Environmental Biotechnology Principles And Applications | 2a4804d4a028ba7864edcc2d2b708d3

Environmental Biotechnology

A deeper insight into the complex processes involved in this field, covering the biological, chemical and engineering fundamentals needed to further develop effective methodologies. The book devotes detailed chapters to each of the four main areas of environmental biotechnology – wastewater treatment, soil remediation, atmospheric pollution, and water treatment – making the book a unique one-stop-shop for the field.

Environmental Biotechnology: Principles And Applications

Industrial biotechnology can be defined as the use of modern biological life sciences in various industries. Biotechnology has a myriad of applications in our day-to-day life such as with simple processes such as the brewing of beer, use of enzymes in detergents, production of fermented food, production of antibiotics, nutritional supplements etc. This book also includes processes (production of biofuels, treatment of effluents) that contribute to creating efficient, eco-friendly environments. This book discusses the different aspects of bioremediation, media design, fermenter design and the economics of it. It also explains in detail the processes and techniques involved in the production of commercially important products. This book is an up-to-date collection of the latest practices being followed in the field of industrial biotechnology for students both at the undergraduate and postgraduate level.

Biotechnology

Microbial biotechnology is an important area that promotes advanced research into using microbes for value-added products, human nutrition, and the overall wellbeing of society. This book presents the latest contributions from authoritative researchers in the field, it addresses recent advances in microbial biotechnological approaches that offer sustainable options for future generations. Exploring a broad range of microbial biotechnological areas, the book is divided into six parts. The first part of the book introduces the reader(s) to the basic principles of microbial biotechnology and provides a solid understanding of the discipline. The second part of the book covers the roles of microbes and their contributions to society. The book continues to be one of the most comprehensive sources of information on microbial biotechnology.

Environmental Biotechnology

This book provides the information on the application of nanotechnology in cleaning wastewater and the impact of microbial ecosystem to solve environmental problems has been critically reviewed in the chapters. It also gives detailed review about the conversion of wastewater nutrients into a bioremediator using a microalgae, as well as the applications of Biochar for heavy metal remediation from water. Most importantly, this book contains critical review on microbial fuel cells and highlights the emerging risks of biofortications on the aquatic ecosystem.

Nonmaterials and Environmental Biotechnology

Marine OMICS

Now available with the most current and relevant journal articles from Cell Press, Biotechnology: Academic-Cell Edition Update approaches modern biotechnology from a molecular basis, which grew out of the increasing bio-OMICS and genome sequencing technologies. Using a simple and down-to-earth approach, each chapter on each topic draws from authoritative sources. The book addresses the many concepts and principles in biotechnology. This up-to-date text covers a wide realm of topics, including the foremost used in crime scene investigations, the burgeoning field of nanobiotechnology, bioethics and other cutting edge topics in today’s world of biotechnology. Basic concepts followed by more detailed, specific applications with clear, color illustrations of key topics and concepts.

Environmental Biotechnology Vol. 2

The past 30 years have seen the emergence of a growing desire worldwide that positive actions be taken to restore and protect the environment from the degrading effects of all forms of pollution – air, water, soil, etc. Since pollution is a direct or indirect consequence of waste production, the seemingly endless demand for “zero discharge” can be construed as an unrealistic demand for zero waste. However, as long as waste continues to exist, we can only attempt to abate the subsequent pollution by converting it to a less noxious form. Three major questions usually arise when a particular type of pollution has been identified: (1) How serious is the pollution? (2) Is the technology to abate it available? and (3) Do the costs of abatement justify the degree of abatement achieved? This book is one of the volumes of the Handbook of Environmental Engineering.

Environmental Biotechnology Vol. 3

The application of biologically-engineered solutions to environmental problems has become far more realistically acceptable and widely understood. However there remains some uncertainty amongst practitioners regarding how and where the microorganism; functional role fits into the macropractical applications. In this book the potential for biotechnological interventions and current industrial practice, with the understanding microbial techniques and methods described, is contrasted against this background. Each chapter begins with a précis of the techniques relevant to the case studies from a range of commercial applications and case studies from a range of commercial applications. The book is divided into two parts. The first part of the book introduces the reader(s) to the basic principles of environmental engineering and provides a solid understanding of the discipline. The second part of the book covers the roles of microbes and their contributions to society. The book continues to be one of the most comprehensive sources of information on microbial biotechnology.

Industrial Biotechnology

This book provides an in-depth coverage on current trends in marine omics of various relevant topics such as genomics, lipidomics, proteomics, transcriptomics, metabolomics, nutrigenomics, pharmacogenomics and xenobiogenomics as related to and applied to marine biotechnology, molecular biology, marine biology, marine microbiology, environmental biotechnology, environmental science, aquaculture, and marine science and biotechnology engineering.

Environmental Biotechnology: Principles And Applications

Biotechnology offers a ’natural’ way of addressing environmental problems, ranging from identification of biofuels to bioremediation techniques for industrial, agricultural and municipal effluents and residues. Biotechnology is now established as the paradigm of “sustainable development.” This collection of 66 papers, by authors from 20 countries in 6 continents, addresses many of these issues. The material presented will interest scientists, engineers, and others in industry, government and academia. It incorporates both introductory and advanced aspects of the subject, matter, which includes water, air and soil treatment, bioremediation, industrial biotechnology, genetic engineering of microorganisms, and policy issues in applying biotechnology to environmental problems. The papers present a variety of aspects ranging from current state-of-the-art research, to examples of applications of these technologies.

Environmental Technologies to Treat Nitrogen Pollution

The book traces the roots of plant biotechnology from the basic sciences to current applications in the biological and agricultural sciences, industry, and medicine. Providing intriguing opportunities to manipulate plant genetic and metabolic systems, plant biotechnology has now become an exciting area of research. The book studies the fundamental processes and methods used to genetically engineer plants for agricultural, environmental and industrial applications. It also discusses related biotechnologies that are often overlooked by methodologies used to develop plants’ tolerance against biotic and abiotic stresses and in the development of special foods, bio-chemicals, and pharmaceuticals. The topics discussed will be of considerable interest to both graduate and postgraduate students. Further, the book offers an ideal guide for advance undergraduate students who are interested in pursuing a career in biotechnology.

Environmental Biotechnology: Principles and Applications

In Environmental Biotechnology: Principles and Applications, the authors connect the many diverse and complex aspects of environmental biotechnology. The book develops the basic concepts and quantitative tools in the first six chapters of the book. In the second half of the book, the authors explore in depth the principles of research and applications in environmental biotechnology. The book is an invaluable resource for students and professionals who are interested in environmental biotechnology.
chapters, which comprise the text. The first consistently calls upon those principles as it describes the applications in Chapters 7 through 16. The theme is that all microbiological processes behave in ways that are understandable, predictable, and unified. At the same time, the book has its own special features that must be understood. The special features do not overturn or sidestep the common principles. Instead, they complement the principles and are most profitably understood in light of the principles.

Environmental Biotechnology Vol. 1

Environmental Technologies to Treat Nitrogen Contamination. This book provides a thorough understanding of the principles and applications of environmental technologies to treat nitrogen contamination. The main focus will be on water and wastewater treatment, with additional coverage of biofuels and off-gasses. The book will bring together up-to-date compilation of the main physical, chemical and biological processes demanded for the removal of nitrogenous contaminants from water, wastewater, biofuels and off-gasses. It will include a series of chapters providing a deep and broad knowledge of the principles and applications required for the treatment of nitrogenous contaminants. Each chapter will be prepared by recognized specialists across the range of different aspects involved in the removal of nitrogenous contaminants from industrial discharges. Environmental Biotechnology to Treat Nitrogen Pollution will be the first book to provide a complete review of all the different processes used for the global management of nitrogen pollution. It will also contain updated information about strategies to achieve nitrogen recovery and reuse in different industrial sectors. Several case studies will document the application of different environmental technologies to manage nitrogen pollution. This book will be of interest to lecturers and graduate students in the following subject areas: environmental engineering, environmental biotechnology, wastewater treatment plant design, water pollution control, contains nitrogen recovery and reuse. The book will also be an attractive reference for environmental engineering consultants.

Biotechnology for Beginners

Applied Environmental Engineering. Present Scenario and Future Trends is designed to serve as a reference book for students and researchers working in the area of applied environmental science. It presents various applications of environmental studies that use the role of living organisms, bioprocesses engineering technology, and other fields in solving environmental problems like waste and water issues. It includes not only the pure biological sciences such as genetics, microbiology, biochemistry and chemistry that also from outside the sphere of biology such as chemical engineering, bioprocess engineering, information technology, and biotechnological principles. The fundamentals of bioremediation, the book introduces various environmental applications such as bioremediation, phytoremediation, microbial remediation, chemical processes in remediation and exploration, in-situ approach to study the regulatory mechanisms and pathways of industrially important microbial microorganisms biological phosphorous removal, ameliorative approaches for management of chromium phytostabilization, sustainable waste management, and environmental biotechnology. This book will be of interest to lecturers and graduate students in the following subject areas: environmental engineering, environmental biotechnology, wastewater treatment plant design, water pollution control, contains nitrogen recovery and reuse. The book will also be an attractive reference for environmental engineering consultants.

Principles and Applications of Environmental Biotechnology for a Sustainable Future

The Book Covers The Fundamental Principles And Concepts In Biotechnology Which Write The Format For The Subject And Illustrates Their Applications In Selected Areas Such As Health Care, Agriculture, Animal Systems, Bioprocess Technologies And Environmental Aspects. This Textbook Is The Outcome Of A Coasted-Bot Project On Curriculum Development In Biotechnology For Undergraduate Study. It Is Designed To Provide A Strong Base In This Emerging, Interdisciplinary Area Which Holds Great Promise For Economic Development.

Luminescence Biotechnology

This book provides the technological insight on bioremediation and biorecovery and provides comprehensive reviews on applications of Biochar for environmental sustainability. Critical review on biosurfactants in food application open up new possibilities. At nanoscale dimensions, it creates precise nanomaterials and nanodevices. Integrated nanomaterials are used with modified surface layers for compatibility with living systems, improved dissolution in water, or biocompatibility leading to enhanced results and end results in biotechnological systems. These nanoparticles can also be hybridized with other biocompatible substances in order to amend their qualities to isolate novel utilities. Nanobiotechnology is used in inorganic chemistry by tuning up the functionality of non-organically obtained molecular components and biological molecules in order to yield the remarkable size, shape, and composition of the delivery, biocatalysis and bioimaging. This book elucidates the science of biology, medicine, biotechnological chemistry, nanobiology, chemistry, material and physical sciences, biomedical engineering, electrical, mechanical, and chemical science to present a comprehensive range of advancements. The development of nano-based materials has made for a greater understanding of their characterization, using a nanobiotechnological approach, to control the environment, cancer, disease, and so on. This volume also highlights the importance of nanobiotechnology in environmental biotechnology and environmental protection. It also emphasizes the significance of nanobiotechnology to a series of medical applications viz., diagnostics, and therapeutic stem cell technology, tissue engineering enzyme engineering, and so on.

Basic Concepts In Environmental Biotechnology

This textbook on Environmental Biotechnology not only presents an unabridged overview of the practical biological approaches currently employed to address environmental problems, but also equips readers with a working knowledge of the science that underpins them. Starting with the fundamentals of biotechnology, it subsequently provides detailed discussions of global environmental problems including microbes and their interactions, bioremediation and their remediation, waste management, waste water treatment, bioreactors, biosensors, biosensing and biotechnology. This book also covers renewable and non-renewable resource management, biodiversity and its conservation, and approaches to monitoring biotechnological industries, genetically modified microorganisms and foods so as to increase awareness. All chapters are written in a highly accessible style, and each also includes a short bibliography for further research. In summary this textbook offers a valuable asset, allowing students, young researchers and professionals in the biotechnology industry to grasp the basics of environmental biotechnology.

Animal Biotechnology

In the second edition of this bestselling textbook, new material has been added, including a new chapter on real time polymerase chain reaction (RT-PCR) and a chapter on fungal solid state cultivation. There already exists a number of excellent general textbooks on microbiology and biotechnology that deal with the basic principles of microbial biotechnology. To complement them, this book focuses on the various applications of microorganisms in several areas. A teaching-based format is adopted, whereby working problems, as well as answers to frequently asked questions, supplement the main text. The book also includes real life applications, and examples of how the application of microbial-biotechnological principles has achieved breakthroughs in both research and industrial production. Although written for polytechnic students and undergraduates, the book also contains information that will bring you quickly up to date on the technology, recent research developments, and cutting-edge applications.

Omics Technologies and Bio-engineering

The emphasis and drawbacks inherent in radiotracer-based methods along with a demonstrated and dramatic increase in sensitivity have prompted a major shift towards luminescence measurements and visualization techniques. This book provides a comprehensive guide to the application of fusing two-dimensional gel electrophoresis, immunodetection, and high-throughput screening. Luminescence Biotechnology. Science Instruments specializes in luminescence optical detection and imaging of biomolecules, and the book provides a comprehensive overview of the subject. This book will be of interest to lecturers and graduate students in the following subject areas: environmental engineering, environmental biotechnology, wastewater treatment plant design, water pollution control, contains nitrogen recovery and reuse. The book will also be an attractive reference for environmental engineering consultants.

Environmental Biotechnology

Genetic analysis of animal biotechnology has produced new food and pharmaceutical products and promises many more advances to benefit human kind. These exciting prospects are accompanied by considerable issues however, about matters such as ethics and safety. This book identifies science-based and policy-related concerns about animal biotechnology regulatory issues that are addressed before the new breakthroughs can reach their potential. The book includes a short history of the field and provides understandable definitions of terms like cloning. Looking at techniques on the near horizon, the authors discuss what we know and what we fear about their effects—the inadvertent release of dangerous microorganisms, the safety of products derived from biotechnology, the impact of genetically engineered animals on their environment. In addition to these
concerns, the book explores animal welfare concerns, and our societal and institutional capacity to manage and regulate the technology and its products. This accessible volume will be important to everyone interested in the implications of the use of animal biotechnology.

**Microbial Biotechnology**

This book discusses environmental microbiology, phytoremediation, solid waste disposal, and applied methods of wastewater treatment. Biotechnology, animal biotechnology, bioremediation, and industrial biotechnology are also covered. It is an essential reference for students and professionals working in the fields of biotechnology and environmental health care. Covers various aspects of environmental microbiology, including the role of microbes in bioremediation, anaerobic bioremediation, and environmental biotechnology.

**An aerobic Biotechnology for Bioenergy Production**

Omics Technologies and Bio-Engineering: Towards Improving Quality of Life, Volume 1 is a unique reference that brings together multiple perspectives on omics research, providing in-depth analysis and insights from an international team of authors. The book delivers pivotal omics research that will inform and improve medical and biological research by helping researchers gain more direct access to analytical data, an increased understanding of omics technologies. It focuses on bioproduction for bioenergy, including the use of microbes in biofuels and biotechnology.

**Environmental Biotechnology**

This book provides information on environmental biotechnological principles and their applications, including bioremediation, wastewater treatment, and alternative fuels. It also covers the latest developments in the field, including biofuel technologies. Provides a critical review of omics approaches in personalized and precision medicine. Includes a comprehensive view on how one can utilize omics data in molecular biology, biotechnology, and human health care.

**Applied Environmental Biotechnology: Present Scenarios and Future Trends**

This volume is a collection of informative chapters on various subjects. It provides information on the effects of pesticides on avian fauna, the impact of microbial ecosystems on soil environments, a detailed review on issues in membrane distillation process, microbial sensor for detection of pollutants, microbial biosensors, biotechnological applications of immobilized microbes as well as a review on Bioch production. Most importantly, this book contains a critical review on microbial degradation of plastic wastes and highlights the Bioproduction and Bioremediation of Herbicides.

**Environmental Biotechnology: Principles and Applications, Second Edition**

Environmental Biotechnology impinges on everyone’s lives. It is one of the major technologies of the twenty-first century with wide-ranging, multidisciplinary activities ranging from small entities of life to large-scale processes. As an introductory text, this book focuses on the background and historical context of contemporary issues in biotechnology. It then explains the scientific principles of environmental biotechnologies, environmental bioinformatics, the role of environment in biotechnology, environmental risk assessment, and the reduction and management of biotechnological risks. It describes ways to address environmental issues related to biotechnology and emphasizes the importance of environmental biosafety and biosecurity.

**Biotechnology for Environment and Health**

Biotechnology offers a “natural” way of addressing environmental problems, ranging from identification of biohazards to biomedia engineering techniques for industrial, agricultural, and municipal effluents and food products. Biotechnology is also a crucial element in the paradigm of sustainability. This book provides a comprehensive overview of biotechnology and its applications to environmental problems, illustrating the tremendous potential this technology has to change our world by improving the food supply. As an introductory text, it focuses on basic science and processes. It gives students a fundamental understanding of biotechnology principles and applications of plant biotechnology. The book then examines the critical issues of patents and intellectual property and then tackles the many controversies and consumer concerns over transgenic plants.

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