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Bioremediation: A versatile tool for environmental pollution remediation

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Sustainable development requires the development and promotion of environmental management and a constant search for green technologies to treat a wide range of aquatic and terrestrial habitats contaminated by increasing anthropogenic activities with the main sources of contaminants being from the chemical industries. Bioremediation is a technique that uses living organisms to degrade or transform contaminants into their less toxic forms. It is based on the existence of microorganisms with capacity to enzymatically attack the compounds. The strategies can be applied *in situ* or *ex situ*, depending on the site in which they will be applied. *In situ* is the treatment done in the site of the contamination and *ex situ*, refers to the removal of soil or water to subsequent treatment. There is a wide variety of techniques that has been developed in the past, and some of these techniques are natural attenuation, biostimulation, biosorption, composting and bioleaching. Since bioremediation and these techniques not only represent an emerging (green) technology but also present a great advantage of being cost effective when compared to the traditional remediation methods due to the use of indigenous microorganisms with a versatile metabolism. This entry presents a succinct review of the bioremediation technology in research and application by covering bioleaching, biosorption, biosugmentation, biostimulation, biostimulat

Biography

Ackmez Mudhoo holds a B.Eng. (Hons.) in Chemical and Environmental Engineering and a Master of Philosophy (M.Phil.) degree by Research in Chemical Engineering from the University of Mauritius. His research interests encompass the bioremediation of solid wastes and wastewaters by composting and anaerobic digestion. He has more than 40 international journal publications, 7 conference papers and 4 co-edited books to his credit. He serves as peer reviewer for Waste Management, International Journal of Environment and Waste Management, Journal of Hazardous Materials. He is presently Lecturer in the Department of Chemical and Environmental Engineering, University of Mauritius.

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