

Research Paper :

Laboratory Evaluation of Neem Derivatives for Phagodeterreny Against Shoot and Fruit Borer, *Leucinodes orbonalis* Gue. (Lepidoptera : Pyralidae)

N. REVATHI AND S. KINGSLEY

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See end of the article for authors' affiliations

Correspondence to :

S. KINGSLEY

Entomology Research
Institute, Loyola
College, CHENNAI
(T.N.) INDIA

SUMMARY

The study on the phagodeterreny of neem derivatives along with monocrotophos against third instar larvae of *Leucinodes orbonalis* was carried out in the laboratory. All the test solutions exhibited certain degrees of phagodeterreny. The rate of feeding varied significantly depending upon the concentration of neem derivatives and the effect of neem oil was more significant than neem cake extract.

Key words :

Azadirachta indica,
Leucinodes orbonalis,
Solanum melongena,
Phagodeterreny

A*zadirachta indica* A.Juss, the neem tree is considered to be one of the most promising trees of the 21st century. It has great potential in the fields of pest management, environmental protection and medicine. The practical utility of neem as a pest control was first demonstrated by Pradhan *et al.* (1962). After severe setback arising from the use of chemical pesticides on living systems and the environment, the use of eco-friendly insecticides of plant origin is gaining momentum. Botanicals provide ecologically sound, equitable and ethical pest management. They are pest specific, biodegradable, less prone to pest resistance and resurgence, non toxic to humen and other biota and relatively less expensive. Among various options, neem has been identified as a source of environmentally soft? natural pesticide with broad spectrum of bioactivity against harmful pests.

Brinjal – the egg plant (*Solanum melongena*) is much prized by both urban and rural people as an affordable vegetable and it is cultivated more than 500,000 hectares in India (FAOSTAT data, 2006). The crop is attacked by a large number of insect pests, out of which *Leucinodes orbonalis* is most serious one. Larvae bore into shoots during the vegetative growth stage and later in flowers and fruits, rendering fruit unfit for human consumption. It causes yield loss upto 80% and farmers have responded by heavy application of insecticides (Alan Cork, 2009). *L.orbonalis* threatens both the livelihood of the farmers and the health of

the consumers. The effect of the synthetic pesticides on the pest is often minimal because it has become highly tolerant to the insecticides but high levels of residues remain on the fruits. To reduce the constraints to production of brinjal, alternative control strategies are needed. The use of plant extracts or botanical pesticides may play a more prominent role in the integrated pest management programmes in the near future (Senthilnathan and Sehoon, 2006). Many investigators reported the antifeedent effect of plant extracts, such as, *Azadirachta indica* on *Earias vittella* (Thara and Kingsley, 2001) and *Pericallia ricini* (Revathi and Kingsley, 2004); *Sphaeranthus indicus* on *Spodoptera litura* (Ignacimuthu *et al.*, 2006); *Hydnocarpus alpine* on *Helicoverpa* (Ezhil Vendan *et al.*, 2009). This consideration is behind this study to evaluate the phagodeterreny or antifeedency of neem derivatives against *L.orbonalis*.

MATERIALS AND METHODS

The infected fruits of brinjal (*Solanum melongena*) and the pupae of *Leucinodes orbonalis* were collected from the fields at Padapai, Kancheepuram district, Tamilnadu. The emerged adults from the reared larvae were released into sterilized polyester film cage for oviposition. The eggs from the film cage were collected and incubated at room temperature $28 \pm 2^{\circ}\text{C}$. To find out the antifeedent effect, third instar larvae of *L. orbonalis* were placed at the centre of a

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