
Textbook Of Environmental Biotechnology P K Mohapatra

Theory and Application

Bioremediation for Environmental Sustainability

Environmental Pollutants and their Bioremediation Approaches

Environmental and Health Impact of Hospital Wastewater

Introduction to Environmental Biotechnology

Basic Concepts and Applications

A Textbook of Biotechnology

Sustainable Resource Recovery and Zero Waste Approaches

Toxicity, Mechanisms of Contaminants Degradation, Detoxification and Challenges

Biodegradation and Bioremediation

Comprehensive Biotechnology

Applied Bioremediation and Phytoremediation

Textbook of Environmental Microbiology

Biotechnology

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Biodiversity and Environmental Biotechnology

Biotechnology

Diversity, Improvement, and Application of Microbes for Food Processing, Healthcare, Environmental Safety, and Agriculture

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Environmental Biotechnology

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Theory and Application CRC Press

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, and noise. Since pollution is a direct or indirect consequence of waste production, the seemingly idealistic 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 series. The principal intention of this series is to help readers formulate answers to the last two questions above. The traditional approach of applying tried-and-true solutions to speci

c pollution problems has been a major contributing factor to the success of environmental engineering, and has accounted in large measure for the establishment of a “methodology of pollution control.” However, the realization of the ever-increasing complexity and interrelated nature of current environmental problems renders it imperative that intelligent planning of pollution abatement systems be undertaken.

Bioremediation for Environmental Sustainability I. K. International Pvt Ltd

The book includes current and emerging concepts in the areas of environmental biotechnology such as pollution sources, control and measurement, solid waste management, bioremediation, biofuels, biosensors, bioleaching, conservation biotechnology and more. The book also includes recent innovations made in this field and incorporates case studies to help in understanding the concepts. This book applies principles from multidisciplinary sciences of environmental engineering, metabolic engineering, rDNA technology and omics to study the role of microbes and plants in tackling environmental issues. It also includes content related to risk assessment and environmental management systems. Each chapter provides problems and solutions of different topics with diagrammatic illustrations and tables for students, researchers and other professionals in environmental biotechnology. Explores cutting-edge technologies, including nanotechnology-based bioremediation, value-added products from waste and emerging techniques related to environmental risk assessment and monitoring Reviews the current methods being applied in the environment field for pollution control, waste management, biodegradation of organic and inorganic pollutants

and so on Provides in-depth knowledge of the latest advancements in the field of environmental biotechnology such as bioleaching, biomining and advances in biotechnology-based conservation of biodiversity Introduces undergraduate and post-graduate students to basic concepts of environmental biotechnology and allied fields Discusses different products such as biofuels, biopolymers and biosensors that are being produced using biotechnological methods, thus contributing towards the goal of sustainable development Dr. Neetu Sharma is Assistant Professor in the Department of Biotechnology, GGSDS College, Chandigarh, India. The main thrust of her research centers on biotechnology, bioremediation and nanotechnology. Abhinashi Singh Sodhi is Assistant Professor in the Department of Biotechnology, GGSDS College, Chandigarh, India. His current research focuses on waste reduction, valorization and bioproduct formation. Dr. Navneet Batra is Associate Professor and Head, Department of Biotechnology, GGSDS College, Chandigarh, India. He has extensive academic and research experience of over 20 years with specialization in biotechnology and biochemical engineering.

Environmental Pollutants and their Bioremediation Approaches
Academic Cell

Environmental Biotechnology was conceived after scanning the available literature in the area, which indicated that references in the subject are scanty and highly sporadic. This book provides comprehensive information on the different aspects of environmental biotechnology and also discusses the processes and new technologies dealing with pollutants, degradation and resource recovery. It has been designed to serve as a good study

material for the students and researchers in the field. At the end of the book there is an exhaustive reference section to guide the readers for additional reading. The book discusses:

- New approaches to wastewater treatment
- Use of endemic or exotic biota as a nutrient filter to purify nutrient-loaded wastewater and nutrient-enriched eutrophic surface water
- Production of usable primary and secondary biomass using waste, wastewater and wasteland
- Efficient biomass management techniques
- Several emerging areas like microalgal cultivation techniques using wastewater
- Production of value added products from algae
- Statistical approach to analyze the toxic effects of xenobiotics using biological test batteries and biopesticides
- Integrated pest management
- Advanced techniques to study environmental contamination
- Biological experimental procedures to determine the level of contamination

Environmental and Health Impact of Hospital Wastewater OUP

This book was developed from the proceedings of the American Chemical Society, Division of Agricultural & Food Chemistry, subdivision of Natural Products Symposium "Biosynthesis and Metabolism of Secondary Natural Products" held in Atlanta, Georgia, April 1991. The objective of the conference was to bring together people from apparently diverse fields, ranging from biotechnology, metabolism, mechanistic organic chemistry, enzymology, fermentation, and biosynthesis, but who share a common interest in either the biosynthesis or the metabolism of natural products. It is our intention to help bridge the gap between the fields of mechanistic bio-organic chemistry and biotechnology. Our thanks go to Dr. Henry Yokoyama, co-organizer of the symposium, the authors who so kindly

contributed chapters, the conference participants, and to those who assisted in the peer review process. We also thank the financial supporters of the symposium: ACS/AGFD, NIH General Medical Sciences, and the agricultural, pharmaceutical, biotechnology, and chromatography companies. A full list of the supporting corporations and institutions is given on the following page. Pharma-Tech and P.C., Inc. are manufacturers of instrumentation for high-speed countercurrent chromatography. We thank the Agricultural Research Service and the U. S. Department of Agriculture for granting me permission to co-organize the conference and for us to complete the book. Richard J. Petroski Susan P. McCormick USDA, ARS, National Center for Agricultural Utilization Research Peoria, IL 61604 June 10, 1992

vii CONTENTS ANTIBIOTICS Polyketide Synthetases: Enzyme Complexes and Multifunctional Proteins Directing the Biosynthesis of Bacterial Metabolites from Fatty Acids. 3

Introduction to Environmental Biotechnology Springer Science & Business Media

The second edition of Comprehensive Biotechnology continues the tradition of the first inclusive work on this dynamic field with up-to-date and essential entries on the principles and practice of biotechnology. The integration of the latest relevant science and industry practice with fundamental biotechnology concepts is presented with entries from internationally recognized world leaders in their given fields. With two volumes covering basic fundamentals, and four volumes of applications, from environmental biotechnology and safety to medical biotechnology and healthcare, this work serves the needs of

newcomers as well as established experts combining the latest relevant science and industry practice in a manageable format. It is a multi-authored work, written by experts and vetted by a prestigious advisory board and group of volume editors who are biotechnology innovators and educators with international influence. All six volumes are published at the same time, not as a series; this is not a conventional encyclopedia but a symbiotic integration of brief articles on established topics and longer chapters on new emerging areas. Hyperlinks provide sources of extensive additional related information; material authored and edited by world-renown experts in all aspects of the broad multidisciplinary field of biotechnology. Scope and nature of the work are vetted by a prestigious International Advisory Board including three Nobel laureates. Each article carries a glossary and a professional summary of the authors indicating their appropriate credentials. An extensive index for the entire publication gives a complete list of the many topics treated in the increasingly expanding field.

Basic Concepts and Applications CRC Press

The application of biologically-engineered solutions to environmental problems has become far more readily acceptable and widely understood. However there remains some uncertainty amongst practitioners regarding how and where the microscopic, functional level fits into the macroscopic, practical applications. It is precisely this gap which the book sets out to fill. Dividing the topic into logical strands covering pollution, waste and manufacturing, the book examines the potential for biotechnological interventions and current industrial practice, with the underpinning microbial techniques and methods

described, in context, against this background. Each chapter is supported by located case studies from a range of industries and countries to provide readers with an overview of the range of applications for biotechnology. Essential reading for undergraduates and Masters students taking modules in Biotechnology or Pollution Control as part of Environmental Science, Environmental Management or Environmental Biology programmes. It is also suitable for professionals involved with water, waste management and pollution control.

A Textbook of Biotechnology Springer Science & Business Media
Biotechnology Is A Multi-Disciplinary Course, Having Its Foundations In Many Fields Including Biology, Microbiology, Biochemistry, Molecular Biology, Genetics, Chemistry And Chemical Engineering. It Has Been Considered As A Series Of Enabling Technologies Involving The Practical Applications Of Organisms Or Their Cellular Components To Manufacturing And Service Industries And Environmental Management. Initially, Biotechnology Was An Art, Involved In The Production Of Wines, Beers And Cheese. Now It Involves Series Of Advance Technologies Spanning Biology, Chemistry And Process Engineering. In Recent Years Innovations Involving Genetic Engineering Have Had A Major Impact On Biotechnology. Its Applications Are Diverse, Including The Production Of New Drugs, Transgenic Organisms And Biological Fuels, Genetherapy And Clearing Up Pollution. It Is Also About Providing Cleaning Technology For A New Millennium; Of Providing Means Of Waste Disposal, Of Dealing With Environmental Problems. It Is In Short, One Of The Major Technology Of Twenty-First Century That Will Sustain Growth And Development In Countries Throughout The

World For Several Decades To Come. It Will Continue To Improve The Standard Of Our Lives, From The Improved Medical Treatments Through Its Effects On Foods And Food Supply And To The Environment. No Aspect Of Our Lives Will Be Unaffected By Biotechnology. This Textbook On Biotechnology Has Been Written To Provide An Overview Of Many Of Fundamental Aspects That Underpin All Biotechnology And To Provide Examples Of How These Principles Are Put Into Operation, I.E. From The Starting Substrate Or Feed Stock Through The Final Product. The Textbook Also Caters To The Requirement Of The Syllabus Prescribed By Various Indian Universities For Undergraduate Students Pursuing Biotechnology, Applied Microbiology, Biochemistry And Biochemical Engineering.

Sustainable Resource Recovery and Zero Waste Approaches

Atlantic Publishers & Dist

The Progress and Prosperity of any country mainly depend upon the quality of its human resource, which in turn, depends upon the quality of its educational system. Higher and technical education, being at the apex of the pyramid of education, play a major role in the overall development of any country. One of the major drawbacks of the higher and technical education in our country, is the palpable gap between the world of learning and the world of work.

Toxicity, Mechanisms of Contaminants Degradation, Detoxification and Challenges CRC Press

The nature and scope of the text The environment in which we live has to a large extent been determined by the activities of innumerable organisms interacting with each other and with their immediate surroundings. From the point of view of the

microbiologist, it is obvious that microbial activity has a great part to play in the continuing maintenance of conditions suitable for other forms of life on this planet. There has therefore always been an awareness of the need for a good understanding of how microorganisms react in the environment, and this has been heightened from time to time as detrimental microbial activities become evident under certain conditions. The need for a good understanding has recently assumed a new importance as the era of microbial manipulation dawns—microbiology has always been a practical discipline, and the possibilities of beneficial modification on a global scale may be within our grasp. The growing interest in environmental microbiology can be gauged from the increase in relevant undergraduate teaching. However, one of the most serious problems confronting the student is the dearth of appropriate texts. In part this is a reflection of the plethora of potential subject matter. The study of the relationships of microorganisms with each other and with their environments—"microbial ecology"—constitutes a subject area which is far from precisely circumscribed, and each researcher or teacher has his own personal notion of which topics are appropriate.

Biodegradation and Bioremediation Textbook of Environmental Biotechnology

Biotechnology, Second Edition approaches modern biotechnology from a molecular basis, which has grown out of increasing biochemical understanding of genetics and physiology. Using straightforward, less-technical jargon, Clark and Pazdernik introduce each chapter with basic concepts that develop into more specific and detailed applications. This up-to-date text

covers a wide realm of topics including forensics, bioethics, and nanobiotechnology using colorful illustrations and concise applications. In addition, the book integrates recent, relevant primary research articles for each chapter, which are presented on an accompanying website. The articles demonstrate key concepts or applications of the concepts presented in the chapter, which allows the reader to see how the foundational knowledge in this textbook bridges into primary research. This book helps readers understand what molecular biotechnology actually is as a scientific discipline, how research in this area is conducted, and how this technology may impact the future. Up-to-date text focuses on modern biotechnology with a molecular foundation Includes clear, color illustrations of key topics and concept Features clearly written without overly technical jargon or complicated examples Provides a comprehensive supplements package with an easy-to-use study guide, full primary research articles that demonstrate how research is conducted, and instructor-only resources

Comprehensive Biotechnology Elsevier

Microbial biotechnology is an important contributor to global business, especially in agriculture, the environment, healthcare, and the medical, food, and chemical industries. This volume provides an exciting interdisciplinary journey through the rapidly changing backdrop of invention in microbial biotechnology, covering a range of topics, including microbial properties and characterization, cultivation and production strategies, and applications in healthcare, bioremediation, nanotechnology, and more. Key features: Explains the diverse aspects of and strategies for cultivation of microbial species Describes

biodiversity and biotechnology of microbes Provides an understanding of microorganisms in bioremediation of pollutants Explores various applications of microbes in agriculture, food, health, industry, and the environment Considers production issues and applications of microbial secondary metabolites Underscores the importance of integrating genomics of microorganisms in ecological restoration of contaminated environments

Applied Bioremediation and Phytoremediation Springer Science & Business Media

This book embodies twenty four chapters. The methodology of tools and techniques has been given due place in these chapters. Figures, illustrations and examples are presented to elucidate the topics making the subject more interesting and knowledge-rich. The book covers a wide range of topics like phyto and microbial diversity; medical microbiology; application of plant tissue culture techniques, bioinformatics, bioprospecting and synthetic seed technology, etc in the study of biodiversity and its management. Further, topics such as transgenics, bioremediation, waste utilization and role of single cell proteins, biopesticides, organic farming, scope of genetically modified organisms (GMOs), biotechnological approach of curbing air pollutants, air pollution biomonitoring, sericulture, pharmacognosy, characterization of biodiversity through molecular approach, etc have also been covered in this book. Biodiversity and its management have roots in cultural practices and diversity, besides traditional knowledge.

Textbook of Environmental Microbiology Elsevier

Biotechnology, Second Edition approaches modern biotechnology from a molecular basis, which has grown out of increasing

biochemical understanding of genetics and physiology. Using straightforward, less-technical jargon, Clark and Pazdernik introduce each chapter with basic concepts that develop into more specific and detailed applications. This up-to-date text covers a wide realm of topics including forensics, bioethics, and nanobiotechnology using colorful illustrations and concise applications. In addition, the book integrates recent, relevant primary research articles for each chapter, which are presented on an accompanying website. The articles demonstrate key concepts or applications of the concepts presented in the chapter, which allows the reader to see how the foundational knowledge in this textbook bridges into primary research. This book helps readers understand what molecular biotechnology actually is as a scientific discipline, how research in this area is conducted, and how this technology may impact the future. Up-to-date text focuses on modern biotechnology with a molecular foundation. Includes clear, color illustrations of key topics and concept. Features clearly written without overly technical jargon or complicated examples. Provides a comprehensive supplements package with an easy-to-use study guide, full primary research articles that demonstrate how research is conducted, and instructor-only resources.

Biotechnology Springer Science & Business Media

Textbook of Environmental Biotechnology. K. International Pvt Ltd

Biotechnology Fundamentals New Age International

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

The application, and production of goods. Environmental biotechnology is a huge and fast growing field with increasing relevance for a sustainable development through protection of environment to production of biomaterials. It continues to revolutionize the understanding of basic life sustaining processes in the environment, identification and exploitation of the molecules, and its use to provide clean technologies and to deal with environmental problems. This book provides an overview of basic processes of the environment, perturbations in the environment due to natural and human activities and use of biotechnological principles for remediation for sustainable development of the environment.

Environmental Biotechnology Newnes

Environmental Biotechnology provides a broad overview of the subject, focusing on how biotechnological techniques are applied to solve environmental problems, rather than giving detailed explanations of the techniques themselves. Capturing the current excitement in a field reinvigorated by advances in genetic manipulation, and emerging genomic and proteomic technologies, Environmental Biotechnology is the perfect resource for any student needing to develop a sound understanding of biotechnology, and the diverse ways it can be applied to address important environmental issues.

Biodiversity and Environmental Biotechnology Universities Press
For microbiology and environmental microbiology courses, this leading textbook builds on the academic success of the previous edition by including a comprehensive and up-to-date discussion of environmental microbiology as a discipline that has grown in scope and interest in recent years. From environmental science

and microbial ecology to topics in molecular genetics, this edition relates environmental microbiology to the work of a variety of life science, ecology, and environmental science investigators. The authors and editors have taken the care to highlight links between environmental microbiology and topics important to our changing world such as bioterrorism and national security with sections on practical issues such as bioremediation, waterborne pathogens, microbial risk assessment, and environmental biotechnology. WHY ADOPT THIS EDITION? New chapters on: Urban Environmental Microbiology Bacterial Communities in Natural Ecosystems Global Change and Microbial Infectious Disease Microorganisms and Bioterrorism Extreme Environments (emphasizing the ecology of these environments) Aquatic Environments (now devoted to its own chapter- was combined with Extreme Environments) Updates to Methodologies: Nucleic Acid -Based Methods: microarrays, phyloarrays, real-time PCR, metagenomics, and comparative genomics Physiological Methods: stable isotope fingerprinting and functional genomics and proteomics-based approaches Microscopic Techniques: FISH (fluorescent in situ hybridization) and atomic force microscopy Cultural Methods: new approaches to enhanced cultivation of environmental bacteria Environmental Sample Collection and Processing: added section on air sampling

Biotechnology Newnes

This book is a compilation of detailed and latest knowledge on the various types of environmental pollutants released from various natural as well as anthropogenic sources, their toxicological effects in environments, humans, animals and plants as well as various bioremediation approaches for their safe

disposal into the environments. In this book, an extensive focus has been made on the various types of environmental pollutants discharged from various sources, their toxicological effects in environments, humans, animals and plants as well as their biodegradation and bioremediation approaches for environmental cleanup.

Diversity, Improvement, and Application of Microbes for Food Processing, Healthcare, Environmental Safety, and Agriculture
CRC Press

In this volume, experts from universities, government labs and industry share their findings on the microbiological, biochemical and molecular aspects of biodegradation and bioremediation. The text covers numerous topics, including: bioavailability, biodegradation of various pollutants, microbial community dynamics, properties and engineering of important biocatalysts, and methods for monitoring bioremediation processes. Microbial processes are environmentally compatible and can be integrated with non-biological processes to detoxify, degrade and immobilize environmental contaminants.

Environmental Microbiology Academic Press

Gilbert S. Omenn Dean, School of Public Health and Community Medicine University of Washington Seattle, Washington 98195 On behalf of the University of Washington , the City of Seattle, the Steering Committee, and the sponsoring agencies, corporations, and organizations, I welcome you. We all expect this Conference to stimulate further what is becoming an important application of biotechnology in an area in which our society experiences considerable frustration and gloom: the management of hazardous wastes. It is an all-too-frequent refrain that technology

has its benefits and its risks. To many--in the lay public, at least--the damaging notion has taken hold that we are capable of creating problems but are less capable of finding solutions. Chemical streams from industry, agriculture, municipal operations, and household operations have contaminated groundwater, drinking water, and soils, and have undermined the

productivity of agriculture and the quality of life. In the meantime, however, we have improved our quality of life in immeasurable ways through some related developments. The challenge is to continue the enhancements while modifying or preventing the damage.

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