

# Algae Based Sustainable Phytoremediation of Water Contaminated by Chromium †

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† Presented at Environmental Toxicology: Impact on Human Health (Environ Tox 2021)

Received: 5.11.2021; Revised: 18.11.2021; Accepted: 20.11.2021; Published: 30.11.2021

**Abstract:** The climate is getting contaminated with chromium (Cr) because of increased industrial activity, and it has turned into a genuine ecotoxicological concern worldwide. Chromium is assuredly toxic and is transferred to the surrounding environment in various ways. Water gets contaminated by the accumulation of chromium through emissions from the rapidly expanding industrial areas, disposal of high metal wastes, electronic wastes, leaded paints, fertilizers, animal manures, sewage sludge, pesticides, and wastewater irrigation. Chromium toxicity has been demonstrated as a significant danger, and there are several health risks associated with it. Phytoremediation has arisen as an economic and eco-sustainable solution to various physiochemical treatments that are expensive and inefficient, especially at low Cr concentrations. Algae and a great variety of plants, including aquatic macrophytes and hydroponically grown plants, are known to assimilate Cr by direct absorbing, precipitating, and concentrating it from polluted aquatic environments. Such plants reduce Cr to non-toxic and serve as a useful tool for Cr detoxification. Low molecular weight organic insert, secreted by many plants, may act as natural chelating agents and can play a major role in enhancing phytoremediation of Cr. Among the different aquatic plant species, Azolla, Eichhornia, Lemna, Potamogeton, Spirodela, Wolfia, and Wolffialla have been accounted as phytoremediators. They are exceptionally efficient in decreasing aquatic contamination through bioaccumulation of contaminants in their body tissues.

**Keywords:** chromium; water; phytoremediation; ecotoxicology.

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## Funding

This review received no external funding.

## Acknowledgments

This review has no acknowledgment.

## Conflicts of Interest

The authors declare no conflict of interest.