AU Res. J. 1990. 15 (2) : 54-55

Laboratory Evaluation of Some Insecticides for the Control of Pigeonpea Mealy Bug, *Coccidohystrix insolita* (Green)

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The pigeonpea (TUR) is an important legume rop in the Gujarat state with an area of 3.29 lakh ectares and producing 2.52 lakh tonnes of grain. In ecent years, it is attacked by the mealy bugs, *Coccidohystrix insolita* (Green) (Coccidae: Hemiptera). This mealy bug is also reported to ttact brinjal (Chaudhari, 1976 and Nair and Nair 977) and pigeonpea (Patel *et al.*, 1985) in Gujarat. Review of literature showed that the information on he efficacy of insecticides to control mealy bugs in pigeonpea is scanty. Therefore, the present study was undertaken to study the efficacy of some promising insecticides for the control of *C. insolita* pigeonpea under laboratory condition at Junagadh (Gujarat) during October, 1987.

The last instar crawlers of mealy bugs *C. insolita* were collected from unsprayed pigeonpea field and used for the present study. The required concentrations of each insecticide (Table 1) were prepared. A film on blotting paper was prepared with the help of fine automizer by taking 1 ml of insecticidal solution in each petridish (9.5 cm diameter). The treated blotting papers were allowed to dry under a fan for 5 minutes. Eighty crawlers of the mealy bug were released on treated blotting papers of each insecticides. The crawlers in each treatment were distributed into four batches, thus forming four replications. The crawlers were given a continuous exposure to the insecticide film for one hour, after they were transfered to a separate clean glass petridishes (9.5 cm did meter) containing fresh buds and leaves of pigeonpea. Observations on nortality of bugs were recorded 1, 3, 16 and 24hr after the treatment. The moribund bugs were considered as dead. Statistical analysis was done by using Randomise Block Design after converting the mortality per cent data into arcsin angles.

The per cent cummulative mortality of mealy bug crawlers recorded 1, 3, 16 and 24hr after spraying are given in Table 1. The highest mortality (94.8 per cent) of the bugs was given by fenvalerate 0.02 per cent within 1hr of treatment and it was on par with carbaryl 0.2 per cent which gave 60.6 per cent mortality. The mortality per cent was above 40 per cent in the case of quinalphos, cypermethrin and fluvalinate and between 13.0 to 31.45 per cent in the remaning insecticidal treatments. Both fenvalerate and quinalphos, gave above 80 per cent mortality 3hr after application and these were significantly more effective than all the remaining treatments. The cumulative mortality 16hr after treatment exceeded 95 per cent in the case of quinalphos, fenvalerate and carbaryl and was significantly better than that those obtained in the other treatments. Five treatments, namely, monocrotophos, cypermethrin, fluvalinate, acephate and decamethrin gave between 60.23 and 80.67 per cent mortality. Quinalphos, fenvalerate, carbaryl and cypermethrin registered over 90 per cent mortality 24 hr after treatments which was significantly higher than that obtained in other treatments. The percentage mortality in the remaining treatments,except endosulfan and methyl parathion exceeded 60 per cent. Patel *et al.* (1985 b) reported that, monocrotophos, quinalphos, malathion and methyl-parathion remained effective upto 4 or 5 days against *C. insolita* on pigeonpea.

Thus, looking to these results, quinalphos 0.05 per cent, fenvalerate 0.02 per cent, carbaryl 0.2 per cent and cypermethrin 0.004 per cent were highly effective, killing above 93.23 per cent bugs within 24 hr of treatment. Decamethrin 0.04 per cent, fluvalinate 0.01 per cent and monocrotophos 0.04 per cent were also effective causing 72.0 to 83.6 per cent mortality. Endosulfan 0.07 per cent and methyl-paration 0.05 per cent were found less effective as they gave below 55 per cent mortality against this pest.

(Received on 19th April, 1988)

TABLE 1

Comparative effect of different insecticides against the mealy bug, *C. insolita*.

Sr.No.	*Insecticide*	*Concentration (%)*	*Mean cumulative mortality per cent*			
			Hours after spray			
			1	*3*	*16*	*24*
1	Endosulfan (Thiodan 35 EC)	0.07	21.14 (13.0)	37.21 (36.56)	43.06 (46.0)	46.90 (53.3)
2	Monocrotophos (Monocil 40 EC)	0.04	32.99 (29.7)	44.98 (49.9)	53.05 (63.89)	59.68 (74.5)
3	Quinalphos (Ekalux 20 EC)	0.05	48.41 (56.0)	70.75 (89.12)	78.90 (96.5)	83.82 (98.89)
4.	Fenvalerate (Fenval 20 EC)	0.02	76.89 (94.89)	83.82 (98.89)	89.96 (100.0)	89.96 (100.0)
5.	Carbaryl (Sevin 50 WP)	0.2	51.12 (60.6)	63.90 (80.67)	77.68 (95.45)	89.96 (100.0)
6.	Cypermethrin (Basathrin 25 EC)	0.004	44.20 (48.6)	63.90 (80.67)	63.90 (80.67)	74.97 (93.23)
7.	Fluvalinate (Mavrik 25 EC)	0.01	40.35 (41.9)	53.05 (63.89)	63.90 (80.67)	66.12 (83.6)
8.	Acephate (Orthane 7 WP)	0.01	34.12 (31.45)	41.05 (43.12)	55.34 (67.67)	55.13 (64.0)
9.	Decamethrin (Decis 2.8 EC)	0.04	30.77 (26.12)	48.91 (56.0)	50.92 (60.23)	58.05 (72.0)
10.	Methylparathion	0.05	21.14 (13.0)	26.06 (19.3)	36.83 (35.9)	46.99 (53.45)
11.	Control		0.0	0.0	0.0	0.0
	S. Em.±		8.93	5.55	6.18	5.67
	C. D. at 5%		26.35	16.36	18.22	16.73

Figures in parentheses are transformed values.

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