

Special Issue

Damage to Plants and Microorganisms Caused by Heavy Metal Toxicity

Message from the Guest Editor

Heavy metal contamination poses a critical threat to ecosystems and agricultural productivity, with metals such as cadmium, lead, arsenic, and mercury disrupting biological processes in plants and microorganisms. This Special Issue aims to explore the molecular, physiological, and ecological impacts of heavy metal toxicity, focusing on mechanisms of damage, adaptive responses, and remediation strategies. The Special Issue seeks to compile cutting-edge research on the following: Molecular Mechanisms: DNA damage repair pathways (e.g., homologous recombination, base excision repair) in plants and microbes under metal stress; Physiological Adaptations: Antioxidant defense systems, metal chelation (e.g., phytochelatins, metallothioneins), and microbial detoxification enzymes (e.g., oxidoreductases); Ecological Interactions: Impacts on plant-microbe symbioses (e.g., mycorrhizae, rhizobia) and soil microbial diversity; Bioremediation: Novel approaches leveraging metal-tolerant plants (phytoremediation) or engineered microbial consortia for soil and water restoration. All related content focuses on the molecular level.

Guest Editor

Dr. Xiaomeng Chen

College of Life Science, Northeast Agricultural University, Harbin 150030, China

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MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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Message from the Editor-in-Chief

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