

Microbial Remediation and Microbial Biotechnology for Sustainable Soil: 978179987062



Handbook of Research on Microbial Remediation and Microbial Biotechnology for Sustainable Soil

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Release Date: June, 2021 | Copyright: © 2021 | Pages: 806

DOI: 10.4018/978-1-7998-7062-3

ISBN13: 9781799870623 | ISBN10: 1799870626 |

EISBN13: 9781799870647

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Petroleum is an important source of hydrocarbons, which are one of the major environmental contaminants that disturb ecosystem functioning and stability. In...

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Heavy metals are found naturally. Anthropogenic activities and rapid industrialization have led to their unprecedented release into the environment. Being...

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Sumira Malik, Shilpa Prasad, Shreya Ghoshal, Shashank Shekhar, Tanvi Kumari, Ankita Agrawal, Bijaya Samal

Synthetic dyes cause hazardous health-related problems in humans and affect the biological system underwater. They also have a negative impact on the...

Chapter 16

Microbial Bioremediation of Heavy Metals: A Genetic and Omics Approach

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ABSTRACT

Heavy metals are found naturally. Anthropogenic activities and rapid industrialization have led to their unprecedented release into the environment. Being non-biodegradable in nature, they persist in the environment. Prolonged exposure and accumulation of these metals poses a serious threat to the ecosystem. Conventional treatment of contaminated material whether soil or water involves expensive chemical or physical methods which are arduous, energy demanding, and carry the risk of secondary contamination. It is thus necessary to adopt a sustainable remediation process to mitigate this problem. Biological remediation processes are preferable as they are environmentally safe, techno-economically feasible, and do not generate toxic byproducts. Microbial bioremediation is particularly attractive as it allows remediation processes by tapping naturally occurring catabolic capacities to transform, accumulate, and adsorb metals for detoxification. It is a comparatively low-cost technology. Therefore, microbial bioremediation is promising as an alternative to physico-chemical methods.