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Effect of insecticides and fungicides on arylamidase and urease activity in paddy soils

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Abstract The effect of selected insecticides; carbosulfan, chlorpyrifos, and fungicides; kresoxim-methyl, and mancozeb on two enzyme activities in paddy (black and alluvial) soils were recorded. The two soils were amended with lower to higher dosage ("1.0, 2.5, 5.0, 7.5, 10.0 kg ha^{-1}") of pesticides and incubated in the laboratory at 37^{o}C for 40 days. Arylamidase and ureaseactivity was measured during the incubation at 10, 20, 30, and 40 days intervals. Carbosulfan, chlorpyrifos, kresoxim-methyl, and mancozeb stimulated the enzyme activity at lower concentrations at a 10-day interval. Striking improvement in the soil enzyme activities was noted particularly at 2.5 to 5.0 kg $ha^{-1}$of pesticides and persisting for 30 days in both soils. Overall, higher concentrations (7.5 - 10.0 kg ha^{-1}) of carbosulfan, chlorpyrifos, kresoxim-methyl andmancozeb were toxic or innocuous to the enzyme activities.

Keywords: Carbosulfan, Chlorpyrifos, Kresoxim-methyl, Mancozeb, Soil enzymes

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