Research Note :

Antifeeding effect of different neem based pesticides against diamond back moth, *Plutella xylostella* Linn

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SUMMARY

Studies were conducted to determine the antifeeding effect of different neem based pesticides *viz.*, Neemazal, Bioneem, Neemgold, Nimbicidine and Achook against third instar larvae of diamond back moth, *Plutella xylostella* Linn. by leaf area method on cabbage leaves. Neemazal gave better protection (87.65) than other neem based pesticides. Achook was found to be the least effective antifeedant and offered 72.84 per cent protection on cabbage leaves. The other neem based pesticides demonstrated intermediary feeding deterring action.

Key words : Diamond back moth larvae, Leaf area method, Neem based pesticides

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Antifeedants may prove effective as insect controlling agents. They have been found to act as inhibitors of the gustatory reflexes and thereby function as feeding deterrent because they neither kill nor repell the insect pests.

Pradhan *et al*. (1962) first demonstrated that a 10 ppm aqueous suspension of crushed neem kernel sprayed on cabbage plants totally stopped feeding by the desert locust, *Schistocerca gregaria*, on treated foliage; feeding by the migratory *Locust migratoria*, was deterred at 100 ppm. Joshi and Ramaprasad (1975) have reported the antifeedant property of neem. Ketkar (1976) listed 95 publications on insect repellent and antifeedant effect of neem derivatives.

A study, therefore, was conducted to know the antifeeding effect of neem based pesticides on *Plutella xylostella* Linn.

The antifeeding effects of different neem based pesticides were tested against *Plutella xylostella* Linn. by allowing them to feed on cabbage leaves. For this purpose, leaf pieces of 2.0 cm sq. were cut from the cabbage leaf by means of rectangular metal designed. Measured leaf pieces were dipped in neem based pesticide solution for 2 seconds and solvent was evaporated under fan for ½ hour. On 24 hour starved larvae were released on the treated leaf material in each Petridish. Each treatment was replicate three times. Observations were recorded after 48 hours and area of leaf piece left over was measured. Percentage feeding was calculated by the following formula:

$$\text{Percentage feeding } Z = \frac{\text{Leaf area given} - \text{corrected leaf area}}{\text{Leaf area given}} \times 100$$

All the neem based pesticides were tested at the concentration of their LC_{50} values against the pest.

The data presented in (Table 1 and Fig. 1) indicate that the Neemazal has manifested best performance as antifeedant and gave 87.65 per cent protection at 2.5 per cent concentration against the larvae of *Plutella xylostella* Linn.

It was closely followed by Bioneem (85.58%), Neemgold (81.47%) and Nimbicidine (77.35%) and Achook (72.82%), which were used for evaluating their effectiveness as antifeedant. Whereas, Achook proved to be the least effective neem based pesticide. However, the work of Raman *et al*. (1992) reported the antifeeding effect of Achook against *Helicoverpa armigera* and *Earias vitella* at the higher concentration of 2.0 and 3.0 per cent. In the present investigation it was also recorded antifeeding properties at its higher concentration of 2.5 per cent and thus found a line with the finding of Raman *et al*. (1992). But no one has made attempt to evaluate the antifeeding activity of the recently introduced neem based pesticides like Neemazal, Bioneem, Neemgold, Nimbicidine and Achook against