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Microbial Remediation of Pesticide Contaminated Agricultural Fields: A Review

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ABSTRACT

Owing to the increasing demand of agriculture products, worldwide use of pesticides has amplified during the last two decades. However the toxicity caused by pesticides remains a global concern. In addition to affecting the site, the toxicity also imparts huge damage to non-target organisms in terrestrial and aquatic environments. Hence, remediation of the pesticide contaminations is utmost necessary. Among several remediation techniques available today, biodegradation is an eco friendly, cost effective, highly efficient approach. In comparison to physical and chemical remediation methods, microbial bioremediation has the potential to completely degrade the organic toxins. In bioremediation methods, the used microorganisms detoxify the pollutants by converting them to innocuous products which also can make the soil more fertile. The microorganisms can be made to degrade the pollutants at a faster rate by optimizing the operating and process parameters unlike in the natural environment. The various biological agents used for the remediation of pesticide contaminated soils as given in the literature are presented. The steps involved in the bioremediation of pesticide contaminated agriculture fields are thoroughly explained and consolidated. Also suggestions for the future work are given.

Key words: Biodegradation, Microorganisms, pesticides

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