

Algae In Food And Feed Seacolors

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 fucoxanthins. 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 This book covers a range of important topics on dairy and fermented foods and microalgae biotechnologies for food, beverage and bioproduct industries. The topics range from traditionally fermented African foods, fermentation technologies for large-scale industrial enzyme production to microalgae cultivation and nutraceuticals in Africa, etc. The editors provide detailed information on approaches towards harnessing indigenous bioresources for food and nutrition security, climate change adaptation, industrial enzyme production, environmental remediation and healthcare delivery. The book will be useful reference material for scientists and researchers working in the field of dairy and food biotechnology, fermentation technology, enzyme biotechnology, algal biotechnology and cultivation systems, biofuels and other bioproducts from algal biomass and underutilized and novel African food sources. Emphasizes recent advances in biotechnologies that could ameliorate the high-level global food insecurity through fermentation technologies applicable to traditional African indigenous and underutilized novel foods, algal biotechnology and value-added bioproducts Provides detailed information on how to harness indigenous bioresources including microalgae for food and nutrition security, climate change adaptation, industrial enzyme production, environmental remediation and healthcare delivery Introduces new frontiers in the area of large-scale enzyme production using fermentation biotechnologies and their applications in the food and beverage industries Discusses current biotechnologies applicable in the food, beverage and bioproduct industries James Chukwuma Ogbonna, Ph.D., is a Professor of Microbiology and Biotechnology, and Director, National Biotechnology Development Agency, South East Zonal Biotechnology Centre, University of Nigeria, Nsukka, Nigeria. Sylvia Uzochukwu, Ph.D., is a Professor of Food Science and Biotechnology, and Director, Biotechnology Centre, Federal University, Oye-Ekiti, Nigeria. Emeka Godfrey Nwoba, Ph.D., is a research scholar at the Algae Research & Development Centre, Murdoch University, Western Australia. Charles Oluwaseun Adetunji, Ph.D., is an Associate Professor of Microbiology and Biotechnology, and Director of Intellectual Property and Technology Transfer, Edo State University Uzairue, Nigeria. Nwadiuto (Diuoto) Esiobu, Ph.D., is a Professor of Microbiology and Biotechnology at Florida Atlantic University, Boca Raton, FL, USA, and the President and Founder of Applied Biotech Inc. and ABINL. Abuja, Nigeria. Abdulrazak B. Ibrahim, Ph.D., is a Capacity Development Expert at the Forum for Agricultural Research in Africa (FARA), and Associate Professor of Biochemistry, Ahmadu Bello University, Zaria, Nigeria. Benjamin Ewa Ubi, Ph.D., is a Professor of Plant Breeding and Biotechnology and Director, Biotechnology Research and Development Centre, Ebonyi State University, Abakaliki, Nigeria.

Say "algae" and most people think of pond scum. What they don't know is that without algae, none of us would exist.

Contents: Analysis of acid-extract of Chlorella cells having growth-promoting effect upon Lactobacilli, feeding test of pigs using a Chlorella-containing fodder, change in contents of carbohydrates and lipids in Chlorella cells grown under nitrogen-deficient conditions. (Author).

Building Open Ponds

Microalgae-based Products for the Food and Feed Sector

Examining Algae as a Sustainable Solution for Food, Energy, and the Environment

Tech to Table

An Outlook for Europe

Microalgal Biotechnology

Chemical Composition and Applicability as Food and Feed of Mass-cultured Unicellular Algae

Designed as the primary reference for the biotechnological use of macroalgae, this comprehensive handbook covers the entire value chain from the cultivation of algal biomass to harvesting and processing it, to product extraction and formulation. In addition to covering a wide range of product classes, from polysaccharides to terpenes and from enzymes to biofuels, it systematically discusses current and future applications of algae-derived products in pharmacology, medicine, cosmetics, food and agriculture. In doing so, it brings together the expertise of marine researchers, biotechnologists and process engineers for a one-stop resource on the biotechnology of marine macroalgae.

The European Union has recently adopted an ambitious strategy for developing the Bioeconomy in Europe, in this context algae represents an emerging biological resource of great importance for its potential applications in different fields. In particular, micro-algae are currently promoted as a new source of valuable nutrients for human and animal consumption. This report analyses the production, markets and regulation of microalgae-based food and feed products, especially focusing on the European sector.

The report is structured in the following chapters: Micro-algal production systems ; Current markets, products and future developments for micro-algae ; Outlook: R & D and prospects for micro-algae biotechnology and genetic modification ; Safety and regulatory aspects of micro-algae food and feed applications in the EU and the US.

Key features: The most comprehensive resource available on the biodiversity of algal species, their industrial production processes and their use for human consumption in food, health and varied applications. Emphasis on basic and applied research, addressing aspects of scale-up for commercial exploitation for the development of novel phytochemicals (phytochemicals from algae). Addresses the underexplored and underutilized potential of chemicals from marine sources for health benefits. Each chapter, written by expert contributors from around the world, includes Summary Points, Figures and Tables, as well as up-to-date references. The first book in this two-volume set explores the diversity of algal constituents for health and disease applications. The commercial value of chemicals of value to food and health is about \$6 billion annually, of which 30 percent relates to micro and macro algal metabolites and products for health food applications. This comprehensive volume looks in detail at algal genomics and metabolomics as well as mass production of microalgae. As a whole, the two-volume set covers all micro and macro algal forms and their traditional uses; their constituents which are of value for food, feed, specialty chemicals, bioactive compounds for novel applications, and bioenergy molecules. Bio-business and the market share of algae-based products are also dealt with, providing global perspectives.

Algae are emerging to be one of the most promising long-term, sustainable sources of biomass and oils for fuel, food, feed, and other co-products. What makes them so attractive are the large number and wide variety of benefits associated with how and where they grow. Algae created the Earth we know today, with its oxygen-rich atmosphere, abundant oceans, and coral reefs. Crude oil is made of dead algae, and algae are the ancestors of all plants. Today, seaweed production is a multibillion-dollar industry, with algae hard at work to make your sushi, chocolate milk, beer, paint, toothpaste, shampoo, and so much more. In this book, we'll meet the algae innovators working toward a sustainable future: from seaweed farmers in South Korea to scientists using it to clean the dead zones in our waterways, to the entrepreneurs fighting to bring algae fuel and plastics to market. Whether you thought algae was just the gunk in your fish tank or you eat seaweed with your oatmeal, this book will delight and amaze with its stories of the good, the bad, and the up-and-coming.

Recent Advances in Micro- and Macroalgal Processing

Algae Microfarms

Cultivation, Recovery of Compounds and Applications

25 Innovators Reimagining Food

Algae Biotechnology

Food and Health Perspectives

Handbook of Algal Technologies and Phytochemicals

Algae for FoodCultivation, Processing and Nutritional BenefitsCRC Press

How algae microfarms can help transform our food culture by growing abundant healthy food in a very small area and extend the growing season, affordably and profitably. Algae are 20 times more productive than conventional food and are well known as nutrient dense superfoods with valuable health and medical benefits. Over the past 30 years, large farms have grown algae for food, feed and fuel for thousands of useful products. Now an era of microfarms is emerging. Algae microfarms can empower people to grow healthy food in their own community for food security and self-sufficiency. Robert Henrikson founded one of the world's first and largest algae farms 35 years ago. Now the time has come to introduce the algae microfarmers who are growing algae for healthy foods in their local communities.

This handbook is devoted to the mass production of microalgae, and in my part, is based on some 10 years of experience in growing and studying microalgal cultures maintained at high polulation densities under laboratory conditions and in outdoor ponds

Seaweed Sustainability: Food and Non-Food Applications is the only evidence-based resource that offers an abundance of information on the applications of seaweed as a solution to meet an increasing global demand for sustainable food source. The book uncovers seaweed potential and describes the various sources of seaweed, the role of seaweeds as a sustainable source for human food and animal feeds, and the role of seaweed farming for sustainability. In addition to harvesting and processing information, the book discusses the benefits 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 as a potential energy source

Algae and Algae Products. Food and Feed Applications: General Overview of Limits, Procedures and Analytical Methods

Green Algae Strategy

For Home, School, Community and Urban Gardens, Rooftop, Mobile and Vertical Farms and Living Buildings

Bioenergy, Nanotechnology and Green Chemistry

Current and Potential Applications

The global status of seaweed production, trade and utilization

From Feedstock Cultivation to End-Products

"This book provides an opportunity to the readers to understand about the biological and biotechnological processes going on in the cultivation and harvesting of algae, DNA sequencing, and genomics of algae, giving detailed insight into various applications of algal biomass in agriculture, food, feed, and medicines"--

Recent Advances in Micro- and Macroalgal Processing A comprehensive review of algae as novel and sustainable sources of algal ingredients, their extraction and processing This comprehensive text offers an in-depth exploration of the research and issues surrounding the consumption, economics, composition, processing and 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 greener 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 industrial applications. This important book: Provides a comprehensive overview 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 bioactives and processing technologies for food and ingredient manufacturers Contains contributions from leading academic and industrial experts Written for food scientists, allied researchers and professional food technologists, Recent Advances in Micro- and Macroalgal Processing: Food and Health Perspectives offers a guide to the novel processing and extraction techniques for exploring and harnessing the immense potential of algae.

Product Review: "This is a great book on how to make algae biodiesel using ponds. People around the world contact us all the time about creating renewable energy using algae. This book makes it possible for them to do so in their own back yard. Great job!" Vic. Garlington http: //www.70CentsaGallon.com The first complete manual on building open ponds. From backyard units to commercial sized ponds, this books outlines the steps necessary and contains all the information you need. With open ponds, a person has the ability to make: Algae Biofuels Health Food Supplements Organic Fertilizer Animal Feed Nutraceuticals Bio-plastics And more. For fun, or for profit, hobbyists and professionals alike, are turning to the "Algae Biodiesel Series" for solid information and inspiration.

Cellulose nanocrystals are being used more frequently as processing and nanofabrication techniques have advanced considerably. Cellulose Nanocrystals includes topics including Extraction and Fabrication Methodologies, Scale-Up Strategies and Life Cycle Assessment, Surface Modification Strategies, Nanocomposites, and Characterization and Testing Protocols. This book will appeal to physical, chemical and biological scientists as well as engineers.

Handbook of Microalgae-Based Processes and Products

Processes, Products, and Applications, 2 Volume Set

Algae, Bacteria, and Yeasts as Food Or Feed

Volume I Food, Health and Nutraceutical Applications

Microalgae

Biodiversity and Biotechnology of Algae and Algal Products for Food, Feed, and Fuel

A Status Analysis : Proceedings of the German-Israeli Workshop, Held 17-18 October 1977 at Neuherberg

Microalgae are a group of single-celled, photosynthetic microorganisms. They are of great commercial interest as they are capable of producing biomass (with a vast array of biochemical) using sunlight, CO2 and various other naturally occurring nutrients. Correctly utilised, they have the potential to provide sustainable supply of commercially relevant biochemicals, biofuels, nutraceuticals, food and feed supplements. The field of microalgal biotechnology is a fast-paced area of research, with technologies coming ever closer to commercial viability. Microalgal Biotechnology consolidates the latest research in the field together with a look at market potential and policy considerations. Highlighting the huge potential of microalgae as commercial commodities, it covers progress on various fronts including; bio-refinery and its technological challenges, genetic engineering, biosafety and regulatory issues, open and closed photo-bioreactors for biomass production, market space and sustainability for algal products. This book is a useful resource for researchers, academicians, postgraduate students, industries, policy makers and anyone interested in the status and future possibilities of microalgae commercialisation.

This is an update of the global seaweed market: production figures from culture and capture, the size of the international market for seaweed and its commercially important issues, the leading countries by region, developments in processing and utilization technology, and innovations in the industry, as well as the challenges and outlook for the industry. According to the report, the Asia and the Pacific region is the largest seaweed market, followed by Europe and the Americas. Moreover, in 2015, total global seaweed production was 30.4 million tonnes, 29.4 million of which originated from the aquaculture sector.

A comprehensive review of algae as novel and sustainable sources of algal ingredients, their extraction and processing 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 greener 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 industrial applications. This important book: Provides a comprehensive overview 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 bioactives and processing technologies for food and ingredient manufacturers Contains contributions from leading academic and industrial experts Written for food scientists, allied researchers and professional food technologists, this book offers a guide to the novel processing and extraction techniques for exploring and harnessing the immense potential of algae.

Named #1 of 15 Best New Biotechnology Books to Read in 2021 by BookAuthority. This volume explores and explains the vast uses and benefits of algae as food, feed, and fuel. It covers the most advanced applications of algae in the food and feed industries and for environmental sustainability. With chapters written by experts and which were extensively reviewed by many well-known subject experts and professionals, Phycobiotechnology: Biodiversity and Biotechnology of Algae and Algal Products for Food, Feed, and Fuel provides an abundance of valuable information. Algae are a genetically diverse group of organisms with a wide range of physiological and biochemical characteristics that have unique capabilities in the fields of agriculture, pharmaceuticals, industry, and environment. Algae hold the potential to become the planet's next major source of energy and a vital part of the solution for climate change and dependence on fossil fuels. Many varieties of algae are also known to be an abundant source of vitamins, minerals, and other nutrients that can boost the human immune system.

Seaweed and Microalgae as Alternative Sources of Protein

Marine Algae Extracts

Food and Non-Food Applications

The Importance Of Algae To Our Lives

Products and Processes

Algae and Sustainable Technologies

How Algae Created Us, Plague Us, and Just Might Save Us

Microalgae: Cultivation, Recovery of Compounds and Applications supports the scientific community, professionals and enterprises that aspire to develop industrial and commercialized applications of microalgae cultivation. Topics covered include conventional and emerging cultivation and harvesting techniques of microalgae, design, transport phenomena models of microalgae growth in photobioreactors, and the catalytic conversion of microalgae. A significant focus of the book illustrates how marine algae can increase sustainability in industries like food, agriculture, biofuel and bioprocessing, among others. This book is a complete reference for food scientists, technologists and engineers working in the bioresource technology field. It will be of particular interest to academics and professionals working in the food industry, food processing, chemical engineering and biotechnology. Explores emerging technologies for the clean recovery of antioxidants from microalgae Includes edible oil and biofuels production, functional food, cosmetics and animal feed applications Discusses microalgae use in sustainable agriculture and wastewater treatment Considers the techno-economic aspects of microalgae processing for biofuel, chemicals, pharmaceuticals and bioplastics

The term microalgae is often used in the algal research community to collectively describe microscopic algae and cyanobacteria. Research of microalgae has expanded enormously, namely because of their significant commercial potential. The thorough knowledge of the physiology of microalgae must precede any commercial exploitation. We have to understand the mechanisms underlying the physiological and biochemical processes in the algal cells. The book Microalgae - From Physiology to Application covers major aspects of microalgae physiology and the possible applications in the sphere of biotechnology. This book gives a comprehensive overview of what is known about microalgae growth and production, secondary metabolites, and development of new species and products for commercialization. This volume should allow readers at all levels an entry into the exciting world of algal research.

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 public perception of microalgae consumption and the gastronomical potential of this innovative resource. Readers 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 surrounding microalgae. Covering relevant, up-to-date research as assembled by a group of contributors 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 functionality, bio-accessibility and the bioavailability of the main compounds obtained from microalgae Presents novel trends and the gastronomic potential of microalgae utilization in the food industry

With its integral treatment of ecosystem and resource management, this is the only overview of the field to address current thinking and future trends. All contributions have been written with the novice in mind, explaining the basics and highlighting recent

developments and achievements. Unmatched in scope, this two-volume reference covers both traditional and well-established areas of marine biotechnology, such as biomass production, alongside such novel ones as biofuels, biological protection of structures and bioinspired materials. In so doing, it ties together information usually only found in widely dispersed sources to assemble a grand unified view of the current state of and prospects for this multi-faceted discipline. The combination of the breadth of topics and the focus on modern ideas make this introductory book especially suitable for teaching purposes and for guiding newcomers to the many possibilities offered by this booming field.

Seaweed Sustainability

FAO GLOBEFISH RESEARCH PROGRAMME VOL. 124

Microalgae for Food and Feed

Slime

Blue Biotechnology

Cultured Microalgae for the Food Industry

Production and Use of Marine Molecules

Green Algae Strategy provides a path to sustainable food and biofuels with one of the smallest and oldest plants on Earth; algae.

Algal and sustainable technologies: Bioenergy, Nanotechnology and Green chemistry is an interdisciplinary overview of the world's major problems; water scarcity, clean environment and energy and their sustenance remedy measures using microalgae. It comprehensively presents the way to tackle the socio-economic issues including food, feed, fuel, medicine and health and also entails the untapped potential of microalgae in environmental management, bioenergy solution and sustainable synthesis of pharmaceutical and nutraceutical products. This book basically emphasizes the success of algae as wonderful feed stocks of future and provides upto date information and sustainable and recreational outlook towards degrading environment and energy crisis. Applicability of fast emerging algae based nanotechnology in bioremediation and production of nanoparticle (AuNP, AgNP etc) are beautifully described along with latest research and findings. Key features: The "waste to best to income" strategies are the main concern of the book and take the edge off the problem of pollution, energy and income. Elucidate the sustainable phycoremediation and nanoparticle functions as low cost approach for various ecosystem services. Information regarding pharmaceuticals, nutraceuticals and other algae based value added product synthesis and fate are comprehensively discussed. Knowledge resource, latest research, findings and prospects presented in an accessible manner for researchers, students, eminent scientists, entrepreneurs, professionals and policy maker.

"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 microalgal 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 comprehensive overview for those readers just beginning to learn about the promise 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 examines the utilization of algae for the development of useful products and processes with the emphasis towards green technologies and processes, and the requirements to make these viable. Serving as a complete reference guide to the production of biofuels and other value added products from micro and macro algae, it covers various aspects of algal biotechnology from the basics to large scale cultivation, harvesting and processing for a variety of products. It is authored and edited by respected world experts in the field of algal biotechnology and provides the most up to date and cutting edge information on developments in the field. Over the past decade there has been substantial focus and related literature on the application of algal biomass for the generation of novel processes and products. 'Algae Biotechnology: Products and Processes' encompasses a holistic approach to critically evaluating developments in the field of algal biotechnology whilst taking into account recent advances and building on the body of knowledge. Aspects of the effects of harmful algae are also discussed, as well as the potential commercial application of algal biotechnology, the techno-economic feasibility of algal biodiesel production and the use of genetic and metabolic engineering for the improvement of yield. Other bioenergy sources such as alcohol fuels, aviation fuels, biohydrogen and biogas are also covered. This book is intended for postgraduates and researchers working in the biofuels and algal industry; it constitutes ideal reference material for both early stage and established researchers.

Phycobiotechnology

Make Biofuels, Health Food, Fertilizers, Animal Feed, and More

From Physiology to Application

Food, Purification, Economics And More: Algal Production Biomass Development

Fundamentals and Advances in Energy, Food, Feed, Fertilizer, and Bioactive Compounds

How this Remarkable Blue-green Algae Can Transform Your Health and Our Planet

Cultivation, Processing and Nutritional Benefits

Microalgae-Based Biofuels and Bioproducts: From Feedstock Cultivation to End Products compiles contributions from authors from different areas and backgrounds who explore the cultivation and utilization of microalgae biomass for sustainable fuels and chemicals. With a strong focus in emerging industrial and large scale applications, the book summarizes the new achievements in recent years in this field by critically evaluating developments in the field of algal biotechnology, whilst taking into account sustainability issues and techno-economic parameters. It includes information on microalgae cultivation, harvesting, and conversion processes for the production of liquid and gaseous biofuels, such as biogas, bioethanol, biodiesel and biohydrogen. Microalgae biorefinery and biotechnology applications, including for pharmaceuticals, its use as food and feed, and value added bioproducts are also covered. This book's comprehensive scope makes it an ideal reference for both early stage and consolidated researchers, engineers and graduate students in the algal field, especially in energy, chemical and environmental engineering, biotechnology, biology and agriculture. Presents the most current information on the uses and untapped potential of microalgae in the production of bio-based fuels and chemicals Critically reviews the state-of-the-art feedstock cultivation of biofuels and bioproducts mass production from microalgae, including intermediate stages, such as harvesting and extraction of specific compounds Includes topics in economics and sustainability of large-scale microalgae cultivation and conversion technologies

Imagine eating a burger grown in a laboratory, a strawberry picked by a robot, or a pastry created with a 3-D printer. You would never taste the difference, but these technologies might just save your health and the planet's. Today, landmark advances in computing, engineering, and medicine are driving solutions to the biggest problems created by industrialized food. Tech to Table introduces readers to twenty-five of the most creative entrepreneurs advancing these solutions. They come from various places and professions, identities and backgrounds. But they share an outsider's perspective and an idealistic, sometimes aggressive, ambition to rethink the food system. Reinvention is desperately needed. Under Big Ag, pollution, climate change, animal cruelty, hunger, and obesity have festered, and despite decades of effort, organic farming accounts for less than one percent of US croplands. Entrepreneurs represent a new path, one where disruptive technology helps people and the environment. These innovations include supplements to lower the methane in cattle belches, drones that monitor irrigation levels in crops, urban warehouses that grow produce year-round, and more. The pace and breadth of change is astonishing, as investors pump billions of dollars into ag-innovation. Startups are attracting capital and building markets, with the potential to upend conventional agribusiness's stranglehold on the food system. Not every invention will prosper long-term, but each marks a fundamental change in our approach to feeding a growing population—sustainably. A revolution in how we grow and eat food is brewing. Munson's deftly crafted profiles offer a fascinating preview of the coming future of food.

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.

This book deals with the most emerging aspects of algal research with special reference to microalgae viz; diversity, mutations, genomics and metagenomics study, eco-physiology, culturing, microalgae for food and feed, biofuel production, harvesting of microalgae, separation, and purification of biochemicals, techno-economical assessment, microalgal biotechnology, algal-bacterial systems for wastewater treatment. It describes the complex issues associated with the above-mentioned areas with the intervention of cutting-edge biotechnological tools and techniques like next-generation sequencing methods, metabolomics, and bioreactor design and development. The chapters provide past developments, current information and future prospects of algal technology as an alternate avenue for waste water treatment and its potential for production of biofuel and nutraceuticals.

Fermentation and Algal Biotechnologies for the Food, Beverage and Other Bioproduct Industries

Cellulose Nanocrystals

An Emerging Nanocellulose for Numerous Chemical Processes

Algae for Food Feed Fiber Freshwater and Fuel

Microalgae Biotechnology for Food, Health and High Value Products

The Role of Microalgae in Wastewater Treatment

Handbook of Microalgal Mass Culture (1986)

The Handbook of Microalgae-based Processes and Products provides a complete overview of all aspects involved in the production and utilization of microalgae resources at commercial scale. Divided into four parts (fundamentals, microalgae-based processes, microalgae-based products, and engineering approaches applied to microalgal processes and products), the book explores the microbiology and metabolic aspects of microalgae, microalgal production systems, wastewater treatment based in microalgae, CO2 capture using microalgae, microalgae harvesting techniques, and extraction and purification of biomolecules from microalgae. It covers the largest number of microalgal products of commercial relevance, including biogas, biodiesel, bioethanol, biohydrogen, single-cell protein, single-cell oil, biofertilizers, pigments, polyunsaturated fatty acids, bioactive proteins, peptides and amino acids, bioactive polysaccharides, sterols, bioplastics, UV-screening compounds, and volatile organic compounds. Moreover, it presents and discusses the available engineering tools applied to microalgae biotechnology, such as process integration, process intensification, and techno-economic analysis applied to microalgal processes and products, microalgal biorefineries, life cycle assessment, and exergy analysis of microalgae-based processes and products. The coverage of a broad range of potential microalgae processes and products in a single volume makes this handbook an indispensable reference for engineering researchers in academia and industry in the fields of bioenergy, sustainable development, and high-value compounds from biomass, as well as graduate students exploring those areas. Engineering professionals in bio-based industries will also find valuable information here when planning or implementing the use of microalgal technologies. Covers theoretical background information and results of recent research. Discusses all commercially relevant microalgae-based processes and products. Explores the main emerging engineering tools applied to microalgae processes, including techno-economic analysis, process integration, process intensification, life cycle assessment, and exergy analyses.

End Biowar I and Engineer Sustainable Food and Biofuels

Earth Food Spirulina

Microalgae-Based Biofuels and Bioproducts

Algae for Food