
Title

Environmental fate of aquatic pollutants and their mitigation by phycoremediation for the clean and sustainable environment: A review

Abstract

Emerging pollutants such as natural and manufactured chemicals, insecticides, pesticides, surfactants, and other biological agents such as personal care products, cosmetics, pharmaceuticals, and many industrial discharges hamper the aquatic environment. Nanomaterials and microplastics, among the categories of pollutants, can directly interfere with the marine ecosystem and translate into deleterious effects for humans and animals. They are either uncontrolled or poorly governed. Due to their known or suspected effects on human and environmental health, some chemicals are currently causing concern. The aquatic ecology is at risk from these toxins, which have spread worldwide. This review assesses the prevalence of emerging and hazardous pollutants that have effects on aquatic ecosystems and contaminated water bodies and their toxicity to non-target organisms. Microalgae are found to be a suitable source to remediate the above-mentioned risks. Microalgae based mitigation techniques are currently emerging approaches for all such contaminants, including the other categories that are discussed above. These studies describe the mechanism of phycoremediation, provide outrage factors that may significantly affect the efficiency of contaminants removal, and discuss the future directions and challenges of microalgal mediated remediations. © 2023 Elsevier Inc.

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