

### Evaluation of pesticides and biopesticides against the coconut eriophyid mite, *Aceria guerreronis* Keifer under laboratory conditions

India is third largest coconut producing country. Presently, the crop covers an area of 1.9 million hectares with an estimated production of 12.8 billion nuts per annum, which account for about 22.36% of the world production. The eriophyid mite, *Aceria guerreronis* Keifer belonging to family Eriophyidae was unknown in Indian subcontinent till 1984, when it was first recorded from Srivilliputhur area of Tamil Nadu. In India, the mite attained a major pest status in the three peninsular states of India viz., Kerala, Karnataka and Tamil Nadu and it is spreading towards north also (Sathiamma *et al.*, 1998). It has drawn national attention as a threat to the coconut plantation (Sathiamma *et al.*, 1998 and Mohana Sundaram *et al.*, 1999). Considering the importance of coconut as a plantation crop in the country and the potentiality of this mite to cause extensive damage to the coconut crop.

A laboratory experiment was conducted at Department of Agricultural Entomology, Agricultural College, Dharwad to know the efficacy of some pesticides and biopesticides. The treatments were fenazaquin, propargite, monocrotophos, dicofol, oxydemeton methyl, phosolone, wettable sulfur, triazophos, floramite, neem oil, neemazal, turmeric, sweet flag, Neem seed kernel extract(NSKE) and biocare. Totally the experiment consisted of 16 treatments with three replications. The experiment was carried out using plastic trays filled with fine sand for placing the treated nuts. Four months old infested nuts were brought to laboratory and were placed in plastic trays. Three nuts were

taken for each treatment. Trays containing sand were moistened regularly and each treatment was imposed with respective chemical and botanical. Treatments were imposed using syringe. Observations on mite counts were taken at 1 day before spraying (DBS), and 2 days after spraying 7 DAS. Among three nuts per treatment, each nut was taken at each interval and observed for mite population. First the perianth was removed and observations were made on three spots on surface of the nut and then three spots on inner surface of three inner most perianths in an area of 28.28 mm<sup>2</sup> under stereo binocular microscope.

The results on evaluation of efficacy of biopesticides and pesticides carried under laboratory conditions (Table 1) showed that there was significant difference among treatments during second, fifth and seventh day's after treatment. Observations recorded during second day after treatment showed that pesticides were significantly superior over biopesticides. Among the different treatments, fenazaquin was significantly superior (75.50) over all other treatments by recording the lowest mite population and was on par with dicofol (80.50) and wettable sulphur (80.60). Among the botanicals, Azadirachtin (89.70), NSKE (90.28) and neemoil (88.50) were superior over other botanical treatments. The data on per cent reduction over untreated control (UTC) showed that fenazaquin was significantly superior with maximum reduction of mite

Table 1. Evaluation of pesticides and biopesticides under laboratory conditions against the coconut eriophyid mite, *A. guerreronis*

Sl. No.	Treatment	2 DAT	Per cent reduction	5 DAT	Per cent reduction	7 DAT	Per cent reduction
1.	Fenazaquin 10 EC	75.50 <sup>i</sup>	31.72 <sup>a</sup>	50.20 <sup>g</sup>	47.27 <sup>a</sup>	24.62 <sup>g</sup>	72.84 <sup>a</sup>
2.	Propargite 57 EC	89.70 <sup>e-h</sup>	18.88 <sup>d</sup>	70.25 <sup>d</sup>	26.21 <sup>e</sup>	40.00 <sup>d</sup>	55.88 <sup>e</sup>
3.	Monocrotophos 36 SL	85.70 <sup>gh</sup>	22.50 <sup>c</sup>	60.25 <sup>ef</sup>	36.71 <sup>c</sup>	25.50 <sup>g</sup>	71.87 <sup>a</sup>
4.	Dicofol 18.5 EC	80.50 <sup>hi</sup>	27.21 <sup>b</sup>	60.77 <sup>ef</sup>	36.16 <sup>c</sup>	30.66 <sup>e-g</sup>	66.18 <sup>bc</sup>
5.	Oxydemeton methyl 25 EC	80.60 <sup>b-c</sup>	27.11 <sup>b</sup>	65.50 <sup>de</sup>	31.19 <sup>d</sup>	32.18 <sup>ef</sup>	64.51 <sup>c</sup>
6.	Phosolone 35 EC	99.20 <sup>c-g</sup>	10.29 <sup>f</sup>	86.42 <sup>bc</sup>	9.22 <sup>g</sup>	75.09 <sup>b</sup>	17.19 <sup>g</sup>
7.	Wettable sulfur 80 WP	90.60 <sup>c-g</sup>	18.07 <sup>d</sup>	80.62 <sup>bc</sup>	15.34 <sup>f</sup>	70.22 <sup>bc</sup>	22.56 <sup>f</sup>
8.	Triazophos 40 EC	95.00 <sup>b-g</sup>	14.09 <sup>e</sup>	81.28 <sup>c</sup>	14.62 <sup>f</sup>	74.68 <sup>b</sup>	17.64 <sup>g</sup>
9.	Floramite	98.18 <sup>b-f</sup>	11.22 <sup>ef</sup>	90.46 <sup>c</sup>	4.97 <sup>h</sup>	86.92 <sup>a</sup>	4.140 <sup>h</sup>
10.	Neem oil	88.50 <sup>f-h</sup>	19.97 <sup>cd</sup>	60.75 <sup>ab</sup>	36.18 <sup>c</sup>	35.51 <sup>de</sup>	60.84 <sup>d</sup>
11.	Neemazal	89.70 <sup>e-h</sup>	18.88 <sup>d</sup>	70.25 <sup>ef</sup>	26.20 <sup>e</sup>	40.06 <sup>d</sup>	55.82 <sup>e</sup>
12.	Turmeric	100.82 <sup>b</sup>	8.83 <sup>f</sup>	89.29 <sup>d</sup>	6.20 <sup>h</sup>	67.82 <sup>c</sup>	25.20 <sup>f</sup>
13.	Sweet flag	99.65 <sup>b-d</sup>	9.89 <sup>f</sup>	90.12 <sup>ab</sup>	5.34 <sup>h</sup>	76.41 <sup>b</sup>	15.73 <sup>g</sup>
14.	NSKE	90.28 <sup>d-g</sup>	18.36 <sup>d</sup>	56.41 <sup>ab</sup>	40.74 <sup>b</sup>	28.66 <sup>fg</sup>	68.39 <sup>b</sup>
15.	Biocare	100.26 <sup>bc</sup>	9.34 <sup>f</sup>	92.10 <sup>fg</sup>	3.25 <sup>h</sup>	88.43 <sup>a</sup>	2.48 <sup>hi</sup>
16.	Untreated check	110.59 <sup>a</sup>	-	95.20 <sup>ab</sup>	-	90.68 <sup>a</sup>	-
CD at 1%		8.59	2.96	6.63 <sup>a</sup>	2.77	5.76	3.47

population to the tune of 31.72 per cent. It was followed by dicofol (27.21%) and wettable sulphur (27.11%). Observations recorded during 5 DAT indicated that fenazaquin was significantly superior over all other treatments by recording least mite population (50.20) and was on par with NSKE 5 per cent (56.41). The next best treatments were monocrotophos (60.25), followed by dicofol (60.77) and neem oil (60.75). The next best treatment was NSKE 5 per cent (40.74) in reducing mite population to maximum extent over UTC. Similarly during 7 DAT, once again fenazaquin was significantly superior (24.62) over all other treatments by recording minimum mite population. It was on par with monocrotophos (25.50), dicofol (30.66) and NSKE 5 per cent (28.66). The next best was wettable sulphur (32.18). Least effective ones were biocare (88.43) and floramite (86.92) which were significantly inferior and on par with UTC (90.68). As regards the per cent reduction of mite population over UTC, fenazaquin was significantly superior with the highest reduction of mites (72.84%) over UTC and was on par with monocrotophos (71.87%). The next best treatments were found to be dicofol (66.18%) and NSKE 5 per cent (68.39%).

These findings are in conformity with Dey *et al.* (2001)

University of Agricultural Sciences,  
Dharwad – 580 005, Karnataka, India.

V. PUSHPA  
B. S. NANDIHALLI

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