

SOME OBSERVATIONS ON THE EFFECTS OF HERBICIDES ON THE MICROFLORA OF PADDY FIELDS

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Many previous workers have reported general differences between herbicides in fungitoxicity and also between the fungi in their ability to tolerate these compounds.

Three locally formulated herbicides, used extensively on paddy fields (MCPA, Propanil and Gramaxone) were studied for their fungitoxicity. Effects of concentrations equivalent to normal field rates and far in excess of these chemicals, on 5 different fungal genera, were investigated. Fungal growth was measured as linear extensions on artificial media incorporated with the herbicides, to give 0, 10, 100, 500, 1000 and 2000 parts per million w/w. The concentrations equivalent to recommended field applications, for all 3 herbicides were in the range of 0.5-3.0 ppm.

Results indicate that there are distinct differences in terms of degree to which these herbicides are fungitoxic between the 3 chemicals that have been tested. All 3 herbicides do not seem to cause significant growth reductions at concentrations less than 100 ppm. Beyond 100 ppm, herbicide concentrations appear to be significantly harmful to most of the fungi. Propanil appears to be highly fungitoxic than the other two. The Gramaxone preparation even at 2000 ppm allowed fungal growth to some extent.

Herbicides applied at normal field rates or slightly above may not cause marked changes in the total number of soil microorganisms or in the levels of microbial activities, as pointed out by previous workers. But differences in herbicide tolerances of the fungi can result in certain qualitative changes in the soil microflora which could lead to important ecological consequences.