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Nota di contenuto	Chapter 1. Let's protect our earth: Environmental challenges and implications -- Chapter 2. Microbes and Processes in Bioremediation of Soil -- Chapter 3. Unique microorganisms inhabit natural extreme soils -- Chapter 4. Effect of Pollution on Physical & Chemical Properties of Soil -- Chapter 5. Role of soil microbiome and enzyme activities in plant growth nutrition and ecological restoration of soil health -- Chapter 6. Marine microbes in Bioremediation: Current status and future trends -- Chapter 7. Role of Microbial Hydrolases in

Bioremediation -- Chapter 8. Laccases for soil bioremediation -- Chapter 9. Environmental fate of organophosphate residues from agricultural soils to fresh farm produce: Microbial interventions for sustainable bioremediation strategies -- Chapter 10. Secreted Microbial Enzymes for Organic Compound Degradation -- Chapter 11. Role of microbes in degradation of chemical pesticides -- Chapter 12. Biodegradation of Pesticides in Brazil and other Tropical Countries: Experimental and in silico Studies -- Chapter 13. Microbial Degradation of Phenolic Compounds.

Sommario/riassunto

Microbial enzymes play a vital role in maintaining soil health and removing pollutants from contaminated land. Soil microflora is closely associated with maintaining soil fertility, and the use of chemical pesticides, fertilizers and other volatile sprays in agriculture threatens the health of the microbial population in the soil. Every single particle of healthy soil contains millions of bacteria, which interact with the nutrients available, sustaining the nutrient cycle and making this microflora an essential component of life on earth. How do microbes help in the nutrient cycle? Either by intracellular digestion of macromolecules and converting these into smaller units in their metabolic pathways, or by secreting enzymes into the extracellular environment to facilitate the conversion of complex macromolecules into micro-molecules that can be easily absorbed by other living species. To meet demands for energy and food for the growing global population, it is important to protect agricultural land from contamination and maintain its productivity. Heavy metal ions from contaminated land can enter crops, fish or aquatic organisms via contaminated water, and these are then taken up by the human body, where they can accumulate and alter the normal microflora. The microbiological component of the soil is a highly complex system and is still not fully understood. How do microbes survive in the changing physicochemical environment of soil? This book helps readers understand the mechanism, various routes of microbial soil remediation, the interactions of different genera, and how microbial enzymes support the sustainable restoration of healthy soil.
