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Trials Against the Aphid, *Aphis craccivora* Koch. on Groundnut with Some Modern Synthetic Insecticides

by

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Introduction: The aphid, *Aphis craccivora* Koch. is a polyphagous pest attacking groundnut, glyricidia, cowpea, field bean, green gram, black gram, sesbania *etc*. The black adults and the purple nymphs feed on tender shoots in large colonies and cause severe damage. In early years BHC was recommended for the control of groundnut aphid (Anon, 1954). Sarup *et al.* (1960) reported that phosdrin, endrin, sevin, parathion, malathion, dieldrin, gamma BHC, isodrin and heptachlor were more toxic than p, p¹ DDT to the adults of *A. craccivora* and chlordane and aldrin less toxic than p, p¹ DDT. The present investigations were carried out to investigate the efficacy of some of the modern synthetic insecticides in controlling the aphid on groundnut. One pot-culture trial and four field trials were conducted against the aphid on TMV 2 groundnut and the results are detailed and discussed in this paper.

Materials and Methods: A total number of five trials (one pot-culture trial and four field trials) were conducted during 1966 and 1967 on TMV 2 groundnut with modern synthetic insecticides to assess their efficacy in controlling the aphid, *A. craccivora* Koch. Pot culture trial was conducted at the insectary attached to the Entomology Section, Agricultural College and Research Institute, Coimbatore and the field trials conducted at Salem in a private holding. In all the five trials the same set of variants were tried *viz.*, sprays of sayfos (Menazon) 0.06 %, 0.05 %, 0.04 %, BHC 0.1 %, endrin 0.02 %, carbophenothion (Trithion) 0.06 %, methyl demeton (Meta-systox) 0.05 %, thiometon (Ekatin) 0.08 % and water spray compared against an untreated control. The trials were laid out in randomised pattern, replicated three times.

In the pot-culture trial the insecticides were sprayed with an atomiser. In the field trials a rocker type sprayer was used. The quantity of spray fluid used was 900 litres/ha. In the pot-culture trial, the total population of aphids on three plants per replication was recorded and the treatments were given. Counts on the aphids were also taken 24, 48 and 72 hours after treatment. In the field trials the population of aphid on one inch length of a shoot per plant at the rate of ten plants per replication was taken before and 24, 48 and 72 hours after treatment. The reduction in aphid population after treatment was worked out and the date were analysed to assess the efficacy of the treatments (*vide* Table).

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TABLE. *Results (treatments) of pooled weighted analysis*

Treatments	Mean reduction in aphid population
Menazon 0.06%	86.33
Menazon 0.05%	85.03
Menazon 0.04%	83.97
BHC 0.1%	79.87
Endrin 0.02%	78.52
Carbophenothion 0.06%	82 62
Methyl demeton 0.05%	85.53
Thiometon 0.08%	80.12
Water spray	42.59
Control	15.16
S.E. of Mean	2.20
C.D.	6.31

Results and Discussion: Menazon at 0.06 % concentration brought about the highest reduction in the population of aphids on groundnut than all the other treatments and was followed in the order of their efficacy by the treatments methyl demeton 0.05 %, menazon 0.05 %, menazon 0.04 %, carbophenothion 0.06 % and thiometon 0.08 % which were on a par. The latter five insecticides were again on par with BHC 0.1 % spray, further menazon 0.04 %, carbophenothion 0.06 % and thiometon 0.08 % were on par with BHC 0.1 % and endrin 0.02 %. All the insecticidal treatments were superior to water spray and control.

Menazon at all concentrations is on a par with treatments like methyl demeton, carbophenothion and thiometon. However, as menazon at its lowest concentration of 0.04 % is on par with other less effective insecticides, *viz.*, BHC and endrin that concentration may not be much useful. Basheer (1958) reported that metasystox 0.03 % and parathion 0.025 % as superior over HETP and endrin in controlling *A. craccivora* on glyricidia. David *et al.* (1965) have recommended the use of methyl demeton, carbophenothion and thiometon for the control of the groundnut aphid and these chemicals have now been found to be on par with menazon 0.06 % and 0.05 %. These two concentrations of menazon *viz.*, at 0.06 % and 0.05 % do not show any significant difference amongst themselves in controlling the aphid. Hence in view of the efficacy in controlling the pest, the new insecticide menazon at 0.05 % concentration may be recommended for the control of the groundnut aphid.

Summary: A total number of five trials (one pot culture trial and four field trials) was conducted during 1966 and 1967, on TMV 2 groundnut with eight insecticides compared against water spray and control. The results revealed that menazon 0.05 % was effective in controlling the pest.

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