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SUSCEPTIBILITY OF CERTAIN MANGO VARIETIES TO THE BUD MITE-*ACERIA MANGIFERAE* (SAYED) (ERIOPHYIDAE: ACARI) AND ITS CONTROL

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ABSTRACT

Ten mango cultivars were evalauated for their susceptibility to the bud mite, *Aceria mangiferae* (Sayed) during March – May, 1997. The varieties viz., Rumani, Sappattai, Peter and Neelum had more number (74 mites per leaf) of mites than Malgoa (2.0), Baneshan (8.7) and Bangalora. Dicofol at 0.03% recorded a minimum of 10.1 mites/bud, resulting in 64.3 per cent reduction over control followed by monocrotophos at 0.07% (57.5%) and neem seed kernal extract at 10% (53.7%) whereas, neem oil at 3.0% was least effective (32%).

KEY WORDS: *Aceria mangiferae*, Eriophyid, Bud mite, Mango, Control

The mango plant is infested by about 10 different eriophyid mite species (Mohanasundaram and Muniappan, 1987). Among them, *Aceria mangiferae* (Sayed) is the one which infests the buds and ilnflorescence. Infestation by *A. mangiferae* often results in the drying and death of buds leading to considerable damage. Earlier, malformation in mango was thought to have been vectored by the bud mite (Narasimhan, 1954). Research work on the management of this mite pest is meagre. Hence, the present study was carried out to get more information on the above aspects.

MATERIALS AND METHODS

Ten mango cultivars (Table 1) available in the germplasm collection at Regional Research Station, Tamil Nadu Agricultural University, Paiyur, Dharmapuri district were screened for their susceptibility to the bud mite, *A mangiferae* from March to May, 1997. About five to six year old trees were selected for the study. In a variety, 10 vegetative buds were collected once in three days in a month in polybags, appropriately labelled and brought to the laboratory. The samples thus collected were observed under a stereo zoom microscope and the mites found in between the scales were carefully counted by dissecting the buds with the help of a fine minuten pin. Later, the mites were mounted on slides using Hoyer's medium (Baker and Wharton, 1952) and identity of the species was confirmed using taxanomic key of Eriophyoidea (Boczek *et al.*, 1989).

In another experiment, the bioefficacy of three insecticides *viz.*, monocrotophos 36 WSC 0.07%, wettable sulphur 80 EC 0.02% and dicofol 18.5 EC 0.03% and botanicals *viz.*, neem oil 3.0% and neem seed kernal extract (NSKE) 10% were evaluated against the bud mite on a susceptible cultivar Rumani. Two rounds of spray were given at an interval of 15 days during flowering period. Pre treatment count one day prior, and post treatment counts on three, seven and 15 days after each round of spray were taken. The experiment was conducted in RBD, replicated three times. In each

Table 1. Number of bud mites on different mango cultivars

S.No.	Varieties	March '97	April '97	May '97	Mean
1.	Rumani	56.5	68.3	97.2	74.0
2.	Sappattai	40.1	40.7	58.7	47.2
3.	Peter	31.2	33.0	52.5	38.9
4.	Malgoa	1.5	2.0	2.6	2.0
5.	Baneshan	6.9	7.0	12.2	8.7
6.	Neelum	22.0	24.8	30.5	29.1
7.	Panchavarnam	6.0	10.9	12.8	9.9
8.	Bangalora	7.4	9.6	12.0	9.7
9.	Imam Pasand	11.1	12.7	18.6	14.1
10.	Senthura	9.0	9.4	18.2	12.2
	Mean	19.17	21.84	31.53	

Mean of 10 observations in each month

Table 2. Bioefficacy of selected insecticides and botanicals against the mango bud mite - *Aceria mangiferae* (Mean of three replications)

S.No.	Treatments/ Conc.,	Pre Treatment Count	3 DAS	7 DAS	15 DAS	Mean	3 DAS	7 DAS	15 DAS	Mean	Overall Mean	% reduction over control
1.	Monocrotophos -36 WSC - 0.07%	75.3	62.5	40.3	30.1	44.3	22.4	10.5	6.7	13.2	28.8	57.5
2.	Wettable sulphur 80 WP - 0.02%	76.0	64.0	47.5	42.5	51.3	28.5	22.3	15.3	22.0	36.7	45.8
3.	Dicofol 18.5 EC-0.03%	74.5	58.3	30.2	25.2	37.9	18.0	8.2	4.0	10.1	24.2	64.3
4.	Neem oil 3.0%	75.1	69.7	54.5	50.4	58.1	40.5	32.7	28.4	33.9	45.9	32.2
5.	NSKE - 10%	75.0	62.1	40.1	28.6	43.6	26.3	18.6	12.5	19.1	31.4	53.7
6.	Check	75.0	76.0	72.0	68.5	72.2	69.7	65.0	55.0	63.2	67.7	-
	SEd	-	1.931	9.37	0.141	4.575	0.466	0.217	0.784	1.252	-	-
	CD (p=0.05)	-	4.303	20.89	0.3145	10.1	1.039	0.484	1.747	2.80	-	-

replication, the mortality counts of the bud mite were taken from 10 randomly collected buds during each observation. The data on the bud mite incidence were transformed to square root values and statistically analysed.

RESULTS AND DISCUSSION

The susceptibility of selected mango cultivars to *A. mangiferae* was evaluated in terms of number of mites present per bud during three different months (March to May, 1997). The results indicated that cv. Rumani had maximum mite incidence (74.0 mites per bud) followed by the cultivars Sappattai (47.2 mites/bud), Peter (38.9 mites/bud) and Neelum (29.1 mites/bud). Among the cultivars, Malgoa had the lowest number of mites (2.0 mites/bud) followed by Baneshan (8. 7 mites/bud). Senthura (12.2 mites/bud) and Imam Prasand (14.1 mites/bud) indicating thjeir lower susceptibility to the bud mite. It was also noted that higher mite incidence was noticed irrespective of test varieties, during the month of May (31.53 mites) coinciding with high temperature. The present study also confirmed the earlier findings of Suresh and Mohansundaram (1995).

The bioefficacy experiment conducted with five treatments revealed the effectiveness of dicofol (0.03) was highly effective causing 64.3 per cent reduction of the mite pest over control. This was followed by monocrotophos (0.07%), NSKE (10%), wettable sulphur (0.02%) and neem oil (3%) with 57.5, 53.7, 45.8 and 32.3 per cent reduction over control respetively. The superiority of dicofol against the eriophyids *viz., Aceria jasmini* and *A. pongamiae* (Umapathy and Mohanasundaram 1995a and 1995b) was already reported. The effectiveness of neem seed kernal extract as noticed in the present study is also in conformity with the positive results obtained against the mite, *A. cajani*. The reduction in the mite numbers was attributed to the antifeedant and repellant properties of the neem products rather than directly killing the pests (Chinniah and Mohanasundaram, 1995).

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FLYASH IN INTEGRATED PLANT NUTRITION SYSTEM AND ITS IMPACT ON SOIL PROPERTIES YIELD AND NUTRIENT UPTAKE OF GROUNDNUT

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ABSTRACT

A pot experiment was conducted during 1997 with groundnut (VRI 2) using laterite soil to study the effect of flyash (FA) alone and in combination with compost and fertilisers on nutrient uptake, yield of groundnut and available NPK status of the post-harvest soils. The results showed that the application of FA either alone or when integrated with other components increased the nutrient uptake and yield of groundnut significantly. The presence of essential plant nutrients, and the physical properties FA could be attributed for its favourable effect on yield of groundnut as well as for the sustenance of soil fertility. It was also inferred that integration of FA with other components of the nutrient supply system, on account of the synergistic effects had resulted in better nutrient uptake, higher yield and soil fertility sustenance.

KEY WORDS: Flyash, Compost, Fertilisers, Groundnut, Yield, Uptake of nutrients, Available nutrients

Flyash is a waste product in Thermal Power Stations where coal or lignite is used to generate electricity. Since the power famine of the country can not afford to block the promotion of power projects, the accumulation of flyash will go on increasing. It is occupying several lakhs of hectares of precious land causing air, ground water and soil pollution. A country like India with agriculture as its mainstay cannot obviously afford to let such a vast area of land being set apart for ash dumping. It is, therefore, necessary to establish regular utilization avenues of coal ash. India utilises only3-4 pr cent of the flyash generated (Vimalkumar nad Preeti Sharma,. 1998) as compared 40 per cent utilisation in France and U.K. and 100 per cent utilisation in Neherlands. Agriculture is one of the avenues, where it can be used for gainful purpose. Presence of various elements such as P, K, Ca, Mg, S and micronutrients in the flyash make it a good source of plant nutrients.

Groundnut is an important oilseed crop. It needs not only macronutrients but also secondary and micro nutrients to produce manures, organic wastes and biofertiliser is gaining wide acceptance to reduce input cost and sustain soil fertility. The present investigation was conducted to find out the effect of flyash either alone or in integrated