on the present status of the development and uses of algae. Volume 1 covers a mechanistic understanding of microalgae-based treatment of wastewaters, including current challenges in the treatment of various organic and inorganic pollutants, and future opportunities of bioremediation of wastewater and industrial effluents on an algal platform. The editors compile the work of authors from around the globe, providing insights and latest status on bioremediation development and the available body of literature. The volume hopes to serve as a much-needed resource for professors, researchers and scientists interested in microalgae applications for wastewater treatment. Volume 2 addresses the various biorefinery aspects and applications of algal-based wastewater treatment in industrial and domestic contexts. The analyses are approached from multiple perspectives, including biotechnology, commercial, economic, and sustainability. The authors discuss the potential of microalgae production resources, integrating algal biotechnology in wastewater treatment, and include evaluations of the economical and commercialization potential for such processes. Phenolic compounds are an extremely diverse class of ubiquitous secondary metabolites produced by a variety of organisms playing different biological roles. They have numerous types of demonstrated bioactivities, including antioxidant, antimicrobial, anti-inflammatory, anti-carcinogenic, immunomodulatory, neuroprotective, and antidiabetic activities. These microalgae produce a vast collection of unique phenolic structures, some of them not found in terrestrial habitats. Progress in different aspects is rapidly advancing, and this Special Issue will provide updated information and recent studies on marine phenolics. Specially, this issue is focused on their chemical characterization, elucidation of their structural features, and possible applications such as antimicrobial, antioxidant, and anti-diabetic agents. The Role of Alternative and Innovative Technologies in the Bio-marine Food Sector: Applications, Regulations, and Safety presents the use of technologies and recent advances in the emerging marine food industry. Written by leading experts in the field, this book focuses primarily on the principles of action, their potential of action, and the major purification technologies, development of value-added applications, as well as formulation of novel products. Cultured Microalgae for the Food Industry: Current and Potential Applications is a comprehensive reference that addresses the current applications and potential uses of microalgae and microalgae-derived compounds in the food industry. The book explores the different steps of the subject, from strain selection and cultivation steps, to the assessment of the potential of microalgae for the consumption, industrial, and environmental fields. It will find coverage of microalgae biology, common and uncommon algae species, cultivation strategies for food applications, novel extraction techniques, safety issues, regulatory issues, and current market opportunities and challenges. This title also explores the gastronomic potential of microalgae and reviews current commercialized products along with consumer attitudes towards microalgae. Research as associated with the group of scientists who are experts in their respective fields, the book is an essential reading for advanced undergraduates, postgraduates, and researchers in the microbiology, biotechnology, food science and technology fields. Thoroughly explores the optimization, cultivation and extraction processes for increased bioactive compound yields. Includes industrial feasibility, sustainability and the economic potential for microalgae bioconversion from microalgae to commercial products. Presents novel trends and the gastronomic potential of microalgae utilization in the food industry. The Role of Alternative and Innovative Food Ingredients and Products in Consumer Wellness provides a guide for innovative food ingredients and food products. The book covers consumer wellness as it relates to food ingredients and functional foods, alternative ingredients, food products fortified with extracts derived from food processing by-products, food products based on Omega-3 fatty acids and related species, healthy beverages, insects, microalgae as health ingredients for functional foods and spirulina related products, fruit-based functional foods, pro- and pre-biotics, gluten-free products, and bioaromas. Food scientists, food technologists and nutrition researchers working on food applications and food processing will find this book extremely useful. In addition, those interested in the development of functional foods will benefit from the information presented in this new book as will students who study food chemistry, food science, technology, and food processing in postgraduate programs. Connects integrally new and reconsidered food ingredients with innovative food products Addresses consumer wellness as it relates to food ingredients and functional foods Analyzes food products and processes with the highest market potential Microalgal Biotechnology presents an authoritative and comprehensive overview of the microalgae-based processes and products. Divided into 10 discreet chapters, the book covers topics on applied technology of microalgae. Microalgal Biotechnology provides an insight into future developments in each field and extensive bibliography. It will be an essential resource for researchers and academic and industry professionals in the microalgae biotechnology field. Improved technologies for the encapsulation, protection, release and enhanced bioavailability of food ingredients and nutraceuticals are described in this book. Encapsulation technologies and delivery systems for food ingredients and nutraceuticals provides a comprehensive guide to current and emerging technologies in encapsulation and release systems. Chapters in Part One provide an overview of key requirements for food ingredient and nutraceutical delivery systems, discussing challenges in system development and analysis of interaction with the human gastrointestinal tract. Processing techniques, preparation and release of systems are reviewed alongside coextrusion, fluid bed microencapsulation, microencapsulation methods based on biopolymer phase separation, and gelation phenomena in aqueous media. Part three goes on to investigate physicochemical approaches to the production of encapsulation and delivery systems, including the use of micelles and micromembranes, polymeric amphiphiles, liposomes, colloidal emulsions, organogels and hydrosols. Finally, part four reviews characterization and applications of delivery systems, providing industry perspectives on flavour, fish oil, iron micronutrient and probiotic delivery systems. With its distinguished editors and international team of expert contributors, Encapsulation technologies and delivery systems for food ingredients and nutraceuticals is an authoritative guide for both industry and academic researchers interested in encapsulation and controlled release systems. Provides a comprehensive guide to current and emerging techniques in encapsulation technologies and delivery systems. Chapters in Part One provide an overview of key requirements for food ingredient and nutraceutical delivery systems, while Part Two discusses processing technologies for encapsulation and delivery systems. Later sections investigate physicochemical approaches to the production of encapsulation and delivery systems and review characterization and applications of delivery systems. A comprehensive understanding of algal ingredients and their extraction techniques. This comprehensive text that offers an in-depth exploration of the research and issues surrounding the consumption, economics, composition, processing and the health effects of algae. With contributions from an international team of experts, the book explores the application of conventional and emerging technologies for algal processing. The book includes recent developments such as drying and milling technologies along with advancements in sustainable green processing techniques. The text also highlights individual groups of compounds including polysaccharides, proteins, polyphenols, carotenoids, lipids and fibres from algae. The authors provide insightful reviews of the traditional and more recent applications of algae/algal extracts in food, feed, pharmaceutical and cosmetics products. Offering a holistic view of the various applications, the book looks at the economic feasibility, market trends and considerations, and health hazards associated with algae for each algae food product. Importantly, it provides a comprehensive understanding of algal biomolecules and the role of emerging processing technologies. Explores the potential biological and health benefits of algae and their applications in food, pharmaceuticals and cosmetic products. Includes a current review of algal bioactive and processing technologies for food and ingredient manufacturers. Contains contributions from leading academic experts based on their personal research and experience. Written for food and ingredient scientists interested in the principles of action, their potential of action, and the major purification technologies, development of value-added applications, as well as formulation of novel products. The Role of Alternative and Innovative Technologies in the Bio-marine Food Sector: Applications, Regulations, and Safety presents the use of technologies and recent advances in the emerging marine food industry. Written by leading experts in the field, this book focuses primarily on the principles of action, their potential of action, and the major purification technologies, development of value-added applications, as well as formulation of novel products. The Role of Alternative and Innovative Technologies in the Bio-marine Food Sector: Applications, Regulations, and Safety presents the use of technologies and recent advances in the emerging marine food industry. Written by leading experts in the field, this book focuses primarily on the principles of action, their potential of action, and the major purification technologies, development of value-added applications, as well as formulation of novel products.
Functional Ingredients From Algae For Foods And Nutraceuticals Woodhead Publishing Series In Food Science Technology

The proteins discussed are caseins, whey proteins, gelatin and other meat-derived protein ingredients, seafood proteins, egg proteins, soy proteins, pea and other legume proteins, mycoprotein, wheat gluten, canola and other oilseed proteins, algal proteins and fractions from algae and cover conventional and alternative technologies for the production of algal polymers and composites. Characterization methods and processing techniques for algae-based polymers and composites are discussed in detail, enabling researchers to apply the latest techniques to their own work. The biomass includes its financial and environmental importance, particularly in the era of declining petroleum reserves and global warming. Algae are an important source of biomass since they flourish rapidly and can be cultivated almost everywhere. At present the majority of naturally produced algal biomass is an unused resource and normally left to decompose. Similarly, the use of this enormous underexploited biomass is mainly limited to food and animal feeds. However, there is an opportunity here for materials scientists to explore its potential as a feedstock for the production of sustainable materials.

Provides detailed information on the extraction of useful compounds from algal biomass. Highlights the development of a range of polymers, blends, and composites Includes coverage of characterization and processing techniques, enabling research scientists and engineers to apply the information to their own research and development. Discusses potential applications of these processes, giving the latest insights on the industrial exploitation of these sustainable materials. 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 algae biomass as a product concept and microalgae and seaweed as food and nutraceutical sources. Part one covers the chemical structures 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 components. 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 enzymes, and algal functional foods and nutraceuticals. This 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 algae in the food and nutraceutical industries. Traditionally a source of nutrition, proteins are also added to foods for their ability to form gels and stabilise emulsions, among other properties. The range of specialised protein ingredients used in foods is increasing. Handbook of food proteins provides an authoritative overview of the characteristics, functionalities and applications of different protein ingredients to the food industry in one convenient volume. The introduction provides an overview of the history of proteins and their use in foods. The following chapters cover different functionalities, applications of different protein ingredients, the 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 functional food technology, food chemistry, new product development, food processing, food technology, bio-process engineers in marine biology and scientists and engineers will find this book essential. This is an introductory book which highlights the potential of 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 nutraceuticals as achieved during last two decades and last decades. The book is divided into four parts: algae and their biotechnological uses, algae and nutraceuticals, algae and functional foods, and future perspectives of algae. Part one introduces the concept of algae as food 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 new applications of algae, an increasing as a sustainable food source. 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 environmentally friendly and highly beneficial to human health. 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 nutraceuticals as achieved during last two decades and last decades. The book is divided into four parts: algae and their biotechnological uses, algae and nutraceuticals, algae and functional foods, and future perspectives of algae. Part one introduces the concept of algae as food 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 new applications of algae, an increasing as a sustainable food source. 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The paper discusses different aspects of algal production systems and several of the drawbacks related to microalgae biomass production, namely low biomass yield, and energy-consuming harvesting, dewatering, and extraction processes that provide a background to the state-of-the-art technologies for algal cultivation, CO2 sequestration, and large-scale application of these systems. In order to tap the commercial potential of algae, a biorefinery concept has been proposed that could help to extract maximum benefits from algal biomass. This refinery concept promotes the harvesting of multiple products from the feedstock so as to make the process economically attractive. For the last few decades, algal biomass has been explored for use in various products such as fuel, agricultural crops, pigments and pharmaceuticals, as well as in bioremediation. To meet the huge demand, there has been a focus on large-scale production of algal biomass in closed or open photobioreactors. Different nutritional conditions for algal growth have been explored, such as phototrophic, heterotrophic, mixotrophic and oleanogous. This book is aimed at a wide audience, including undergraduates, postgraduates, academics, energy researchers, scientists in industry, energy specialists, policy makers and others who wish to understand algal biorefineries and also keep abreast of the latest developments. 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 from algae and those in the algaculture, food and nutraceutical industries interested in the commercialisation of work in practice. Drawing on the expert knowledge of a global team of editors and authors, this book is a practical resource for both researchers and businesses who currently work with macroalgae. Highlights the specific challenges and benefits of developing seaweed for sustainable products presents useful case studies that demonstrate varied approaches and methodologies in practice. Covers the complete seaweed chain, from cultivation to waste management. 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. Chapter 1 introduces 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 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 algae, 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 cosmetics, dental research, chitosan therapy, nutraceuticals, etc.

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