

Susceptibility of three developmental stages of *Liriomyza sativae* Blanchard (Dip.: Agromyzidae) to biorational insecticides in vitro conditions

*B. Asghari-Tabari*¹, *A. Sheikhi-Gorjan*^{*2}, *M. Shojaei*¹, *M. Z. Rajabi*³,
*A. Yousefi-Porshekeh*²

1- Department of Entomology, Science and Research Branch, Islamic Azad University, Tehran

2- Iranian Research Institute of Plant Protection, Tehran

3- Plant Protection Organization, Tehran

Abstract

Leafminers of vegetables are the major pests of greenhouse cucumber in Iran. One of the reasons for repeated outbreaks of leafminer during recent years, is attributed to the vast application of some ineffective insecticides. The purposes of this project were to evaluate the efficacy of new biorational insecticides, cyromazine, spinosad and oxymatrine. The toxicities of these products were compared with abamectin as a conventional insecticide in Iran. Effectiveness of cyromazine (75, 150 mg/L), oxymatrine (3, 9 mg/L), spinosad (48, 96 mg/L) and abamectin (12, 24 mg/L) based on active ingredient were studied on the early larval instars (L_{1, 2}), the third instar larvae (L₃), the pupal stage and 2-day old adults of *Liriomyza sativae* in completely randomized design. The bioassay tests showed that spinosad, cyromazine and oxymatrine had more than 95% effectiveness and abamectin at low concentration had the least effectiveness (23.18%) on the early instar larvae. For the pupal stage, oxymatrine (9 mg/L) with 51.6% mortality and spinosad (48 mg/L) with 0.89% had the most and the least effectiveness respectively. Bioassay of adults showed that spinosad 96 mg/L with 92.1% mortality and cyromazine 75 mg/L with 6.2 % had the most and the least effectiveness respectively. Toxicity of the biorational insecticides on the developmental stages of *L. sativae* showed that larval and pupal stages were most (23.18-100%) and least (0.89-51.63%) susceptible to insecticides respectively. The low and high concentrations of each insecticide no significant effect on the larval stages. Laboratory trials revealed that abamectin formulated in Iran, could not control leafminer effectively in the greenhouses of Iran.

Key words: Leafminers, Cucumber, Insecticide, Biorational, Abamectin, Cyromazine, Spinosad, Oxymatrine

* Corresponding Author, E-mail: Asheikhi@gmail.com

Received: 21 January 2009 - Accepted: 14 April 2009