

STUDIES ON THE INSECTICIDAL CONTROL OF HELOPELTIS ANTONII SIGNORET ON CASHEW

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Cashew (*Anacardium occidentale* L.) is an important commercial crop on the west coast of India, more particularly in the states of Kerala, Mysore and Maharashtra. The export of cashew kernels and cashew shell liquid fetches over 31 crores of rupees worth of foreign exchange to the nation. The production of raw cashewnuts in the country, however meets only about 35 per cent of the total requirements of the processing industry the rest being imported from African countries.

The drying up of the inflorescences (Blossom Blight) and tender shoots (Die-back) is a serious malady affecting the cashew trees adversely and causing a substantial reduction in their yield. *Helopeltis antonii* Signoret, a mirid bug has been found to cause this condition. Abraham (1958) estimated that on an average 25 per cent of the tender shoots were damaged by the pest. Puttarudriah (1961) recommended spraying of BHC or parathion and Basheer and Jayaraj (1964) DDT for the control of the pest.

With a view to evaluate the relative efficiency of some modern insecticides in controlling the pest, two trials were conducted at the Cashew Research Station, Anakkayam, Kerala State, during the seasons of 1964-65 and 1965-66. The results of the two tests are presented in this paper.

Material and Methods

The trials were conducted on bearing trees, 15-20 years old. Details of the insecticides used during the two seasons and their doses are given in Tables 1 and 2. Each insecticide was applied both as a single application and as two applications. The first application was done as soon as the first symptoms of attack were noticed and the second 15 days after the first. There were two trees for each treatment and each treatment was replicated three times, adopting a Randomised Block design. Proprietary formulations of the insecticides were used in the trials.

To assess the results, 50 panicles showing no symptoms of attack were tagged at random on each tree soon after the first application of the insecticides. At the end of the season these tagged panicles were examined and classified as those which did not show any symptom of attack, those which were partially attacked and those which dried up completely and recorded accordingly. During 1964-65, the number of nuts harvested from the tagged panicles were also recorded.

Results

The results are presented in Tables 1 and 2.

Table 1

Mean number of panicles out of 50 affected by *Helopeltis* sp. under different insecticidal treatments during 1964-65.

Insecticide treatments				Not affected	Partially affected	Completely dried
DDT	0.2%	S	once	22.0	11.3	16.7
"	0.2%	S	twice	39.2	4.5	6.3
BHC	0.2%	S	once	10.0	14.3	25.7
"	0.2%	S	twice	25.0	9.2	15.8
Endrin	0.05%	E	once	27.2	6.0	16.8
"	0.05%	E	twice	35.8	5.8	8.5
Trichlorfon	0.1%	SL	once	30.5	6.2	13.3
"	0.1%	SL	twice	14.2	6.2	29.6
Sevin	0.1%	S	once	22.7	7.8	19.5
"	0.1%	S	twice	29.0	5.0	16.0
Control (Water spray)				12.0	9.2	28.8
		C. D.		13	6	15
S. Suspension			SL. Solution		E. Emulsion	

Table 2

Mean number of panicles out of 50 affected by *Helopeltis* sp. under different insecticidal treatments during 1965-66.

Insecticidal treatments				Not affected	Partially affected	Completely affected
DDT	0.2%	S	once	42.5	4.0	3.5
"	0.2%	S	twice	45.5	2.5	2.0
Endrin	0.03%	E	once	36.5	8.0	5.5
"	0.03%	E	twice	41.3	5.2	3.5
Sevin	0.1%	S	once	42.0	1.3	6.7
"	0.1%	S	twice	43.8	1.0	5.2
Phosphamidon	0.02%	SL	once	31.0	5.8	13.2
"	0.02%	SL	twice	26.8	6.2	17.0
Parathion	0.05%	E	once	28.5	5.5	16.0
"	0.05%	E	twice	29.8	8.2	12.0
Malathion	0.1%	E	once	30.8	9.2	10.0
"	0.1%	E	twice	33.8	9.2	7.0
Dieldrin	0.05%	E	once	31.0	8.5	10.5
"	0.05%	E	twice	43.0	4.0	3.0
Thiometon	0.1%	E	once	42.3	4.2	3.5
"	0.1%	E	twice	38.8	6.5	4.7
Dimethoate	0.1%	E	once	34.0	2.5	13.5
"	0.1%	E	twice	37.5	9.3	3.2
Control (Water spray)				32.3	15.0	2.7
		C.D.		9.8	5.8	6.8

From Table I it may be seen that two sprayings of DDT 0.2 per cent suspension gave the most effective control. Two applications of endrin 0.05 per cent and two sprays of sevin 0.1 per cent were the next best. Statistical analysis of the data showed that the treatment differences were significant at 1 per cent level. In the case of trichlorfon (Dipterex of Bayer) eventhough a single application showed 61 per cent of un-affected panicles, two applications gave only 28.4 per cent control, indicating that the higher percentage in the former might be a case of escape from the incidence of the pest.

Table 2 shows that spraying of DDT 0.2 per cent suspension twice' proved to be the most effective treatment followed by sevin, dieldrin and endrin. The systemic insecticides pbosphamidon (Dimecron of Ciba), thiometon (Ekatin of Sandoz) and dimethoate (Rogor of Tata-Fison) were not effective in controlling the pest.

The results of the two trials thus showed that among the 11 insecticides tried, DDT was the most effective in controlling the attack of *Helopeltis* sp. on cashew. BHC and parathion suggested by Puttarudriah (1961) were not as effective as DDT, sevin, endrin or dieldrin. It thus appeared that insecticides having a longer residual action were more effective in controlling the pest than insecticides with relatively less residual effect. The systemics did not appear to be useful in controlling the pest at ail.

Summary

Relative efficacy of eleven insecticides in controlling *Helopeltis antonii* causing blossom blight and die-back of cashew was ascertained in two trials conducted at the Cashew Research Station, Anakkayam, Kerala State, during 1964-65 and 1965-66. In both the trials, two sprayings (first as soon as the symptom of pest attack was noticed and the second 15 days thence) of DDT 0.2 per cent suspension gave the best results followed by sevin (0.1%) endrin (0.03%) and dieldrin (0.05%). The systemic insecticides trichlorfon, phosphamidon, thiometon and dimethoate were not as effective as the contact insecticides in controlling the pest.

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