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Contamination and Need of Bioremediation of Pesticide Residues in Fresh Water Aquifers

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Human activity has continuously disturbed the natural environment, particularly the aquatic ecosystems. Water resources have been critical to human society since people discovered that food could be produced by cultivating plants. Increasing urbanization, so-called modern non-sustainable agriculture, irresponsible disposal of garbage and excreta has pushed the human civilization and culture on the age of destruction. Rivers are converted into nalas, nalas into drainage and ponds and lakes are eutrofied. Drinking of flowing water safely is becoming a dream. Poor's are dying due to either water scarcity or water pollution. The trade of bottled drinking water has reached to 600 million dollars or more. Can nature provide a solution? This problem needs an urgent and sincere attention of environmentalist.

The micropollution of drinking water sources with pesticides has become a global concern. Pesticides are the chemicals used in agriculture, in order to protect the crops from the attacks of pests, diseases and rodents. They are toxic and cause environmental contamination as well as generate public health problems. In this modern civilization pesticides are heavily used in agriculture, horticulture and other fields. The pesticide residues in ground and surface water have been subject of major concern for the environmentalists and health practitioners. It leads to not only nonpotability of water but also sever genetic and immunity loss. In recent times the pesticide residues are found in remote aquifers where only natural seasonal drainages meet. So far no

chemical remedy is insight for the treatment of water contaminated with pesticides. All chemical methods are not of use to treat large amount of flowing and stagnant water bodies. Other commonly used pollution treatment methods viz. land-filling, recycling, pyrolysis and incineration for the remediation of contaminated sites have adverse effects on the environment, which may lead to the formation of intermediates which are more toxic than pesticide itself. Furthermore, these methods are more expensive and sometimes difficult to execute, especially in extensive agricultural areas. One promising treatment method is to exploit the ability of microorganisms to remove pollutants from contaminated sites. The bioremediation using microorganisms is an alternative treatment strategy that is effective, minimally hazardous, economical, versatile and environment-benign. Therefore bioremediation seems to be better way to control the pesticide contamination. However further study in this field is highly necessary to know the fate of toxic groups in the pesticides.

Journal of Bioremediation & Biodegradation provides a platform not only to the environmentalist and scientist but also to society by publishing and creating access to the articles addressing the study of microbial communities, genetic biodegradation, biotransformation technologies and also microbial degradation to find a eco-friendly solution for this global issue of environment pollution.

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