

**Functional response of *Trissolcus grandis* (Hym., Scelionidae)
to different egg densities of *Eurygaster integriceps*
(Het., Scutelleridae) and effects of different
wheat genotypes on it**

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ABSTRACT

Functional response of *Trissolcus grandis* to different egg densities of *Eurygaster integriceps* was studied at laboratory conditions. In order to evaluate the possible interactions between host plant resistance and parasitoid wasps, the effect of different wheat genotypes (Sardari and Falat) on functional response of *T. grandis* was also investigated. Three experiments were conducted in test tubes with F2 generation of parasitoid without wheat plants and in pots with F2 and F5 generations on wheat plants. The F2 and F5 wasps used in the experiments were hatched from eggs laid by females fed on two different wheat genotypes. Individual females were presented to 2, 4, 7, 14, 28, 32, 42 and 56 eggs of sunn pest for one hour in test tubes and 6 hours in pots.

Analysis of functional response was conducted in two stages by SAS software. At first stage, logistic regression of proportion of parasitized eggs was used for determining the type of functional response. At second stage, nonlinear regression (Least square method) was used for estimating searching efficiency (a or b) and

handling time (T_h) parameters. In all three experiments (F2 & F5 in pot and F2 in tube) functional response on Sardari (susceptible) was type III and on Falat (resistant) was type II. Holling disc model and Rogers random attack model were used to estimate type II and type III functional response parameters, respectively.

Searching efficiency (a for type II and b for type III), handling time (T_h), the rate of fitting of data to models (r^2) and the maximum rate of estimated parasitism (T/T_h) on Falat were as follows:

- with F5 wasps in pot 0.167, 0.083, 0.97 and 72.29, respectively.
- with F2 wasps in pot 0.185, 0.047, 0.90 and 127.66, respectively.
- with F2 wasps in tube 1.584, 0.040, 0.93 and 25.25, respectively.

For those parameters on Sardari, the results were as follows:

- with F5 wasps in pot 0.035, 0.149, 0.97 and 40.27, respectively.
- with F2 wasps in pot 0.059, 0.139, 0.98 and 43.16, respectively.
- with F2 wasps in tube 0.820, 0.057, 0.95 and 17.54, respectively.

The results showed that there was a negative interaction between resistant genotype (Falat) and parasitoid wasps due to existence of type II functional response in wasps. Comparison between estimated parameters for F2 and F5 wasps (in pot) showed that there was no important differences on Sardari but the differences between F2 and F5 wasps on Falat were noticeable.

Key words: *Trissolcus granidis*, *Eurygaster integriceps*, Functional Response.

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