Special Issue

Ecological Remediation of Heavy Metal-Polluted Environment

Message from the Guest Editors

The issue will cover the following:

- **Mechanistic insights**: Molecular and biochemical interactions in plant—microbe—heavy metal systems.
- **Emerging techniques**: Nano-bioremediation, genetic engineering for hyperaccumulators, and AI-assisted remediation planning.
- **Field applications**: Case studies on large-scale restoration of mining sites, industrial zones, and agricultural soils.
- **Ecosystem recovery**: Long-term monitoring of biodiversity and soil health post-remediation.
- **Policy and socio-economic aspects**: Barriers to implementation, cost–benefit analyses, and stakeholder engagement.

While prior research has explored individual remediation strategies, this issue integrates **cross-disciplinary advances** to address the following gaps:

- **Scalability**: Bridging lab-scale innovations with real-world deployment challenges.
- **Ecological trade-offs**: Assessing unintended impacts (e.g., secondary pollution and microbial community shifts).
- **Circular economy**: Linking remediation with resource recovery (e.g., phytoextracted metals for industrial reuse).
- **Climate resilience**: How climate change alters heavy metal mobility and remediation efficacy.

Guest Editors

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Deadline for manuscript submissions

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About the Journal

Message from the Editor-in-Chief

Toxics (ISSN 2305-6304) is an international, peer-reviewed, open access journal which provides an advanced forum for studies related to all aspects of toxic chemicals and materials. We aim to publish high quality work that furthers our understanding of the exposure, effects, and risks of chemicals and materials in humans and the natural environment as well as approaches to assess and/or manage the toxicological and ecotoxicological risks of chemicals and materials. Please consider publishing in *Toxics* when preparing your next paper.

Editor-in-Chief

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.1 days after submission; acceptance to publication is undertaken in 1.9 days (median values for papers published in this journal in the first half of 2025).