*Research Paper :*

# Relative efficacy of neem based pesticides against diamond back moth, *Plutella xylostella* Linn

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## SUMMARY

**The efficacy of different neem based pesticides *viz.,* Neemazal, Bioneem, Neemgold, Nimbicidine and Achook was studied against diamond back moth, *Plutella xylostella* Linn. infesting cruciferous crops. Neemazal was the most toxic phytochemical amongst all the tested pesticides. Their relative efficacy on the basis of $LC_{50}$ against diamond back moth, *P. xylostella* Linn. may be arranged in following descending order: Neemazal > Neemgold> Bioneem> Nimbicidine> Achook. The relative efficacy of the different pesticides based on $LC_{50}$ and $LC_{90}$ values was computed.**

**Key words :** Neem based pesticides, *Plutella xylostella* Linn., Bio-assay

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Despite the voluminous work on the control of diamond back moth, *P. xylostella* still it remains an unbated problem. The use of insecticides in pest control programmes around the world resulted in the disturbance of eco-balance. Diamond back moth is the most important pest which causes direct yield loss and economic damage on cruciferous crops. Management of this pest is becoming a problem because it develops multiple resistance to a synthetic insecticides with short life cycle.

Neem products are not only effective against the crop pests but also ecologically safe and free from residual problems. Several botanical pesticides have been tested by different workers (Singh and Srivastava, 1985; Purohit *et al*., 1989; Lowery and Isman, 1995).

## MATERIALS AND METHODS

Neemazal, Bioneem, Neemgold, Nimbicidine and Achook obtained from E.I.D. Parry (India) Ltd., Madras; Balaji Chemical, Calcutta; SPIC India Ltd., Madras; M/S T Stanes and Company Ltd., Coimbatore; and M/S. Bahar Agro Chemical Feeds Pvt. Ltd., Bombay, respectively used in the present investigation. All these neem products were prepared by adding desired quantity of distilled water. For this purpose, 10% stock solution was prepared for each test compound by the formula given below:

$$\text{Amount of test compund} = \frac{\text{Quantity of solution required x \% of solution desired}}{\text{Strength of pesticide available}}$$

The desired concentration of Neemazal, Bioneem, Neemgold, Nimbicidine and Achook were prepared from the stock solution by diluting with desired amount of distilled water. The toxicity of neem based pesticides against 3rd instar larvae of diamond back moth, *Plutella xylostella* by bio-assay (film technique) method. The corrected mortality percentage was calculated from the observed mortality values by the following formula as given below:

$$\text{Corrected per cent motality} = \frac{T - C}{100 - C} \times 100$$

where,
T = Observed mortality
C = Mortality in control

The $LC_{50}$ and $LC_{90}$ values of different neem based pesticides were determined by taking it to find out its toxicity against the larvae of diamond back moth, *Plutella xylostella* Linn.

## RESULTS AND DISCUSSION

The studies on toxicity of various neem based pesticides made against *Plutella xylostella* revealed that Neemazal was the most toxic among all the tested pesticides and next in order were Bioneem, Neemgold, Nimbicidine and Achook was to be least effective (Table 1). The insecticidal activity of different neem based pesticides was