

Textbook Of Environmental Biotechnology P K Mohapatra

Environmental Microbiology and BiotechnologyEnvironmental BiotechnologyEnvironmental BiotechnologyAn Introduction to Environmental BiotechnologyEnvironmental BiotechnologyBiodiversity and Environmental BiotechnologyEmerging Trends in Environmental BiotechnologyEnvironment BiotechnologyEnvironmental BiotechnologyEnvironmental BiotechnologyEnvironmental BiotechnologyEnvironmental Biotechnology Concepts and ApplicationEnvironmental BiotechnologyAdvanced and Innovative Approaches of Environmental Biotechnology in Industrial Wastewater TreatmentBiofilmsEnvironmental BiotechnologyEnvironmental BiotechnologyBiosensors and Environmental BiotechnologyHandbook Of Environmental Biotechnology 3 Vols. SetBiotechnology for Environmental Protection in the Pulp and Paper Industry D. P. Singh Gareth M. Evans Daniel A. Vallero Milton Wainwright Lawrence K. Wang P. Dwivedi Sukanta Mondal S.k.agarwal A. Blažej Murray Moo-Young Christopher F. Forster H.J. Jordening Christopher F. Forster Maulin P. Shah P. S. Murthy T. Srinivas P.R. Yadav Cornelis P. Hollenberg S.C. Bhatia P. Bajpai

this book provides general information in the area of environmental science microbiology and biotechnology keeping in view the recent advances in these disciplines this book aims to focus on the application of microbiology and biotechnology in tackling the environmental issues viz role of microbes in waste management bioremediation health hygiene biological control and plant productivity biofertilizers vermiculture and biocomposting this book offers an exhaustive and authentic account of integral relationship of microbiology biotechnology with environmental science students from all these disciplines would find this book as an authentic source of information and would be immensely benefited this book includes the matter required by both under graduate and post graduate students including researchers who are genuinely interested in knowing the applied aspect of microbiology biotechnology particularly with reference to environmental issues since every chapter starts with a basic concept of problems and issues it easily enables the readers to comprehend the subject in a lucid manner

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

environmental biotechnology a biosystems approach second edition presents valuable information on how biotechnology has acted as a vital buffer among people pollution and the environment it answers the most important questions on the topic including how and why a knowledge and understanding of the physical chemical and biological principles of the environment must be achieved in order to develop biotechnology applications most texts address either the applications or the implications of biotechnology this book addresses both the applications include biological treatment and other environmental engineering processes the risks posed by biotechnologies are evaluated from both evidence based and precautionary perspectives using

a systems biology approach the book provides a context for researchers and practitioners in environmental science that complements guidebooks on the necessary specifications and criteria for a wide range of environmental designs and applications users will find crucial information on the topics scientific researchers must evaluate in order to develop further technologies provides a systems approach to biotechnologies which includes the physical biological and chemical processes in context presents relevant case studies on cutting edge technologies such as nanobiotechnologies and green engineering addresses both the applications and implications of biotechnologies by following the lifecycle of a variety of established and developing biotechnologies includes crucial information on the topics scientific researchers must evaluate in order to develop further technologies

an introduction to environmental biotechnology provides an introduction to the subject of environmental biotechnology environmental biotechnology refers to the use of micro organisms and other living systems to solve current environmental problems such as the detoxification of pollutants and clean up of oil tanker spills additionally it refers to the biotechnology of the agricultural environment as well as the use of biopesticides and the application of microorganisms to the mining metal recovery and paper industries this is the only comprehensive introductory account of this subject matter beginning with an introduction to microbial growth an introduction to environmental biotechnology aims to provide the non specialist with a complete overview of environmental biotechnology it is presented in an easy to read style with illustrations and includes frequent references to the use of higher plants as well as micro organisms in environmental biotechnology an introduction to environmental biotechnology is geared toward a non specialist audience including engineers and environmental chemists and environmental scientists who have limited knowledge of microbiology and biotechnology

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 specific 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

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

the environment is an all encompassing component of the ecosystem of blue planet the earth made up of the hydrosphere atmosphere and lithosphere these three spheres have biotic and abiotic components which exhibit ecological homeostasis that provides the most appropriate survival chances for the members of biotic component and geochemical balance with abiotic components this ecosystem is subjected to relatively harsh conditions mostly created by the disastrous activities due to natural calamities and intentional and or accidental anthropogenic activities biotechnology has become a potential tool to dissipate such environmental impacts because of the advancement it has undergone recently emerging trends in environmental biotechnology is an outstanding collection of current research that integrates basic and advanced concepts of biotechnology such as genomics proteomics bioinformatics sequencing and imaging processes to improvise and protect the environment this book is particularly attractive for scientists researchers students educators and professionals in environmental science agriculture veterinary and biotechnology science the book will enable them to solve the problems about sustainable development with the help of current innovative biotechnologies such as recombinant dna technology and

genetic engineering which have tremendous potential for impacting global food security environmental health human and animal health and overall livelihood of mankind features presents easy to read chapters information is presented in a very accessible and logical format identifies and explores biotechnological approaches for environmental protection encompasses biodegradation of hazardous contaminants biotechnology in waste management nanotechnology and issues in environmental biotechnology research

the growing awareness of environmental problems provided the stimulus for this 4th international symposium on biotechnology interbiotech 90 to address many aspects of the relationship between biotechnology and the environment the papers are mainly devoted to the contribution of biotechnology in solving environmental problems including biological waste water treatment utilization of municipal sewage sludge detoxification of polluted soil and complex utilization of lignocellulosic wastes there is examination of possible dangers in such cases as the release of r dna organisms into the environment the relationship of biotechnology and energy e g biogas landfill gas fuel photosynthetic systems for fuel production is also discussed

biotechnology offers a natural way of addressing environmental problems ranging from identification of biohazards to bioremediation techniques for industrial agricultural and municipal effluents and residues biotechnology is also a crucial element in the paradigm of sustainable development this collection of 66 papers by authors from 20 countries spanning 4 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 biosensor and biomonitoring technology 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

this book discusses new and innovative trends and techniques in the removal of toxic and refractory pollutants by means of various microbial biotechnology processes from wastewater both on the laboratory and industrial scales the book also highlights the main factors contributing to the removal of toxic pollutants as well as recycling environmental impact and wastewater policies after heavy metal removal in addition it assesses the potential application of several existing

bioremediation techniques and introduces new cutting edge emerging technologies this book significantly contributes to the wastewater treatment plant industry so that the treatment systems can serve better and more resiliently for the purpose this book is designed for engineers scientists and other professionals who are seeking introductory knowledge of the principles of environmental bioremediation technology and for students who are interested in the environmental microbiology and bioremediation fields

discusses detoxification of contaminated water microbial degradation of pollutants biological wastewater treatment and many other similar concepts microbial ecology and environmental biotechnology go hand in hand wherein underlying processes in microbial communities are the basis for managing events or methods in environmental biotechnology several new technologies have been developed like sequencing batch reactors for growth hyperbaric chambers for isolation of exclusive micro organisms etc which are discussed in this book

about the book this book is meant for undergraduate students of biotechnology chemical and civil engineering courses and also for postgraduate students of environmental studies it encompasses topics related to pollution abatement and treatment of wastewater and solid waste management emphasizing on biological treatment methods design aspects of the biological treatment units are the distinctive features of this book principles of bioremediation are briefly covered contents water and wastewater treatment of wastewater wastewater biology secondary treatment biological treat

contents introduction microbes and environment water pollution biotechnological detection of pollution prevention and control of water pollution waste water treatment sewage treatment biotreatment of wastes air pollution marine pollution controlling marine pollution pollution abatement industrial pollution treatment of industrial effluents advanced waste treatment methods biotechnology of biodegradation biohydrometallurgy bio products for environmental health environmental management

pulp and paper production has increased globally and will continue to increase in the near future approximately 155 million tons of wood pulp is produced worldwide and about 260 million is projected for the year 2010 to be able to cope with increasing demand an increase in productivity and improved environmental performance is needed as the industry is also under constant pressure to reduce and modify environmental emissions to air and water the authors give updated

information on various biotechnological processes useful in the pulp and paper industry which could help in reducing the environmental pollution problem in addition to other benefits various chapters deal with the latest developments in such areas as raw material preparation pulping bleaching water management waste treatment and utilization the book also covers the environmental regulations in various parts of the world as well as the role of biotechnology in reducing environmental problems

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