

Effects of Gamma Radiation on Tomato Leafminer, *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae)

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Abstract : In present study, it was aimed to evaluate the gamma radiation impacts on tomato leaf miner at different biological stages. The laboratory colony of tomato leaf miner was used to set up the experiments. Different biological stages of the insects (eggs, 4th instars and pupae) were irradiated using Cobalt-60 at doses of 0 (control), 100 Gray (Gy), 200 Gy, 300 Gy and 400 Gy in Cos-44HH-N source, at dose rate of 480 Gy/h. After irradiation, the eggs were incubated until hatching; the mature larvae were reared to complete their developments. Adult emergences from irradiated pupae were also evaluated. The results showed that there were no egg hatching at all tested irradiation doses. Although, the pupal percentages of irradiated mature larvae were 54%, 15% and 8% at doses of 100 Gy, 200 Gy and 300 Gy respectively, there were no adult emergences from irradiated mature larvae. On the other hand, the adult emergences were observed from irradiated pupae, decreased as radiation doses increased along with malformed adult appearance. Male and female individuals were out crossed with laboratory reared adults. Fecundity was correlated with radiation doses.

Keywords : irradiation, tomato, tomato leafminer, *Tuta absoluta*

Conference Title : ICABBBE 2016 : International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering

Conference Location : Paris, France

Conference Dates : July 25-26, 2016