

THE EFFICACY OF THE BOTANIC INSECTICIDE MATRIN AGAINST DIAMONDBACK MOTH

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INTRODUCTION:

The diamondback moth, *Plutella xylostella* (L.) (Lepidoptera, Plutellidae), is the most important pest of crucifers in central parts of Iran. The overuse of pesticides has destroyed the natural check of the pest by its parasitoids. The present study aimed to study the efficacy of a botanic insecticide, matrin (Agro®) compared with three registered chemical insecticides, chlorpyrifos, indoxacarb and cypermethrin against *P. xylostella* in Isfahan province.

MATERIALS AND METHODS:

A field experiment was established using seven different pesticide treatments [matrin (1, 1.5 and 2 lit/ha), chlorpyrifos (1 lit/ha), indoxacarb (250 ml/ha), cypermethrin (0.5 lit/ha) and control (water)] in plots of 50 m² at a 2.5 ha common cabbage farm, which was heavily infested to *P. xylostella*, in Mobarakeh county (Isfahan province, Iran) during summer 2013. The treatments were replicated four times in a randomized complete block design. The live *P. xylostella* larvae were recorded on 5 cabbage plants in each plot the day before the pesticide spraying and once again 5, 10, 15 and 20 days after the application. The differences in the percentage mortality between treatments were analyzed using logistic analysis of deviance (binomial error) in R 2.10.0.

RESULTS AND DISCUSSION:

There was a significant difference between the tested insecticides for their effects on *P. xylostella* mortality; such that the best efficacy in causing *P. xylostella* larval mortality after 10 days was obtained by Agro® [2, 1.5 and 1 lit/ha] with the percentage mortality of 53.8, 38.8 and 37.1, respectively. The mortalities caused by other insecticides were not sufficient to keep *P. xylostella* under control. Given the present study's findings and the bio-safety risk of using chemical pesticides, Agro® (2 lit/ha) can be recommended as a component of sustainable management strategies of *P. xylostella* in Isfahan province.

Keywords: *Plutella*, botanic, pesticide, bio-safety, Isfahan

REFERENCES:

- Karimzadeh J, Hardie J, Wright DJ (2013) Plant resistance affects the olfactory response and parasitism success of *Cotesia vestalis*. *Journal of Insect Behavior* 26, 35-50.
- Karimzadeh J, Sayyed AH (2011) Immune system challenge in a host-parasitoid-pathogen system: interaction between *Cotesia plutellae* (Hym.: Braconidae) and *Bacillus thuringiensis* influences parasitism and phenoloxidase cascade of *Plutella xylostella* (Lep.: Plutellidae). *Journal of Entomological Society of Iran* 30, 27-38.
- Karimzadeh J, Wright DJ (2008) Bottom-up cascading effects in a tritrophic system: interactions between plant quality and host-parasitoid immune responses. *Ecological Entomology* 33, 45-52.



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