

Promising Biological Agents Isolated for Metabolization of Lethal Pesticides- Lindane and Dieldrin

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Abstract—Pesticides are not only lethal to human beings but have adversely affected the environmental factors and quality of soil environment as well. These recalcitrant chemical compounds are foreign to most of the microbes thus interfering the biogeochemical cycles. In this pesticide utilization-screening programme, many fungal strains isolated from the rhizosphere of *Juglans regia* L. showed the potential to grow on the media containing Lindane and Dieldrin like pesticides. Isolated strains were characterized on the basis of ITS1, ITS2 and 5.8s DNA sequences. BLASTN was used to search ten closely related sequences in the Gen Bank database. ClustalW was used to do pairwise alignment and UPGMA in MEGA5 software was used to carry out phylogenetic analysis. The strains like *Trichoderma koningii* k132, *Penicillium notatum* k840, *Aspergillus terricola* k850 and *A. niger* mtc 872 were successful in degrading the supplemented pesticides and exhibited the optimal growth in the temperature range of 20-30°C. The expansion and utilization rate of pesticides on the Potato Dextrose Agar media (Hi Media) supplemented with Lindane and Dieldrin as a sole source of carbon and nitrogen were recorded to be different. The metabolization of Lindane as a sole source of carbon and Dieldrin as carbon and nitrogen font was exposed competently by *Trichoderma koningii* k132 and *Aspergillus terricola* k850.

Keywords: Lindane, Dieldrin, Biogeochemical cycle, Biological Agents, Metabolization, Gene Bank Database.