

Pertection of okra crop from the infestation of fruit borer *Earias vittella* Fabricius

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Accepted : December, 2008

SUMMARY

To protect the okra crop from the infestation of *Earias vittella*, neem derivatives such as neem oil 0.5, 1.0 and 2.0% and neem cake extract 1.0, 3.0 and 5.0 per cent along with endosulfan 0.05% were bioassayed for their effect on fecundity of the pest. All the test solutions exhibited certain degree of effect on fecundity. Of all the test solutions, neem oil showed maximum reduction of fecundity. Fecundity was reduced significantly with an increase in the concentration of the test solutions. An increase in the age of larval instars, there was a corresponding decrease in the effect of test solutions on fecundity.

Key words : *Earias vittella*, *Azadirachta indica*, Okra, Neem derivatives, Fecundity.

The fruit borer *Earias vittella* Fabricius causes extensive damage to okra (bhendi), *Abelmoschus esculentus* L. fruits, resulting in 69 per cent reduction in yield (Rawat and Sahu, 1973). Okra is one of the main vegetable crops of Erode district of TamilNadu, India. When the crop is in few weeks old, the larval instars bore into shoots and fruits. The infested fruits become stunted in growth, deformed in shape and unsuitable for human consumption. Farmers rely solely on synthetic chemical insecticides for the management of okra fruit borer due to their perceived efficiency. As okra fruits are harvested in frequent intervals, dependence of these chemical pesticides may lead to accumulation of residues in the fruits and pose problems to consumers (Chandrasekaran *et al.*, 2003). Use of commercially available synthetic insecticides also raised ecological and economical problems due to their high cost as well as environmental effects. This has evoked a search for "Soft" pesticides instead of harsh chemicals. Usage of plant - based "Botanicals" are now assuming a greater importance because of their virtualities like easily available, low manufacturing cost, safe to human while handling, biodegradability, pest specific, etc.

Among so many plants investigated, the neem, *Azadirachta indica* A. Juss has shown promising results for the protection of agricultural crops. Neem formulations and derivatives were studied in great detail to find out their effects on the fecundity of crop pests (Revathi and Kingsley, 2008). The reduction of fecundity by neem derivatives was reported first by Streets and Schmutterer

(1975) on *Epilachna varivestis*. Similar effect of neem derivatives and formulations on fecundity was also observed on *Epilachna dolecastigma* (Karmakar and Bhale, 2000), *Epilachna chrysomelina* (Abdel - Moniem *et al.*, 2004), *Plutella xylostella* (Charleston *et al.*, 2006) and *Pericallia ricini* (Mala and Muthalagi, 2008). With all these in view, the present investigation was under taken to evaluate the effects of neem derivatives on the fecundity of *E. vittella* for the protection of okra crop.

MATERIALS AND METHODS

The okra fruits infested with instar larvae of *E. vittella* were collected from the field at Chettipalayam of Erode district, TamilNadu. The adults emerged from the larval instars were allowed to mate and fresh okra leaves were kept inside the polyester film cage for egg laying. The eggs were collected and incubated at room temperature $26 \pm 2^\circ$ C. The larvae were reared in a wooden box of 50x30 cm size covered with muslin cloth.

Fresh okra fruits treated with neem oil 0.5, 1.0 and 2.0%, neem cake extract 1.0, 3.0 and 5.0 per cent and endosulfan 0.05% concentrations were kept in separate plastic troughs. Untreated control was also maintained. Fourth and fifth instar larvae ten number were introduced into each trough, covered with muslin cloth. Five replicates were maintained for all the test solution at all the concentrations. The adults emerged from the treated fourth and fifth instar larvae were allowed to mate. The eggs laid by the female moths were counted to evaluate the effect of test solutions on the fecundity of *E. vittella*.

RESULTS AND DISCUSSION

In the present investigation, all the test solutions to certain degree reduced the fecundity. The adult female

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