

Pho Grobbelaar Practical Electricity Made Easy

This unique textbook takes a broad look at the rapidly expanding field of freshwater microbiology. Concentrating on the interactions between viruses, bacteria, algae, fungi and micro-invertebrates, the book gives a wide biological appeal. Alongside conventional aspects such as phytoplankton characterisation, seasonal changes and nutrient cycles, the title focuses on the dynamic and applied aspects that are not covered within the current textbooks in the field. Complete coverage of all fresh water biota from viruses to invertebrates Unique focus on microbial interactions including coverage of biofilms, important communities on all exposed rivers and lakes. New information on molecular and microscopical techniques including a study of gene exchange between bacteria in the freshwater environment. Unique emphasis on the applied aspects of freshwater microbiology with particular emphasis on biodegradation and the causes and remediation of eutrophication and algal blooms.

This book offers a comprehensive understanding of the concept and scope of the tourism industry in general and of destination marketing and management in particular. Taking an integrated and comprehensive approach, it focuses on both the macro and micro aspects of destination marketing and management. The book consists of 27 chapters presented in seven parts with the following themes: concept, scope and structure of destination marketing and management, destination planning and policy, consumer decision-making processes, destination marketing research, destination branding and positioning, destination product development and distribution, the role of emerging technologies in destination marketing, destination stakeholder management, destination safety, disaster and crisis management, destination competitiveness and sustainability, and challenges and opportunities for destination marketing and management.

This book provides in-depth information on basic and applied aspects of biofuels production from algae. It begins with an introduction to the topic, and follows with the basic scientific aspects of algal cultivation and its use for biofuels production, such as photo bioreactor engineering for microalgae production, open culture systems for biomass production and the economics of biomass production. It provides state-of-the-art information on synthetic biology approaches for algae suitable for biofuels production, followed by algal biomass harvesting, algal oils as fuels, biohydrogen production from algae, formation/production of co-products, and more. The book also covers topics such as metabolic engineering and molecular biology for algae for fuel production, life cycle assessment and scale-up and commercialization. It is highly useful and helps you to plan new research and design new economically viable processes for the production of clean fuels from algae. Covers in a comprehensive but concise way most of the algae biomass conversion technologies currently available Lists all the products produced from algae, i.e. biohydrogen, fuel oils, etc., their properties and potential uses Includes the economics of the various processes and the necessary steps for scaling them up

Winner of the 2007 E.B. Burwell, Jr. Award of the Geological Society of America Mining activity has left a legacy of hazards to the environment, such as waste, unstable ground and contamination, which can be problematic when redeveloping land. This book highlights the effects of past mining and provides information on the types of problems it may cause in both urban and rural areas. By way of example, the book also demonstrates how such problems may be anticipated, investigated, predicted, prevented and controlled. Furthermore, it shows how sites already affected by mining problems and hazards can be remediated and rehabilitated. Covering subsidence, surface mining, disposal of waste, problems resulting from mine closure and mineral processing, Mining and its Impact on the Environment is an excellent reference for practising mining and geotechnical engineers, as well as students in this field.

Microalgae are one of the most studied potential sources of biofuels and bioenergy. This book covers the key steps in the production of renewable biofuels from microalgae - strain selection, culture systems, inorganic carbon utilisation, lipid metabolism and quality, hydrogen production, genetic engineering, biomass harvesting, extraction. Greenhouse gas and techno-economic modelling are reviewed as is the 100 year history of microalgae as sources of biofuels and of commercial-scale microalgae culture. A summary of relevant basic standard methods used in the study of microalgae culture is provided. The book is intended for the expert and those starting work in the field.?

This book focuses on education for environmental sustainability, in particular the area of solid waste management. Presenting the latest studies from different countries, industries and education sectors on the approaches and innovative ideas to educate future citizens regarding sustainable development of our planet, it is of interest to educators, academics, tertiary students, policy-makers, environmental scientists, social scientists and practitioners who have been involved in education, policy, science, and technological innovation for solid waste management.

Over the last few decades, unprecedented global population growth has led to increased demand for food and shelter. At the same time, extraction of natural resources beyond the Earth's resilience capacity has had a devastating effect on ecosystems and environmental health. Furthermore, climate change is having a significant impact in a number of areas, including the global hydrological cycle, ecosystem functioning, coastal vulnerability, forest ecology, food security, and agricultural sustainability. According to the Intergovernmental Panel on Climate Change (IPCC), only immediate and sustained action will prevent climate change causing irreversible and potentially catastrophic damage to our environment. This book presents various scientific views and concepts, research, reviews, and case studies on contemporary environmental issues in changing climate scenarios and highlights different adaptation measures. Increasing awareness of modern-day patterns of climate change, it addresses questions often raised by environmental scientists, researchers, policymakers and general readers. Over the last several years, new research and developments in analysis methods and practice have led to rapid advancements in forensic biology. Identifying critical points of knowledge and new methodological approaches in the field, Forensic Biology, Second Edition focuses on forensic serology and forensic DNA analysis. It provides students and pro

Handbook of Microalgal Culture is truly a landmark publication, drawing on some 50 years of worldwide experience in microalgal mass culture. This important book comprises comprehensive reviews of the current available information on microalgal culture, written by 40 contributing authors from around the globe. The book is divided into four parts, with Part I detailing biological and environmental aspects of microalgae with reference to microalgal biotechnology and Part II looking in depth at major theories and techniques of mass cultivation. Part III comprises chapters on the economic applications of microalgae, including coverage of industrial production, the use of microalgae in human and animal nutrition and in aquaculture, in nitrogen fixation, hydrogen and methane production, and in bioremediation of polluted water. Finally, Part IV looks at new frontiers and includes chapters on genetic engineering, microalgae as platforms for recombinant proteins, bioactive chemicals, heterotrophic production, microalgae as gene-delivery systems for expressing mosquito-cidal toxins and the enhancement of marine productivity for climate stabilization and food security. Handbook of Microalgal Culture is an essential purchase for all phycologists and also those researching aquatic systems, aquaculture and plant sciences. There is also much of great use to researchers and those involved in product formulation within pharmaceutical, nutrition and food companies. Libraries in all universities and research establishments teaching and researching in chemistry, biological and pharmaceutical sciences, food sciences and nutrition, and aquaculture will need copies of this book on their shelves. Amos Richmond is at the Blaustein Institute for Desert Research, Ben-Gurion University of the Negev, Israel.

This new text presents the most up-to-date research based information regarding popular sport/performance nutrient dense diets and nutritional supplements and their constituents that directly or indirectly utilize them. Previous chapters have been fully revised and new chapters have been added to cover important cutting edge topics. New chapters include: (1) Carbohydrate Utilization and Disposal in Strength/Power Training & Sports, (2) Exercise for Athletes with Diabetes, and (3) Beyond the Obvious: Future Innovations in Sports Nutrition. The volume is divided into four sections: (1) The Industrial Nature of the Supplement Game; (2) Nutritional Basics First; (3)

Specialized Nutritional Strategies & Supplements; and (4) Present and Future Directions of Nutritional Supplements. Editors and authors are co-founders, board members or members of the International Society of Sports Nutrition and or current/former doctoral students from the Exercise and Sport Nutrition Laboratory located at Texas A&M University. Nutritional Supplements in Sports and Exercise, Second Edition presents cutting edge information and is valuable to sports nutritionists, exercise physiologists, strength and conditioning/personal trainers, athletic trainers, athletic coaches, registered dietitians, and college/professional sport affiliates.

This book provides a detailed overview of aspects related to the overall provision chain for biokerosene as part of the global civil aviation business. Starting with a review of the current market situation for aviation fuels and airplanes and their demands, it then presents in-depth descriptions of classical and especially new types of non-edible biomass feedstock suitable for biokerosene provision. Subsequent chapters discuss those fuel provision processes that are already available and those still under development based on various biomass feedstock materials, and present e.g. an overview of the current state of the art in the production of a liquid biomass-based fuel fulfilling the specifications for kerosene. Further, given the growing interest of the aviation industry and airlines in biofuels for aviation, the experiences of an air-carrier are presented. In closing, the book provides a market outlook for biokerosene. Addressing a broad range of aspects related to the pros and cons of biokerosene as a renewable fuel for aviation, the book offers a unique resource.

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This book addresses multiple aspects of biological clocks in prokaryotes. The first part of the book deals with the circadian clock system in cyanobacteria, i.e. the pioneer of bacterial clocks. Starting with the history and background of cyanobacteria and circadian rhythms in microorganisms, the topics range from the molecular basis, structure and evolution of the circadian clock to modelling approaches, Kai systems in cyanobacteria and biotechnological applications. In the second part, emergent timekeeping properties of bacteria in microbiomes and bacteria other than cyanobacteria are discussed. Since the discovery of circadian rhythms in cyanobacteria in the late 1980s, the field has exploded with new information. The cyanobacterial model system for studying circadian rhythms (*Synechococcus elongatus*), has allowed a detailed genetic dissection of the bacterial clock due to state-of-the-art methods in molecular, structural, and evolutionary biology. Cutting-edge research spanning from cyanobacteria and circadian phenomena in other kinds of bacteria, to microbiomes has now given the field another major boost. This book is aimed at junior and senior researchers alike. Students or researchers new to the field of biological clocks in prokaryotes will get a comprehensive overview, while more experienced researchers will get an update on the latest developments. Inland saline waters are threatened worldwide by diversion and pollution of their inflows, introductions of exotic species and economic development of these ecologically valuable habitats. Since 1979 a series of international symposia on inland saline waters has served to strengthen and expand the scope of limnological research on inland saline waters. The seventh conference continued this tradition and the papers derived from the conference focused on the ecology of microbial communities, the influence of habitat geochemistry on biogeography of flora and fauna, physical and geochemical processes, and the conservation of inland saline waters. Of particular note are papers on Walker Lake, Nevada (USA), and the Salton Sea and Mono Lake, California (USA). Continued local, national and international efforts are required to inform the public and decision-makers about the environmental problems faced by saline waters. The papers in this volume will serve this end and should be of interest to aquatic ecologists, limnologists, aquaculturalists, and water resource managers.

Cyanobacteria have existed for 3.5 billion years, yet they are still the most important photosynthetic organisms on the planet for cycling carbon and nitrogen. The ecosystems where they have key roles range from the warmer oceans to many Antarctic sites. They also include dense nuisance growths in nutrient-rich lakes and nitrogen-fixers which aid the fertility of rice-fields and many soils, especially the biological soil crusts of arid regions. Molecular biology has in recent years provided major advances in our understanding of cyanobacterial ecology. Perhaps for more than any other group of organisms, it is possible to see how the ecology, physiology, biochemistry, ultrastructure and molecular biology interact. This all helps to deal with practical problems such as the control of nuisance blooms and the use of cyanobacterial inocula to manage semi-desert soils. Large-scale culture of several organisms, especially "Spirulina" (*Arthrospira*), for health food and specialist products is increasingly being expanded for a much wider range of uses. In view of their probable contribution to past oil deposits, much attention is currently focused on their potential as a source of biofuel. Please visit <http://extras.springer.com/> to view Extra Materials belonging to this volume. This book complements the highly successful *Ecology of Cyanobacteria* and integrates the discoveries of the past twelve years with the older literature.

This is the third of three essential reference volumes for those concerned with the installation and servicing of domestic and industrial gas equipment. This volume explains the basic principles underlying the practical and theoretical aspects of installing and servicing gas appliances and associated equipment, from the basics of combustion, to burners, pressure and flow, transfer of heat, controls, as well as materials and processes, electrical aspects, and metering and measuring devices. Covering both Natural Gas and Liquefied Petroleum Gas, the many illustrations and worked examples included throughout the text will help the reader to understand the principles under discussion. Volume 3 of the Gas Service Technology Series will enable the reader to put into practice the safe installation and servicing procedures described in the companion volumes: *Basic Science and Practice of Gas Service* (Volume 1), and *Domestic Gas Installation Practice* (Volume 2). Combining a comprehensive reference with practical application in real-world engineering contexts, Volume 3 provides an essential handbook for all aspects of fundamental gas servicing technology, ideal for both students new to the field as well as professionals and non-operational professionals (e.g. specifiers, managers, supervisors) as an ongoing source of reference.

This book critically discusses different aspects of algal production systems and several of the drawbacks related to microalgal biomass production, namely, low biomass yield, and energy-consuming harvesting, dewatering, drying and extraction processes. These 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 photoautotrophic, heterotrophic, mixotrophic and oleaginous. 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.

This book brings together environmental scientists and engineers to discuss the development of new approaches and methodologies which utilize microalgae for biological wastewater treatment. The researchers report their recent findings on microalgal removal of nutrients, heavy

metals and other organic pollutants from sewage and industrial effluents. The technologies discussed here include biosorption and bioaccumulation of heavy metals, cell immobilization of algae, and mathematical modelling of metal uptake by cells. This book is unique in that it takes a practical approach to the subject matter and is a useful reference both in and outside of the laboratory.

Measurements of variable chlorophyll fluorescence have revolutionised global research of photosynthetic bacteria, algae and plants and in turn assessment of the status of aquatic ecosystems, a success that has partly been facilitated by the widespread commercialisation of a suite of chlorophyll fluorometers designed for almost every application in lakes, rivers and oceans. Numerous publications have been produced as researchers and assessors have simultaneously sought to optimise protocols and practices for key organisms or water bodies; however, such parallel efforts have led to difficulties in reconciling processes and patterns across the aquatic sciences. This book follows on from the first international conference on "chlorophyll fluorescence in the aquatic sciences" (AQUAFLUO 2007): to bridge the gaps between the concept, measurement and application of chlorophyll fluorescence through the synthesis and integration of current knowledge from leading researchers and assessors as well as instrument manufacturers.

This book offers a comprehensive overview of the surgical techniques available in reconstruction of the paralyzed face. It is divided into six parts. The first part introduces the topic of facial palsy, and the following parts provide detailed information on facial nerve reconstruction techniques, management of eye closure and smile reanimation. The book highlights symmetrization techniques and synkinesis and presents innovations and new frontiers in facial palsy. Written by an international group of experts who are committed to maintaining high standards and service in treating this condition and improving outcomes, it is a valuable source of information for clinicians and practitioners in plastic and reconstructive surgery, neurosurgeons and oral-and-maxillofacial surgeons, but also useful for researchers in this field.

A newsbreaking memoir that tackles head-on the toughest challenge in the world today. When a dying King Hussein shocked the world by picking his son rather than his brother, the longtime crown prince, to be the next king of Jordan, no one was more surprised than the young head of Special Operations, who discovered his life was in for a major upheaval. This is the inspirational story of a young prince who went to boarding school in America and military academy in Britain and grew up believing he would be a soldier. Back home, he hunted down terrorists and modernized Jordan's Special Forces. Then, suddenly, he found himself king. Together with his wife, Queen Rania, he transformed what it meant to be a monarch, going undercover to escape the bubble of the court while she became the Muslim world's most passionate advocate of women's rights. In this exceptionally candid memoir, King Abdullah tackles the single toughest issue he faces head-on- how to solve the Israeli-Palestinian standoff- and reveals himself to be an invaluable intermediary between America and the Arab world. He writes about the impact of the Iraq war on his neighborhood and how best to tackle Iran's nuclear ambitions. Why would a sitting head of state choose to write about the most explosive issues he faces? King Abdullah does so now because he believes we face a moment of truth: a last chance for peace in the Middle East. The prize is enormous, the cost of failure far greater than we dare imagine.

Nitrogen rich wastewaters (10-400 mg N L⁻¹) are usually produced by municipal, industrial and agricultural wastes, such as effluents from anaerobic treatments. These represent a risk to the environment due to the high nutrient concentrations (nitrogen and phosphorous), which can cause eutrophication of water bodies, deteriorating the quality of the ecosystems. As a solution, the potential nitrogen removal capacity of a novel bio-treatment system, namely the Photo-Activated Sludge (PAS), which is composed of microalgae and bacteria consortia, is presented in this thesis. This novel bio-treatment is based on the symbiosis between microalgae, nitrifiers and heterotrophic bacteria (microalgal-bacterial consortia). Experimental work using photobioreactors for the cultivation of microalgae and bacteria under sequencing batch conditions showed that microalgal-bacterial consortia can remove ammonium 50% faster than solely microalgal consortia. The increase in ammonium removal rates was due to the action of nitrifying bacteria, supplied with oxygen produced by algae. Nitrification was the main ammonium removal mechanism within the microalgal-bacterial biomass, followed by algal uptake and nutrient requirements for bacterial growth. Carbon oxidation and denitrification were the main removal mechanisms for organic carbon. Hence, the role of algae within the microalgal-bacterial system is to provide oxygen to support the aerobic processes. The microalgal-bacterial system offers the possibility of reducing the hydraulic retention time, which can decrease the large area requirements often demanded by algal systems.

This book presents the state-of-art in regenerative procedures currently applied by aesthetic physicians, plastic surgeons and dermatologists. It is divided into two parts, the first of which provides a detailed introduction to aesthetic medicine and the aging process. The second part, in turn, addresses the current status of techniques and technologies with regard to autologous grafts, covering fat transfer, blood grafts, skin grafts and stem cells. The book examines the surgical applications of these grafts, as well as potential side effects and limitations. Therapy combinations and outcomes round out the coverage. Aesthetic physicians, plastic surgeons and dermatologists interested in performing regenerative procedures for aesthetic purposes will find this book to be a valuable guide.

Cleft Palate and Craniofacial Conditions is the marketing leading title for the graduate course on craniofacial conditions and cleft palate or as a sourcebook for health care professionals who provide service in this area. It is designed to be a how-to guide as well as a source of didactic and theoretical information. Author, Ann Kummer, is a highly recognized and respected active clinician with a specialty in the field.

Chlorophyll a Fluorescence in Aquatic Sciences: Methods and Applications Springer Science & Business Media
Algae Based Polymers, Blends, and Composites: Chemistry, Biotechnology and Material Sciences offers considerable detail on the origin of algae, extraction of useful metabolites and major compounds from algal bio-mass, and the production and future prospects of sustainable polymers derived from algae, blends of algae, and algae based 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 conversion of bio-mass into high value chemicals, energy, and materials has ample financial and ecological 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 is left to decompose. Similarly, the use of this enormous underexploited biomass is mainly limited to food consumption and as bio-fertilizer. 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 and future prospects of algae-based biopolymers, giving the latest insight into the future of these sustainable materials

As the expansion in world aquaculture continues at a very high rate, so does the need for information on feeding of cultivated fish and shellfish. In the larval and juvenile phases of many species, the use of manufactured feed is not possible. This important book covers in detail the biology and culture of the main live prey and microalgae used as feeds in the aquaculture of major commercial species including shrimps, sea bass, halibut, cod and bivalves. Contents include comprehensive details of the status of marine aquaculture in relation to live prey, and chapters covering the biology,

production, harvesting, processing and nutritional value of microalgae and the main prey species: rotifers, *Artemia* and copepods. The editors have drawn together an impressive international team of contributors, providing a work that is set to become the standard reference and practical guide on the subject for many years to come. *Live Feeds in Marine Aquaculture* is an essential purchase for anyone involved in marine aquaculture, including fish farmers, researchers, and personnel in feed and equipment companies supplying the aquaculture trade. An extremely valuable tool as a reference and practical manual for students and professionals alike; libraries in all universities and research establishments where biological and aquatic sciences and aquaculture are studied and taught, should have copies available on their shelves. This book elucidates on the examination technique, the sonographic changes in musculoskeletal rheumatic involvement and the ultrasound assessment of joint rheumatic diseases. The atlas is enriched with several figures, in which the US picture is compared with that of conventional radiography, CT and MRI. It provides a unique collection of black and white and color images for easy and reliable diagnosis. The book is a practice-oriented tool.

The editors have gathered 15 laser experts from the United States, Europe and Asia to present the most up to date information in cutaneous laser surgery and intense pulsed light technologies. This innovative book describes new laser techniques (laserlipolysis, fractional photothermolysis, among others) and provides expert guidance on using lasers successfully in over 80 clinical indications.

Do the dead have rights? In a persuasive argument, Don Herzog makes the case that the deceased's interests should be protected. This is a delightfully deceptive work that starts out with a simple, seemingly arcane question—can you libel or slander the dead?—and develops it outward, tackling larger and larger implications, until it ends up straddling the borders between law, culture, philosophy, and the meaning of life. A full answer to this question requires legal scholar Don Herzog to consider what tort law is actually designed to protect, what differences death makes—and what differences it doesn't—and why we value what we value. Herzog is one of those rare scholarly writers who can make the most abstract argument compelling and entertaining.

This book offers authoritative contributions by world experts actively working on different aspects of phototrophic prokaryotes. Providing up-to-date information in this rapidly advancing field, it covers the range of topics that are currently the focus of research with this group of organisms. As essentially single-celled organisms, phototrophic prokaryotes process many environmental signals and use this information to optimize their metabolism, growth rate, DNA replication and cell division. Phototrophic prokaryotes are collectively of great interest for a number of different fundamental and applied perspectives and have long served as models for understanding such basic fundamental biological processes as photosynthesis and respiration. On an ecological/environmental level they are extremely important, being the most abundant photosynthetic organisms on earth and responsible for the majority of the primary productivity in the oceans. They also hold great promise as biotechnological catalysts, being able to couple solar energy conversion through photosynthesis and carbon fixation to the production of biofuels, commodity chemicals and nutraceuticals. The book is recommended to advanced students and scientists dealing with life sciences, especially in genetics, microbiology and molecular biology.

This edited volume focuses on comprehensive state-of-the-art information about the practical aspects of cultivation, harvesting, biomass processing and biofuel production from algae. Chapters cover topics such as synthetic ecological engineering approaches towards sustainable production of biofuel feedstock, and algal biofuel production processes using wastewater. Readers will also discover more about the role of biotechnological engineering in improving ecophysiology, biomass and lipid yields. Particular attention is given to opportunities of commercialization of algal biofuels that provides a realistic assessment of various techno-economical aspects of pilot scale algal biofuel production. The authors also explore the pre-treatment of biomass, catalytic conversion of algal lipids and hydrothermal liquefaction with the biorefinery approach in detail. In a nutshell, this volume will provide a wealth of information based on a realistic evaluation of contemporary developments in algal biofuel research with an emphasis on pilot scale studies. Researchers studying and working in the areas of environmental science, biotechnology, genetic engineering and biochemistry will find this work instructive and informative.

Global yields of legumes have been relatively stagnant for the last five decades, despite the adoption of conventional and molecular breeding approaches. The use of plant growth-promoting (PGP) bacteria for improving agricultural production, soil and plant health has become one of the most attractive strategies for developing sustainable agriculture. Actinomycetes are bacteria that play an important role in PGP and plant protection, produce secondary metabolites of commercial interest, and their use is well documented in wheat, rice, beans, chickpeas and peas. In order to promote legumes, the general assembly of the UN recently declared 2016 the "International Year of Pulses." In view of this development, this book illustrates how PGP actinomycetes can improve grain yield and soil fertility, improve control of insect pests and phytopathogens, and enhance host-plant resistance. It also addresses special topics of current interest, e.g. the role of PGP actinomycetes in the biofortification of legume seeds and bioremediation of heavy metals.

Covers different categories of green technologies (e.g. biofuels, renewable energy sources, phytoremediation etc.) in a nutshell -Focuses on next generation technologies which will help to attain the sustainable development -The chapters widely cover for students, faculties and researchers in the scientific arena of Environmentalists, Agriculturalists, Engineers and Policy Makers The World Environment Day 2012 is prepared to embrace green economy. The theme for 2012 encompasses various aspects of human living, ranging from transport to energy to food to sustainable livelihood. Green technology, an eco-friendly clean technology contributes to sustainable development to conserve the natural resources and environment which will meet the demands of the present and future generations. The proposed book mainly focuses on renewable energy sources, organic farming practices, phyto/bioremediation of contaminants, biofuels, green buildings and green chemistry. All of these eco-friendly technologies will help to reduce the amount of waste and pollution and enhance the nation's economic growth in a sustainable manner. This book is aimed to provide an integrated approach to sustainable environment and it will be of interest not only to

environmentalists but also to agriculturists, soil scientists and bridge the gap between the scientists and policy-makers. The first all-inclusive text on the pitfalls, complications and controversies surrounding the use of lasers in dermatology and aesthetic medicine Each chapter starts off by highlighting the key points and essential concepts, followed by a review of the associated pearls and problems Provides the reader with tips on how to improve the safe and effective use of lasers Images focus on the pearls and problems Laser Dermatology: Pearls and Problems is different from other laser dermatology books. Each of the five chapters begins by highlighting key points and essential concepts, then focuses on the pearls and problems for each area – based on the author's vast experience in the field of laser dermatology. Dr. Goldberg addresses: Vascular Lasers Laser Hair Removal Pigmented Lesions, Tattoos, and Disorders of Hypopigmentation Ablative Lasers and Devices Non-Ablative Photorejuvenation and Skin Remodeling Dr. Goldberg goes beyond the standard "before and after" approach to use actual images to demonstrate the pearls and pitfalls discussed in the text.

This edited book, is a collection of 25 chapters describing the recent advancements in the application of microbial technology in the food and pharmacology sector. The main focus of this book is application of microbes, food preservation techniques utilizing microbes, probiotics, seaweeds, algae, enzymatic abatement of urethane in fermentation of beverages, bioethanol production, pesticides, probiotic biosurfactants, drought tolerance, synthesis of application of oncolytic viruses in cancer treatment, microbe based metallic nanoparticles, agro chemicals, endophytes, metabolites, antibiotics etc. This book highlighted the significant aspects of the vast subject area of microbial biotechnology and their potential applications in food and pharmacology with various topics from eminent experts around the World. This book would serve as an excellent reference book for researchers and students in the Food Science, Food Biotechnology, Microbiology and Pharmaceutical fields.

In the last decade, enormous progress has been made on the physiology of plant roots, including on a wide range of molecular aspects. Much of that progress has been captured in the chapters of this book. Breakthroughs have been made possible through integration of molecular and whole-plant aspects. The classical boundaries between physiology, biochemistry and molecular biology have vanished. There has been a strong focus on a limited number of model species, including *Arabidopsis thaliana*. That focus has allowed greater insight into the significance of specific genes for plant development and functioning. However, many species are very different from *A. thaliana*, in that they are mycorrhizal, develop a symbiosis with N₂-fixing microsymbionts, or have other specialised root structures. Also, some have a much greater capacity to resist extreme environments, such as soil acidity, salinity, flooding or heavy-metal toxicities, due to specific adaptations. Research on species other than *A. thaliana* is therefore pivotal, to develop new knowledge in plant sciences in a comprehensive manner. This fundamental new knowledge can be the basis for important applications in, e.g., agriculture and plant conservation. Although significant progress has been made, much remains to be learnt. It is envisaged that discoveries made in the recent past will likely lead to major breakthroughs in the next decade.

Algae Energy covers the production of algae culture and the usage of algal biomass conversion products. It also reviews modern biomass-based transportation fuels, including biodiesel, bio-oil, biomethane and biohydrogen. Each chapter opens with fundamental explanations suitable for those with a general interest in algae energy and goes on to provide in-depth scientific details for more expert readers. Algae energy is discussed within the wider context of green energy, with chapters covering topics such as: green energy facilities, algae technology, energy from algae and biodiesel from algae. Algae Energy addresses the needs of energy researchers, chemical engineers, fuel and environmental engineers, postgraduate and advanced undergraduate students, and others interested in a practical tool for pursuing their interest in bio-energy.

The ultimate all-in-one guide to treating and diagnosing skin cancer Comprehensive in scope, yet precise in its approach, this superbly illustrated text is a must-have clinical companion for any dermatology practice. Skin Cancer carefully takes you through every important step in the diagnosis and clinical management of skin cancer conditions. Skin Cancer begins with an incisive discussion of both normal and aging skin, and the incidences and causes of skin cancer. Next, you'll get a thorough look at all types of skin cancer-followed by a section on treating cancer in various patient populations, including non-white populations, children, and pregnant women. The book concludes with in-depth sections on skin cancer prevention-covering critical topics such as skin cancer vaccines and chemoprevention of skin cancer-in addition to the medicolegal and economic issues related to skin cancer. Features: The complete A-to-Z guide to skin cancer, offering a clear understanding of skin cancer epidemiology, pathophysiology, diagnosis, treatment, future directions, and medicolegal and psychosocial aspects More than 450 illustrations State-of-the-art coverage of biopsy techniques, dermoscopy and mole mapping, surgical excision, reconstructive surgery of eye lid cancers and skin cancer defects, and more Consistent outlines of chapters within a section that summarize chapter material Key points that introduce the start of each major section within a chapter Numerous easy-to-use tables and boxes

This book describes the concept, characteristics, methodology, design, management, business, recent advances and future technologies of plant factories with artificial lighting (PFAL) and indoor vertical farms. The third wave of PFAL business started in around 2010 in Japan and Taiwan, and in USA and Europe it began in about 2013 after the rapid advances in LED technology. The book discusses the basic and advanced developments in recent PFALs and future smart PFALs that emerged in 2016. There is an emerging interest around the globe in smart PFAL R&D and business, which are expected to play an important role in urban agriculture in the coming decades. It is also expected that they will contribute to solving the trilemma of food, environment and natural resources with increasing urban populations and decreasing agricultural populations and arable land area. Current obstacles to successful PFAL R&D and business are: 1) no well-accepted concepts and methodology for PFAL design and management, 2) lack of understanding of the environmental effects on plant growth and development and hydroponics among engineers; 3) lack of understanding of the technical and engineering aspects of PFAL among horticulturists; 4) lack of knowledge of the technical challenges and opportunities in future PFAL businesses among business professionals, policy makers, and investors and 5) lack of a suitable textbook on the recent advances in PFAL technologies and business for graduate students and young researchers. This book covers all the aspects of successful smart PFAL R & D and business.

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