

Effect of Phorate on Phosphomonoesterase Activity in Red and Black Soils using Cowpea as a Test Crop

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ABSTRACT

A pot culture experiment was conducted in red and black soil to evaluate the effect of insecticides on soil phosphomonoesterase (acid phosphatase and alkaline phosphatase) activity using Cowpea as a test crop. The soil applied insecticide viz., Phorate @ 1.0 and 2.0 kg ha⁻¹ in red soil and Phorate @ 2.0 kg ha⁻¹ and 4.0 kg ha⁻¹ along with untreated control in black soil were used in the study. The results indicated that Phorate applied @ 1.0 kg ha⁻¹ in red soil and 2.0 kg ha⁻¹ in black soil resulted in significant increase in the acid and alkaline phosphatase activity from 0-45 days after sowing. Both the phosphatases exhibited three to four fold increased activity at its peak compared to control. Application of Phorate at higher rates resulted in reduced activity of acid and alkaline phosphatases. The decreased activity might be related to proteolysis of non-stabilized extra-cellular enzymes.

Key words : Cowpea, Phorate, Phosphomonoesterase activity.