

Application of nuclear technique for determination controlling dose of pomegranate fruit moth, *Ectomylois ceratoniae* Zeller (Lep.: Pyralidae)

***H. Zolfagharieh*^{*1}, *R. Vafaei-shoushtari*², *H. Farazmand*³, *M. R. Ardakani*⁴, *M. Babaii*¹, *H. Mostafavi*¹**

1- Agricultural, Medical & Industrial Research school, Nuclear Science and Technology Research Institute (NSTRL), Karaj, Iran

2- Entomology Department, Agricultural faculty, Islamic Azad university, Arak Branch, Arak, Iran

3- Iranian Research Institute of Plant Protection, Tehran

4- Agronomy Department, Agricultural faculty, Islamic Azad university, Karaj Branch, Karaj, Iran

Abstract

Pomegranate fruit moth, *Ectomylois ceratoniae* Zeller (Lepidoptera: Pyralidae), is the most important factors for decreasing quality and quantity of pomegranate in Iran. Due to biology of the pest like egg laying place and larval feeding behavior, application of pesticide is not practical; consequently losses of this valuable product are too much. Application of Sterile Insect Technique (SIT) is a method that is used for a few insect with the special condition. This research has been done for evaluation practical control of this pest with application of nuclear methods. *E. ceratoniae* reared on the artificial diet (28±2°C, 60±5% RH, 14 hours light and 10 hours darkness). Young and old pupa separated and were irradiated at different dose range of 0 (Control) and 40, 60, 80, 100, 120, 140, 160 Gy. The adults after eclosion crossed according to the following situations: Irradiated male×wild female, irradiated female×wild male, and irradiated male×irradiated female and wild male×wild female. The result shows that the best controlling formula of pomegranate fruit moth is irradiated males×irradiated females and the best controlling doses of young and old pupa are 120 and 160 Gy respectively.

Key words: Pomegranate fruit moth, Irradiation, Sterile Insect Technique, artificial diet, Gamma irradiation

* Corresponding Author, E-mail: Hzolfagharieh@yahoo.com

Received: 12 February 2009 - Accepted: 26 May 2009