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EVALUATION OF INSECTICIDES FOR THE CONTROL OF YELLOW MITE, *POLYPHAGOTARSONEMUS LATUS* (Banks) ON CHILLIES

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Among the seven insecticides tested for the control of the chilli muranai mite, *Polyphagotarsonemus latus* (Banks), triazophos 40 EC @ 0.04% was significantly superior to all other treatments in reducing the mite population both in pot culture, and under field experiments at 7 DAT. The reduction in the population of mites ranged from 90.60 to 92.20 and 89.04 to 93.68 per cent in pot culture and field experiments respectively. The next in effectiveness was poosalone 35 EC @ 0.07% with 80.21 to 81.44 and 79.61 to 85.03 per cent reduction of mites in pot culture and field experiments respectively. However, the maximum cost-benefit ratio of 1 : 9.9 was obtained in methyl-o-demeton application followed by phosalone with 1 : 6.9 and monocrotophos with 1 : 6.1.

The yellow mite, *Polyphagotarsonemus latus* (Banks) is a serious pest on chillies, *Capsicum annuum* Linn. The symptoms of damege caused by this mite has been designated as '*Murda*' disease in North India (Kar, 1926), and as '*Muranai*' in Tamil Nadu (Karuppuchamy and Mohanasundaram, 1987). This mite infests the chilli crop at the flowering and fruiting stages and the crop fails to yield (Abdul Kareem *et al.*, 1977). Several workers have recommended different insecticidal treatments for effective control of the mite (Awate *et al.* 1981, Dhandapani and Jayaraj, 1982, Laffi, 1982; Vaissayre, 1982; Yang and Chen, 1982; Dhandapani and Kumarasamy, 1983; Nemastothy, 1983; Patel *et al.*, 1983; Karuppuchamy and Mohanasundaram, 1987). With a view to find out the effective and economical chemical control of chilli mites and to re-evaluate the recommended chemicals, seven insecticides were evaluated both under pot culture and field conditions.

MATERIALS AND METHODS

A pot culture experiment was conducted with three replications in a randomised block design with 45 days old seedlings planted at two seedlings per pot. First round of spraying of insecticides was done and subsequent three sprayings at 15 days intervals on 25 DAT with spray fluid @ 500 l/ha in the first and second sprayings and 750 l/ha in the subsequent sprayings.

The field experiment was conducted with the same chemicals at the same dosage, in a randomised block

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Table 1 Evalution of Insecticides for the Control of Chilli Mite *P. LATUS* (Pot Culture Experiment

Treatments	Initial population mites/6 leaves (number)		Corrected per cent reduction in 7 days after	
	Before Third Spraying	Before Fourth Spraying	Third Spraying	Fourth Spraying
Dichlorvos 100 EC 0.1%	60.0	39.0	60 09 c (54.15)	56 39 d (52.01)
Monocrotophos 36 WSC 0.08%	52.0	39.3	66.33 (54.55)	66.12 cd (54 16)
Endosulfan 35 EC 0 07%	54.0	41.7	59.26 (50.37)	63.32 cd (52.93)
Triazophos 40 EC 0.04%	43.3	26.7	92.20 a (73.87)	90.60 a (72.19)
Phosalone 35 EC 0.07%	47 7	33.0	80.21 b (63.61)	81.44 b (64 52)
Methyl-o-demeton 25 EC 0.025%	54.0	37.3	65.67 c (54.15)	70 95 (57.43)
Carbosulfan 0.04%	55.3	40.0	67.63 c (55.34)	72.02 bc (58 75)
Control	62.3	62.3	—	—

The means in a column followed by the same letter are not significantly different by the least significant test criterion (P=0.05). In the parentheses the values ar aresin $\sqrt{P}$; where P is the corrected per cent reduction.

design with three replications. The plot size was 5 x 4 m. each plot consisting of 10 rows with a spacing of 50 cm x 30 cm. Forty five days old seedlings were used for planting @ two seedlings per hole. Five sprayings were given as in the pot culture experiment.

In the pot culture experiment, the population of both nymphs and adult mites were recorded in

Table 2 Evaluation of Insecticides for the Control of Chilli Mite, *P. LATUS* (Field Experiment)

	Initial population of mites/30 leaves (number)	Corrected per cent reduction 7 days after treatment			Yield of chillies (kg/ha)	Cost benefit ratio
		Third Spraying	Fourth Spraying	Fifth Spraying		
Dichlorvos 100 EC 0.1%	126%	f 52.25 (42.26)	f 51.77 (46.01)	55.66 (48.28)	d 1290	1:3.2
Monocrotophos 36 WSC 0.04%	124	d 60.46 (51.04)	cd 59.65 (50.57)	d 56.87 (48.97)	a 1760	1:6.1
Endosulfan 35 EC 0.07%	124	e 55.15 (47.95)	ef 54.31 (47.47)	d 56.05 (48.47)	c 1440	1:5.9
Triazophos 40 EC 0.04%	118	a 90.58 (72.12)	a 89.04 (70.70)	a 93.68 (75.51)	b 1585	*
Phesalona 35EC 0.07%	109	b 85.03 (67.23)	b 79.61 (63.22)	b 82.67 (65.36)	bc 1535	1:6.9
Methyl-o-demeton 25 EC 0.025%	122	c 73.49 (59.02)	c 64.26 (53.33)	b 62.67 (52.36)	bc 1510	1:9.9
Carbosulfan 0.04%	128	d 61.12 (51.44)	de 56.94 (49.01)	57.89 (46.61)	bc 1510	*
Control	129	—	—	—	e 1010	—

The means in a column followed by the same letter are not significantly different by least significant test criterion (P=0.05). In parenthese the values arearcsin $\sqrt{P:}$ where P is the corrected per cent reduction.

* For triazophos and carbosulfan, the cost benefit ratio could not be arrived at since these chemicals have not come to the market.

both the plants in a pot on three leaves per plant, one each from the bottom middle and top. In the field trial, ten plants were selected at random from the middle eight rows in a plot and the number of mites

from three leaves in each plant one each at the bottom, middle and top were recorded. Pretreatment counts were taken 2 days prior to treatment and the population was assessed seven days after treatment to work out the per cent reduction.

RESULTS AND DISCUSSION

An effective control of mite population was achieved by spraying with triazophos 0.04 per cent both in pot culture and field experiments The reduction in mite population ranged from 90.60 to 92.20 and 89.04 to 93.68 per cent in pot culture and field experiments respectively seven days after treatment (Tables 1 & 2). The efficacy of triazophos in controlling this mite was also reported by Vaissayre (1982). Phosalone 0.07% was found to be the next best chemical recording the reduction of mite population ranging from 80.21 to 81.44 and 70.61 to 85.03 per cent in pot culture and field experiments respectively. The efficacy of phosalone in controlling this mite was also reported by Abdul Kareem *et al.*, (1977). Patil and Dethe (1977) reported that monocrotophos 0.1% was found to be effective in controlling this mite on chilli. But in the present study monocrotophos was less effective as an acaricide. Dhandapani and Kumarasamy (1983) reported that carbosulfan 0.048% was not effective in controlling the mite and the results of the present study is in confirmity. The highest cost benefit ratio was obtained in methyl-o-demeton (1 : 9.9) followed by phosalone (1 : 6.9) and monocrotophos (1 : 6.1). The cost benefit ratio for triszophos and carbosulfan, could not be arrived at since these chemicals have not yet come to the market.

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STUDIES ON INTERCROPPING IN GROUNDNUT

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A field experiment was conducted on inter-cropping in groundnut during monsoon seasons of 1983 and 1984 and summer seasons of 1984 and 1985 at the Agricultural Research Station, Bhavanisagar for comparing six intercropping systems with pure groundnut as a means of increasing overall net returns without serious reduction to the groundnut yields. The yield of groundnut was higher with redgram as intercrop at 2.25 m apart than with cotton or maize. During monsoon seasons intercropping system involving groundnut+cotton at 1.5m apart gave higher net income (Rs. 6868/ha) than pure groundnut (Rs 6134/ha) During summer seasons groundnut+redgram at 2.25 m apart gave higher net income (Rs. 6608/ha) than pure groundnut (Rs. 6482/ha). Maize as intercrop was found to reduce the groundnut yields and the net income to a greater extent compared to other intercrops

Groundnut is an important dryland crop in Tamil Nadu. It is more often grown in mixture than in pure stands. The emphasis on intercropping in groundnut is justified because it can provide greater yield advantages compared to sole cropping. Groundnut+redgram system is commonly prevalent in drylands since groundnut makes a rapid canopy coverage of

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