

A Minor Research Project was sanctioned by the UGC to Prof Nusarat S. Shaikh, Assistant Professor, Department of Microbiology, Abeda Inamdar Senior College, from 2008- 2009. The following is an executive summary of the report.

Summary of MRP Project Report

Title: Biodegradation of Imidacloprid-The New Generation Neurotoxic Insecticide.

Imidacloprid (1-[(6-chloro-3-pyridinyl)-methyl]-*N*-nitro-2-imidazolidinimine), a chloronicotinyl insecticide used to control biting and sucking insects, is very persistent in the soil with a half-life often greater than 100days. Although a few soil metabolites have been reported in the literature, there are few reports of biodegradation of imidacloprid. Our objectives were to discover, isolate, and characterize microorganisms capable of degrading imidacloprid in soil. Two soil free stable enrichment cultures (NUS1, and NUS4) in minimal media were obtained that showed maximum degradation of Imidacloprid between 48 – 72 hours after incubation. The degradation was indicated by growth of microorganisms in minimal media, where sole source carbon and nitrogen was Imidacloprid. The degradation product was characterized by High Performance Liquid Chromatography (HPLC), which was found to be 6-Chloronicotinic acid. The two isolates were thus found to metabolize Imidacloprid and were further characterized.

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