

Groundwater Contamination by Arsenic: Implications for Human Health and Remediation Measures †

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† Presented at 3rd National Conference on Environmental Toxicology: Impact on Human Health (Env-Tox 2024)

Received: 16.02.2024; Accepted: 20.03.2024; Published: 28.03.2024

Abstract: Arsenic contamination in groundwater poses a significant threat to human health globally, particularly in regions where natural geological conditions contribute to elevated levels of arsenic. This review examines the widespread issue of arsenic contamination, focusing on its implications for human health and available remediation strategies. Arsenic, a toxic metalloid, is known to cause severe health problems, including various forms of cancer, skin lesions, and cardiovascular diseases, among others. The review synthesizes current research on arsenic contamination sources, distribution, and pathways, elucidating the complex interactions between geological, hydrological, and anthropogenic factors. Furthermore, it discusses the challenges associated with arsenic mitigation and the efficacy of various remediation technologies, such as filtration, adsorption, and oxidation techniques. Moreover, the review explores sustainable approaches to arsenic remediation, considering factors such as cost-effectiveness, scalability, and environmental impact. By critically analyzing existing literature and highlighting gaps in knowledge, this review aims to inform policymakers, researchers, and stakeholders about the urgent need for concerted efforts to address arsenic contamination and safeguard human health in affected communities.

Keywords: arsenic; groundwater; toxicity; filtration.

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Funding

None.

Acknowledgments

None.

Conflicts of Interest

The authors declare no conflict of interest.