Impact of Neem Derivatives on Egg Hatchability of Okra Fruit Borer, *Earias Vittella* Fab. (Lepidoptera : Noctuidae)

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SUMMARY

Bioefficacy of neem derivatives such as neem oil and neem cake extract at different concentrations along with endosulfan were evaluated for their effect on the egg hatchability of *Earias vittella*, under laboratory conditions. All the test solutions to some extent reduced the hatchability. Maximum suppression of hatchability was observed in neem oil. Hatchability was reduced notably with an increase in the concentration of the test derivatives. The age of treated larvae played a significant role on the hatchability of egg.

Key words : *Earias vittella*, Neem derivatives, Hatchability.

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An alternative eco-friendly strategy for management of noxious insect pests has been searched to reduce harmful effects of synthetic chemical insecticides on humanity. In recent years, crop protection based on botanicals to control pests has been recognized as a valuable tool in pest management. Due to the increased awareness on indiscriminate use of synthetic pesticides and their persistent harmful effects, much interest has been evinced in the use of botanical products to control the agricultural pests. Of the numerous plants investigated, the neem tree *Azadirachta indica* A. Juss., has shown promising results for the control of numerous crop pests (Revathi and Kingsley, 2008). Neem has universally been accepted as a wonder tree because of its diverse utility. It belongs to the family Meliaceae, an attractive evergreen tree, native of Indian subcontinent. Its multidirectional uses as therapeutic have been known in India since vedic times. Besides therapeutic efficacy, neem established its potential as a source of naturally occurring insecticide with various mode of actions. Saxena *et al*. (1981) were the first to observe that neem oil at different concentrations strongly inhibited the hatchability of the eggs of *Cnaphalocrocis medinalis*. Luca (1982) on *Callosobruchus* sp. and Rajendran (1997) on *Henosepilachna vigintioctopunctata*, observed reduced hatchability of eggs, when treated with neem oil. Pest control methods are aimed to combat insect at initial stages, particularly the hatching stage. This factor is one of the key aspects of the present investigation to evaluate the effect of neem derivatives on the egg hatchability of *Earias vittella*.

The fruit borer, *Earias vittella* Fabricius causes extensive damage to okra (*Abelmoschus esculentus*) fruits, resulting in 69% reduction in yield (Rawat and Sahu, 1973). Farmers rely solely on synthetic chemicals for the management due to the pests perceived effiency. As the okra fruits are harvested in frequent intervals, the dependence on the chemical pesticides leads to accumulation of residues in the fruits and pose problems to consumers. Realizing the emerging significances of botanical pesticides, the objective of the present work is to evaluate the efficacy of neem extracts for the protection of okra crop from *E.vittella*.

MATERIALS AND METHODS

The larvae of *E.vittella* collected from the infested fruits from the field at Chettipalayam of Erode district, Tamilnadu, were kept in a container (30×25 cm) and fed with fresh okra fruits. Adults emerged from pupae were separated out and kept in adult rearing cages. For oviposition, fresh okra leaves were kept inside. Adults were fed with 5% honey solution soaked in cotton and kept inside the cages. Freshly laid eggs were collected and stock culture was initiated.

Neem oil at 0.5, 1.0 and 2.0%, neem cake extract 1.0, 3.0 and 5.0% concentrations along with endosulfan at 0.05% were evaluated to find out the hatchability effect on the eggs of *E.vittella*. Okra fruits dipped in test solutions and dried were provided to two hours pre-