



Phytoremediation of Organic Compounds

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ABSTRACT: Phytoremediation is a set of innovative techniques to clean-up the environment taking full advantage of the unique metabolic and extractive capabilities of plants. Phytoremediation techniques and processes suggest their applicability to a broad range of contaminants including various organic compounds such as chlorinated solvents, BTEX (Benzene, toluene, ethylene & xylene), polycyclic aromatic hydrocarbons (PAHs), nutrients and surfactants offering a low-cost method of soil remediation technology. Organic compounds like anthracene, atrazine, TCE, pyrene, toluene, phenol etc. can be degraded to less toxic forms by plants, or even mineralized. The use of endophytic bacteria as plant-associated microorganisms is a newly emerging approach for the clean-up of soil and water polluted with organic compounds. Endophytic bacteria when used as phytoremediating assistants, with appropriate degradation pathways and metabolic activities have been known to enhance degradation of organic pollutants, and diminish phytotoxicity and evapotranspiration of organic pollutants. Chemical nature of organic contaminants, sources of contamination, microbial processes related to plants and the role of plants in reclaiming the PAH contaminated soil have been discussed to decipher strategies to treat areas contaminated with organic compounds in a short period of time. Overall, the applications of phytoremediating organic compounds gives new insights into novel protocols to improve the efficiency. These methods present clear benefits over contemporary methods, including ecological value, wide applicability and cost-effectiveness. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

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