Induced resistance to safflower aphid infestation, *Uroleucon carthami* (Hem.: Aphididae) in plants already injured by mechanical wound

Motahareh Amiri, Seyed Mozaffar Mansouri* and Mohsen Mehrparvar

*Department of Biodiversity, Institute of Science and High Technology and Environmental Sciences, Graduate University of Advanced Technology, Kerman, Iran.*

*Corresponding author: m.mansouri.89@gmail.com*

**Abstract**

Induced defense benefits plants by decreasing performance or preference of herbivores that attack plants later. We investigated the effect of induced resistance by mechanical wound on subsequent safflower aphid, *Uroleucon carthami*, infestation using four commercial safflower (*Carthamus tinctorius*) cultivars including Faraman, Goldasht, Mahali-Isfahan and Sofeh, and a wild safflower species (*C. oxyacantha*). The experiment was conducted in a greenhouse with previously primed plants via mechanical wound using a punch device by creation of 12 holes on leaves of each plant (235.5 mm², four holes every two days) and control plants which never experienced herbivory or injury. There was an intervening period of three days. Afterward, to test the performance of safflower aphid on different plant treatments five unwinged adult aphids were placed on each plant and allowed to reproduce for two weeks. In the end of the experiments, the total number of aphid individuals on each plant was counted and the percentage of winged individuals was calculated. The experiment was carried out based on a complete randomized block design with 10 blocks. Data after normalization by log$_{10}$ were analyzing using GLMs. Means were compared by Tukey's HSD test. Results showed that total number of aphids on plants that were already injured is significantly less than the control. The percentage of winged aphids on primed plants was significantly more than the control which generally is an indicator for unsuitable conditions. Therefore, it is conceivable that previous injury prompts aphids to emigrate by winged individuals.

**Key words:** Induced defense, *Carthamus tinctorius*, *C. oxyacantha*, total aphid, winged aphid, injury.