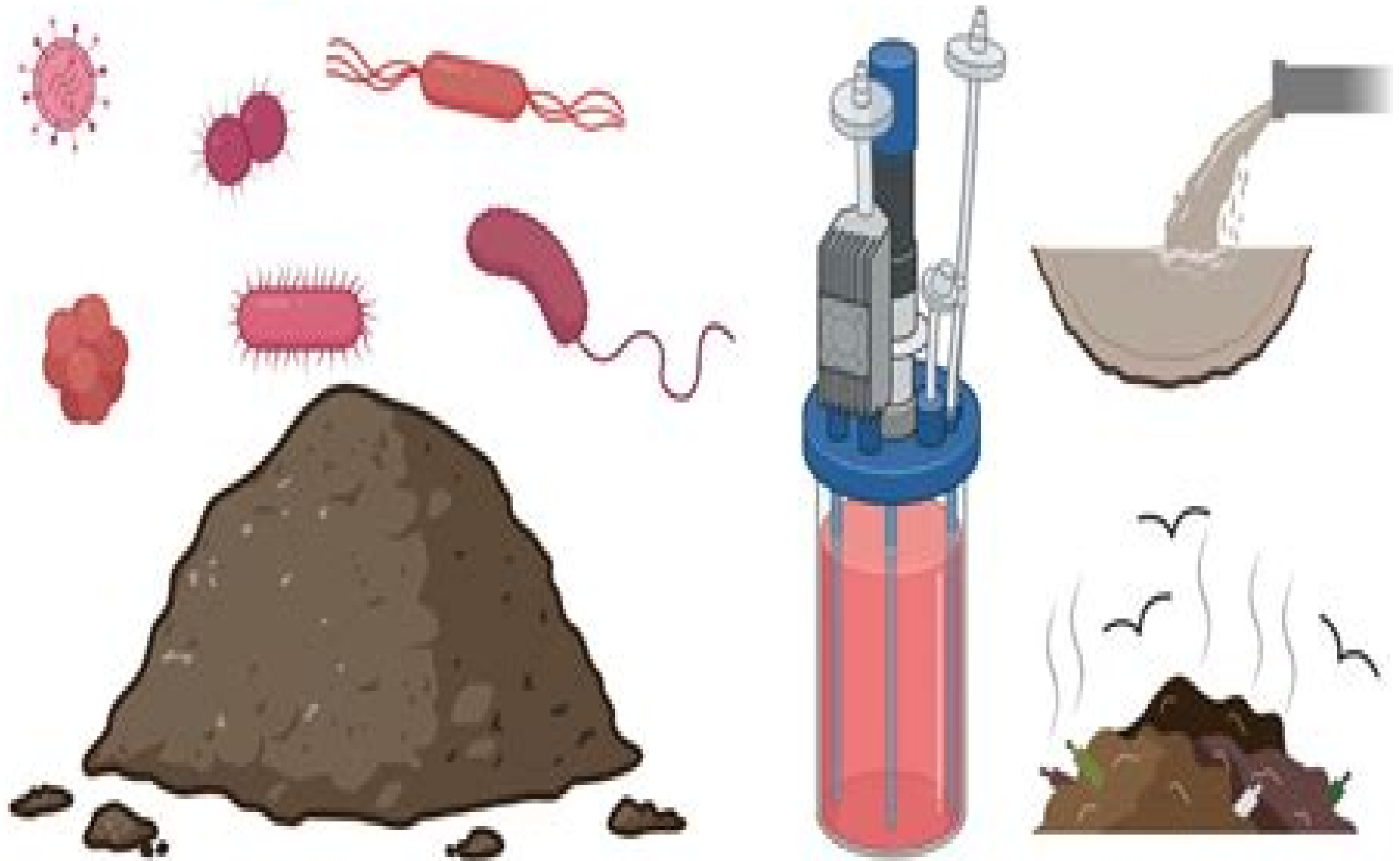


Biodegradation vs. Bioremediation



Biodegradation And Bioremediation

Surajit Das,Hirak Ranjan Dash



Biodegradation And Bioremediation:

Biodegradation and Bioremediation Martin Alexander, 1999 Alexander presents the basic principles of biodegradation and how these principles relate to bioremediation All the subject s microbiological chemical toxicological environmental engineering and technological aspects are covered

Biodegradation and Bioremediation Ajay Singh, Owen P. Ward, 2013-03-09 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

Biodegradation and Bioremediation Blaise Lindsey, 2018-10-11 Biodegradation is the break down of organic matter by microbes Bioremediation is an engineered technique applied by people to clean up organic matter by helping microbes with the biodegradation process One way of doing that is to introduce oxygen into the subsurface to help more aerobic microbes grow in order to clean up oil in the soil The potential toxicity harmful action inherent in a substance is manifest only when that substance comes in contact with that susceptible living biological system A chemical normally thought of as e harmlesse will evoke a toxic response if added to a biological system in sufficient amount The toxic potency of a chemicals is defined by the relationship between dose the amount of the chemical and the response that is produced in a biological system The toxicity of industrial wastes is not often managed and it has caused serious damage to earth and water The most important aspect of environmental biotechnology is the effective management of hazardous and toxic pollutants xenobiotics by bioremediation The environmental clean up process through bioremediation can be achieved in two ways in situ and ex situ bioremediation The book aims to provide relevant theoretical and practical frameworks and the latest empirical research findings in this area along with case studies It is written for students academicians and industry professionals who want to improve their understanding of the strategic role of biodegradation and bioremediation at different levels of the biodegradation and bioremediation research and knowledge that is heavy metal pollution toxicity remediation methods and strategies to manage the waste in industries which are a global concern

Biodegradation and Bioremediation of Polluted Systems Rolando Chamy, Francisca Rosenkranz, 2015-12-17 This book contains a collection of research works focused on the biodegradation of different types of pollutants both in water and solids The book is divided in three major sections A Biodegradation of organic pollutants in solids and wastewater B Biodegradation of complex pollutants and C Novel technologies in biodegradation and bioremediation

Study of Biodegradation and Bioremediation Ewa Kaczorek, Wojciech Smulek, 2022 Despite many years of efforts to reduce the emission of toxic pollutants into the environment the contamination of air soils and water by heavy metals and organic xenobiotics is still a serious problem This has urged many scientists

around the world to undertake research that aims to find effective methods of removing pollutants from the environment. Special attention is paid to biological methods which thanks to their numerous advantages meet the expectations of the whole society. As part of the Special Issue Study of Biodegradation and Bioremediation in the MDPI journal Processes several valuable articles have been published which together form a picture of the current state of advanced research on the effective fight against environmental pollution. These include papers on the biodegradation of petroleum compounds or synthetic dyes by microorganisms or the enzymes they produce. In addition, the Special Issue includes papers on the bioremediation of dangerous heavy metals such as mercury and copper, and the results make a valuable contribution to our current state of knowledge on this topic. A separate and valuable part of this collection of publications are review articles devoted to the remediation of antineoplastic drugs as well as the hopes and challenges connected with the application of nanotechnology in bioremediation. We are pleased that so many researchers from different parts of the world have submitted their articles on this topic. We are very grateful to them. We hope that readers of this collection will find many interesting ideas and relevant information that will lead to new solutions in the bioremediation and biodegradation of emerging environmental contaminants.

Prof. Ewa Kaczorek, Dr. Wojciech Smułek, Microbial Biodegradation and Bioremediation
Surajit Das, Hirak Ranjan Dash, 2021-11-24

Microbial Biodegradation and Bioremediation Techniques and Case Studies for Environmental Pollution Second Edition describes the successful application of microbes and their derivatives for bioremediation of potentially toxic and relatively novel compounds in the environment. Our natural biodiversity and environment is in danger due to the release of continuously emerging potential pollutants by anthropogenic activities. Though many attempts have been made to eradicate and remediate these noxious elements, thousands of xenobiotics of relatively new entities emerge every day, thus worsening the situation. Primitive microorganisms are highly adaptable to toxic environments and can reduce the load of toxic elements by their successful transformation and remediation. This completely updated new edition presents many new technologies and techniques and includes theoretical context and case studies in every chapter. Microbial Biodegradation and Bioremediation Techniques and Case Studies for Environmental Pollution Second Edition serves as a single source reference and encompasses all categories of pollutants and their applications in a convenient comprehensive format for researchers in environmental science and engineering, pollution, environmental microbiology, and biotechnology. Describes many novel approaches of microbial bioremediation including genetic engineering, metagenomics, microbial fuel cell technology, biosurfactants, and biofilm-based bioremediation. Introduces relatively new hazardous elements and their bioremediation practices including oil spills, military waste, water, greenhouse gases, polythene wastes, and more. Provides the most advanced techniques in the field of bioremediation including in silico approach, microbes as pollution indicators, use of bioreactors, techniques of pollution monitoring, and more. Completely updated and expanded to include topics and techniques such as genetically engineered bacteria, environmental health, nanoremediation, heavy metals.

contaminant transport and in situ and ex situ methods Includes theoretical context and case studies within each chapter

Biodegradation and Bioremediation: Pollution Control and Waste Management William Chang, 2019-06-19 Bioremediation is the process used to treat contaminated soil or water by encouraging biodegradation or natural decay mechanisms This is usually done by promoting growth of microorganisms It can also be done by introducing microbial cultures in polluted media or by injecting nutrients to stimulate growth of microbes naturally Bioremediation is a good alternative to traditional and industrial cleaning processes because of its affordability minimal invasiveness and ecological viability Research in this field extends into the core areas of soil remediation therapies lowering radioactivity curing metal contamination groundwater treatment and oil spills remediation In this book the various advancements in bioremediation and biodegradation are glanced at and their applications in pollution control and waste management are looked at in detail This book aims to equip students and experts with the advanced topics and upcoming concepts in this area Biodegradation and Bioremediation, 2004

Bioremediation and Sustainability Romeela Mohee, Ackmez Mudhoo, 2012-03-27 Bioremediation and Sustainability is an up to date and comprehensive treatment of research and applications for some of the most important low cost green emerging technologies in chemical and environmental engineering Sustainable development requires the development and promotion of environmental management and a constant search for green technologies to treat a wide range of aquatic and terrestrial habitats contaminated by increasing anthropogenic activities with the main sources of contaminants being the chemical industries Bioremediation is a technique that uses living organisms in order to degrade or transform contaminants into their less toxic forms It is based on the existence of microorganisms with the capacity to attack the compounds on the enzymatic level Bioremediation is an increasingly popular low cost alternative to conventional methods for treating wastes and contaminated media with the possibility to degrade these contaminants using natural microbial activity mediated by different consortia of microbes Over the last few years the scientific literature has revealed the progressive emergence of various bioremediation techniques Bioremediation and Sustainability presents an up to date and comprehensive collection of chapters prepared in bioremediation technology research and applications The strategies covered in this volume can be applied in situ or ex situ depending on the site in which they will be applied In situ is the treatment done in the site of the contamination and ex situ involves the removal of soil or water to subsequent treatment There is a wide variety of techniques that have been developed in the past and are covered in this volume such as natural attenuation bioaugmentation biostimulation biosorption composting phytoremediation rhizoremediation and bioleaching *Biodegradation And Bioremediation* Singh,

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