1. Record Nr. UNINA9910983042803321

Autore	Verma Pradeep
Titolo	Biotechnology for Environmental Sustainability / / edited by Pradeep Verma
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2025
ISBN	9789819772216 9819772214
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (995 pages)
Collana	Interdisciplinary Biotechnological Advances, , 2730-7077
Disciplina	628.5 660.6
Soggetti	Bioremediation Environmental monitoring Microbial ecology Environmental management Sustainability Environmental Biotechnology Environmental Monitoring Environmental Microbiology Environmental Management
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	-- Chapter 1_Aquatic Ecosystems from Environmental Pollutants: Phyto-technologies for Sustainable Management. -- Chapter 2_Phytotechnologies for the Management of Aquatic Ecosystem from Environmental Pollutants. -- Chapter 3_Environmental Pollutants: Endocrine disruptors/Pesticides/Reactive Dyes and Inorganic Toxic compounds Metals, Radionuclides, and Metalloids and their Impact on the Ecosystem. -- Chapter 4_Monitoring and Managing Endocrine Disrupter Pesticides (EPDS) for Environmental Sustainability. -- Chapter 5_Bioremediation and phytoremediation of Environmental pollutants: Advances and current strategies. -- Chapter 6_The Ecological Impact and Treatments for the Disposal of Liquid Waste. -- Chapter 7_Emerging Pollutants, Monitoring and Remediation Techniques: A

Sustainable Environmental Applications. -- Chapter 8_E-waste Recycling: A Comprehensive Review on Metal Recovery and the Factors Affecting Bioleaching. -- Chapter 9_Microbial Genetic Engineering for the Mitigation of Petrol Pollution in Affected Areas. -- Chapter 10_Microbe Mineral Interaction and Environmental Pollution Management. -- Chapter 11_Catalytic Removal of Pollutants. -- Chapter 12_Technological advancements in the biological detoxification/ removal of metals, metalloids, and radionuclides. -- Chapter 13_Environmental Applications and Emerging Pollutants: Monitoring and Remediation Techniques. -- Chapter 14_Biological Detoxification/removal of metals, metalloids and radionuclides: Technological Developments. -- Chapter 15_Environmental pollutants such as endocrine disruptors/pesticides/reactive dyes and inorganic toxic compounds metals, radionuclides and metalloids and their impact on the ecosystem. -- Chapter 16_Microbial diversity and role of microbes in bioremediation of abandoned mining areas, industrial sites, horticulture and waste products. -- Chapter 17_Gene modification and omics technology for pollution management. -- Chapter 18_Wastewater composition and treatment using conventional and bio- electrochemical systems. -- Chapter 19_Biosensors in Environmental Monitoring and Management. -- Chapter 20_Biosensors in environmental monitoring and management. -- Chapter 21_Environmental applications and Emerging pollutants: monitoring and remediation techniques. -- Chapter 22_Microbe-mineral interactions, and environmental pollution and management. -- Chapter 23_Monitoring and Management of Pollutants in the Environment. -- Chapter 24_Microbial Diversity and Role of Microbes in Bioremediation of Abandoned Mining Areas, Horticulture Wastes, and Industrial Wastewater. -- Chapter 25_Bioremediation of E-Waste: A Sustainable Approach.

Sommario/riassunto

This book covers the broader application of environmental biotechnology for protecting the environment through different bioremediation and biodegradation techniques framed toward removing environmental contaminants, including emerging contaminants. The extensive range of environmental pollutants, which may be organic or inorganic, including toxic heavy metals, radionuclides, synthetic organic dyes, organic compounds, endocrine-disrupting chemicals, pharmaceuticals, and personal care products, etc., continue to pose a threat to human health and ecosystem functioning. The book covers a comprehensive overview of environmental pollutants, including their fate, behavior, and environmental and health risks associated with them. It describes the utilization of bioremediation and phytoremediation processes to provide a superior alternative removal and detoxification of such toxic environmental pollutants directed toward managing ecosystems. It includes an overview of gene modification and omics technology for environment management for the aesthetic approaches to environmental clean-up. Moreover, the book discusses resource recovery from waste using such technologies, which increases the feasibility of the process. Additionally, the book is designed to provide awareness among its readers about major environmental issues like pollution and its management and control through biotechnological means to promote the sustainable development of our society with minimal environmental impact. It also provides technical content regarding the mechanism of bioremediation, biodegradation, and phytoremediation and their field applicability, along with an overview of emerging pollutants and gene modification techniques for remediation applications.