Section 1
Microbial Bioremediation: Process and Technologies

Microbial biodegradation of pollutants has intensified in current years as mankind strives to discover sustainable ways to clean up degraded environment. The exclusion of a wide range of pollutants and wastes from the environment is an ultimate requirement to promote a sustainable expansion of our society with low environmental impact. Biological processes play a foremost role in the subtraction of contaminants and they take advantage of the astonishing catabolic versatility of microorganisms to degrade or convert hazardous compounds.

Chapter 1
Microbe Associated Phytoremediation Technology for Management of Oil Sludge: Phytoremediation for Oil Sludge Management
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Chapter 2
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Chapter 3
Overview of Bioremediation of Pesticides under the Influence of Bacteria and Fungi
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Chapter 4
Engineering of Microbes for Heavy Metal Tolerance: An Approach for Bioremediation Technology
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Chapter 5
Arsenic Pollution in the Environment: Role of Microbes in Its Bioremediation
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Chapter 6
Microbial Ligninolysis: Avenue for Natural Ecosystem Management
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Krishna Giri, Rain Forest Research Institute, Jorhat, Assam, India
J.P.N Rai, Department of Environmental Science, G.B. P. U. A. T., Pantnagar, India

Chapter 7
Soil Bioremediation: Harnessing Potential of Indigenous Microorganisms
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Section 2
Bioremediation through plant and its interaction with microbes

Global contamination of soil and water is a ruthless hitch. The negative effects of contaminants on the surroundings and on human health are miscellaneous and depend on the nature of the pollution. Methods for excavation and incineration to clean polluted sites resulted in the application of bioremediation techniques. In this section, we describe some general aspects of bioremediation tools and subsequently focus on the application of plant microbes interaction. These systems can be an interesting tool to further improve and develop bioremediation into a widely accepted technique.

Chapter 8
Restoration of Environment Through Phytoremediation
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Chapter 9
Vegetation Filters: the Potential of Short Rotation Woody Crops for the Treatment of Municipal Wastewater
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R.K. Srivastava, Associate Professor, G.B. P. U. A. T., Pantnagar, India
Chapter 10
Bioremediation of Oil Contaminated Soil and Water: In situ and Ex situ Strategies for Feasibility Assessment
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Chapter 11
Potential Application of Plant-microbe Interaction for Restoration of Degraded Ecosystems
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Rashmi Paliwal, Department of Environmental Sciences, G.B. P.U.A.T., Pantnagar, India
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Chapter 12
Microbial Functional Activity in Bioremediation of Contaminated Soil and Water
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Section 3
Applied bioremediation: Active and Passive approaches

Applied bioremediation is gaining enormous reliability in the field of environmental management because of their eco-compatible nature. Active and passive approaches are offering plentiful opportunities of exploring bioremediation techniques for environmental clean-up. Employing novel and integrated strategies for the development of modern bioremediation processes is desperate need of the hour. These approaches will certainly add to the advancement of knowledge and will offer the necessary priceless resource and stimulus to the scientific field worldwide.

Chapter 13
Biological Alchemy: Gold from Garbage or Garbage into Gold
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Chapter 14
Green strategy for Production of Antimicrobial Textiles
Nagia F. Ali, National Research Center, Egypt

Chapter 15
Optimization Studies on Biosorption of Ni(ii) and Cd(ii) from Wastewater in a Packed Bed Bioreactor
K. Narasimhulu, Department of Biotechnology, National Institute of Technology Warangal, India
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Chapter 16
Role of Biotechnology in Bioremediation
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Chapter 17