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Toxicity of Some Insecticides to *Andrallus spinidens* (Fabricius) (Pentatomidae : Hemiptera)

K.J. SINGH and O.P. SINGH

Jawaharlal Nehru Agricultural University, College of Agriculture, Sehore 466 001

The predator, *Andrallus spinidens* (Fabricius) (Pentatomidae : Hemiptera) has been recorded preying upon a number of lepidopterous larvae (Ghosh, 1914; Cherian and Brahmachari, 1941; Nageshwara Rao, 1965; Singh and Gangrade, 1975). It was also observed feeding on the noctuid larvae of *Rivula* sp. on soybean (Singh and Singh, 1989). Since, no information on the toxicity of different insecticides against the predator is available, an attempt has been made to find out its susceptibility to insecticides.

Eleven insecticides were tested against the eggs and adults of the predatory bug in the laboratory. The trial consisted of 12 treatments including control, each replicated thrice, separately for eggs and adults (Table 1). Ten eggs in each replication sprayed in the field were removed after 30 minutes of spraying. Spraying was done with a hand compression sprayer (3.5 L). The treated eggs were kept in Petri-dishes for hatching upto 15 days. Eggs that did not hatch were taken as dead. Only fertilized eggs, which were dark brown in colour, were taken for the study. To test the toxicity of insecticides against the adult predator, 10 meter row length was marked and sprayed at the podding stage of crop. Water was sprayed in the control. After 30 minutes of spraying, 3 leaves/replication were plucked, kept in petri-dishes (15 cm dia) and brought to the laboratory. Ten adults of *A. spinidens* per replication were exposed to the treated leaves. Mortality of adult predator was recorded 24 and 48 h after release. Since there was some mortality of eggs and adult bugs in check also, Abbot's (1925) correction factor was applied and the data statistically analysed.

The insecticidal treatments inflicted 23.33 to 100 per cent egg mortality as against 16.66 per cent in water spray (Table 1). Among the insecticidal treatments, only phosalone was found to be less toxic inflicting 23.33 per cent egg mortality. Malathion recorded 76.66 per cent mortality. The remaining insecticides inflicted 100 per cent egg mortality. Rawat *et al.* (1981) also reported that phosalone was less toxic to the eggs of *Clavigralla gibbosa* Spinola.

Phosalone (0.035%), malathion (0.05%) and

TABLE 1 Effect of different insecticides on *A. spinidens*

Treatment		Percent mortality		
		Eggs	Adults	
			24 h	48 h
Quinalphos	0.025%	100.00[a]	93.33[a]	100.00[a]
Monocrotophos	0.036%	100.00[a]	93.33[a]	100.00[a]
Malathion	0.05%	71.75[c]	13.33[d]	30.37[d]
Triazophos	0.04%	100.00[a]	85.92[a]	100.00[a]
Phosalone	0.035%	7.87[d]	7.03[d]	3.70[e]
Fenpropathrin	0.005%	100.00[a]	93.33[a]	100.00[a]
Fluvalinate	0.005%	100.00[a]	10.37[d]	71.84[c]
Cypermethrin	0.001%	100.00[a]	24.44[c]	42.96[d]
Fenvalerate	0.01%	100.00[a]	31.11c	57.77[c]
Oxydemeton methyl	0.025%	100.00[a]	45.18b	79.25[b]
Dimethoate	0.03%	92.12[b]	85.92[a]	100.00[a]

Means followed by similar letters are not different statistically (P = 0.05) by LSD

fluvalinate (0.005%) caused 10.0, 13.33 and 13.33 per cent adult mortality, respectively, and these were found to be less toxic than the other insecticides in which mortality ranged from 26.66 to 93.33 per cent after 24 h of treatment. Cypermethrin (0.001%) and fenvalerate (0.01%) were intermediate in toxicity, causing 26.66 to 33.33 per cent mortality.

Phosalone showed low toxicity at 48 h of treatment also inflicting only 10.0 per cent adult mortality. Malathion and cypermethrin caused 33.33 and 46.66 per cent adult mortality, respectively, and these were at par with each other. The remaining insecticides inflicted 60.00 to 100 per cent adult mortality. The present study has revealed that phosalone is relatively safer to *A. spinidens* followed by malathion and cypermethrin.

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