Treatments (1)	S_1		S_2		V x T		V x S		V
	T_1 (2)	T_2 (3)	T_1 (4)	T_2 (5)	T_1 (6)	T_2 (7)	S_1 (8)	S_2 (9)	(10)
	Leaf folder (% leaves affected)								
V_2	8.24^{abc} (2.87)	7.48^{ab} (2.73)	8.89^{abc} (2.98)	8.23^{abc} (2.85)	8.56^{ab} (2.93)	7.85^{a} (2.79)	7.86^{a} (2.80)	8.56^{a} (2.91)	8.21^{a} (2.86)
V_3	9.61^{cd} (3.09)	13.47^{a} (3.66)	9.38^{bc} (3.02)	11.49^{de} (3.39)	9.49^{b} (3.06)	12.48^{c} (3.52)	11.54^{a} (3.37)	10.44^{a} (3.21)	10.99^{b} (3.29)
T x S	8.36^{a} (2.88)	9.67^{a} (3.07)	8.86^{a} (2.96)	9.26^{a} (3.02)					
T					8.61^{a} (2.92)	9.46^{b} (3.05)			
S							9.02^{a} (2.97)	9.06^{a} (2.99)	
	Grain yield (Kg/ha.)								
V_1	5400^{a}	5167^{a}	5750^{a}	5150^{a}	5575^{a}	5158^{a}	5283^{a}	5450^{a}	5366^{a}
V_2	4850^{a}	4367^{a}	5217^{a}	4667^{a}	5033^{a}	4517^{a}	4609a	4942^{a}	4775^{b}
V_3	5667^{a}	5200^{a}	5817^{a}	5167^{a}	5742^{a}	5183^{a}	5434^{a}	5492^{a}	5462^{a}
T x S	5305^{a}	4911^{a}	5594^{a}	4994^{a},					
T					5450^{a}	4953^{a}			
S							5109^{a}	5295^{a}	

Figures in parentheses are transformed values ;

S_1-20 x 10 cm ; S_2-20 x 15 cm ; V_1-ACM 8 ; V_2-IET 6315 ; V_3-IR 20 ; T_1-Sprayed ; T_2-unsprayed

Means followed by the same letters in a column are not significantly different by least significant test criterion (P = 0.05)

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EFFECT OF PLANT DERIVATIVES ON FEEDING AND MORTALITY OF GRAPEVINE FLEA BEETLE *Scelodonta strigicollis* L. (EUMOLPIDAE : COLEOPTERA)

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ABSTRACT

A laboratory experiment was conducted to study the effect of water extracts of neem seed and neem cake *(Azadirachta indica* A. Juss), pungam seed *(Pongamia glabra* Vent), pinnai seed *(Calophyllum inophyllum Linn.)* and illupai seed *(Basia latifolia)* Boxb. at 1 and 2 per cent concentrations on the feeding activity and mortality of grape flea beetle, *Scelodonta strigicollis L.* Two per cent neem seed extract was found to be the best in deterring the feeding activity which recorded the lowest area of feeding (16.7 mm^2) followed by 2 per cent pungam seed extract (20.3 mm^2). The highest mortality (67.2%) was recorded in pungam seed extract 2 per cent followed by neem seed extract 2 per cent (58.8%).

KEY WORDS : Grapevine flea beetle, Plant derivatives

The grapevine flea beetle, *S. strigicollis* is one of the major pests of grapevine after every pruning. The grubs feed on roots and adults bite numerous shot holes on the leaves and tender buds. Indiscriminate use of insecticides has already made the mealy bug, *Maconellicoccus hirsutus* Green as a major pest of this crop. Moreover use of synthetic insecticides during bearing stage poses residue problems in the berries. Hence, it is desirable to look for alternatives like safer botanical pesticides. With this in view, the present study was taken up during June 1987 to know the utility of various plant product extracts against grapevine flea beetle.

MATERIALS AND METHODS

The water extracts of seeds and cakes of different plant species (Table 1) were prepared by soaking the required quantity and filtered with a muslin cloth.

Tender grapevine leaves dipped in different seed/cake extracts in respective concentrations and shade dried to remove excess moisture were placed in bottle (15 cm. ht x 6 cm dia) at the rate of two per bottle. To avoid the drying of treated leaves, wet filter

Table : Plant derivatives on the feeding activity and mortality of grapevine flea beetle, Scelodonta strigicollis L.

Water extract used	Conc. (%)	Area feed (mm^2)	Mortality (%)
Pungam seed	1.0	41.7^{c}	17.2^{cd} (21.6)
Pungam seed	2.0	20.3^{a}	67.2^{a} (55.3)
Neem seed	1.0	37.6^{b}	42.2^{bc} (40.3)
Neem seed	2.0	16.7^{a}	58.8^{ab} (50.3)
Neem cake	1.0	71.3^{f}	25.5^{c} (30.3)
Neem cake	2.0	103.1^{h}	27.2^{cd} (21.6)
Pinnai seed	1.0	64.3^{e}	0.5^{e} (4.1)
Pinnai seed	2.0	65.8^{e}	17.2^{cd} (21.6)
Iluppai seed	1.0	76.7^{g}	8.8^{de} (12.8)
Iluppai seed	2.0	56.2^{d}	17.2^{cd} (21.6)
Control		128.7^{i}	0.5^{e} (4.1)

Figures in parentheses are arc sine transformed values. In a column means followed by a common letter(s) are not significantly different at 5 per cent level.

paper (Whatman No.41) was placed at the bottom of the bottle and maintained at 25 °C. Four adult beetles per bottle were confined using muslin cloth for 96 hr and replicated thrice. After the period, the area fed by the beetles was measured by graphical method and mortality was also recorded.

RESULTS AND DISCUSSION

Seed extracts of neem and pungam at 2 per cent concentration exhibited maximum antifeedal activity as the leaf area fed by the beetle was only 16.7 and 20.3 mm^2 respectively. Neem cake extract 2 per cent allowed the insect to feed maximum of 103.1 mm^2 of leaf area.

The biologically active fraction of neem against cotton grey weevil, *Myllocerus* sp. (Sankaran *et al.*, 1986) and pungam seed oil on rice leaf folder *Cnaphalocrocis medinalis*, (Rajasekaran *et al.* 1987) were reported earlier. Extracts of pinnai and iluppai, though not effective as that of neem and pungam, inhibited the feeding by adults significantly.

Pungam seed extract (2%) induced maximum mortality of 61.2% followed by neem seed (2.07) with 58.8%. Pinnai seed extract (1%) was not effective. Iluppai extracts caused only 8.8 to 17.2 per cent mortality.

The reduced feeding in the neem and pungam extracts treated leaves must be due to mortality of beetles and feeding deterrents like azadiractin and solanum as reported by Reed *et al.* (1982) against stripped and spotted cucumber beteles. The insecticidal activity of pungam and neem extractives on rice weevil, *Sitophilus oryzae* L. and pulse beetle, *Callosbruchus chinensis* L. (Rajasekaran and Kumaraswami, 1985) and 3 per cent neem oil or 5 per cent neem seed kernel extract or 10 per cent neem cake extract against the galerucid beetle, *Madurasia* sp. in blackgram (Gunathilagaraj and Sundara Babu, 1987) was proved.

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