

Insecticidal Potential of *Pongamia pinnata* Seed Fractions of Methanol Extract Against *Earias vittella* (Lepidoptera: Noctuidae)

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The efficacy of *karanj* [*Pongamia pinnata* (Linnaeus 1758) Pierre 1781] seed (both mature as well as immature) fractions (hexane, chloroform and acetone at 0.5, 1.0, 1.5 and 2.0%) in disrupting various behavioural and physiological activities of *Earias vittella* (Fabricius 1794) was assessed. Mature seed hexane and chloroform fractions (1.0%) exhibited more than 65% and 75% first instar larval mortality respectively. While, more than 70% third instar larval feeding deterrence was noticed in mature seed hexane at the lowest concentration tested (0.5%). Besides, a pronounced decrease in food consumption and utilization indices *viz.*, CI, GR, ECI, AD and ECD was observed when fourth instar *E vittella* larvae were allowed to feed on fractions treated okra fruit blocks. Adults when fed on the extract treated sucrose diet (0.1, 0.2, 0.3 and 0.4%) exhibited a marked reduction in egg laying and subsequent egg hatching. Such fractions also deterred the adult ♀♀ from egg laying when applied on to the oviposition substrate (no-choice, choice and without actual contact condition). Hatching inhibition of one-day old eggs on application of fractions was noticed. Among the fractions (hexane, chloroform and acetone) hexane followed by chloroform fraction showed maximum activity. Mature seed fractions gave better results than the immature one.

Key words: *Earias vittella* (Fabricius 1794) – *Karanj* seed fractions – larval mortality – food utilization indices – oviposition deterrence

1 Introduction

In the fragile and marginal environments of the developing countries, sustainability of agriculture is threatened by the unchecked use of chemical inputs needed to optimize the production potential of land and also by the lack of appropriate management of natural resources. Food production today must not only ensure food supply, but also human health and environmental safety. The ill effects of excessive and injudicious use of pesticides have necessitated a need for an alternative eco-friendly pest management programme including botanicals as one of its major component. Though, botanicals are now emerging as a viable component of Integrated Pest Management (IPM) strategies on all crops. Yet, they comprise only a very small portion of the total volume of insecticides used annually on a worldwide basis.

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