Repellent activity of two medicinal plant essential oils on *Tribolium castaneum* and *Ephestia kuehniella*

Akrami, H.*#[1], Moharramipour, S.[2] , Imani, S.[1]
[1] Department of Entomology, Science and Research Branch, Islamic Azad University, Tehran, Iran.
Email: hd.akrami@yahoo.com
[2] Department of Entomology, Faculty of Agriculture, Tarbiat Modares University

* Corresponding author
# Presenting author

DOI: 10.5073/jka.2010.425.167.274

Abstract

Red flour beetle (*Tribolium castaneum* (Herbst)) and Mediterranean flour moth (*Ephestia kuehniella* (Zeller)) are important stored product pests that contaminate and cause substantial loss of stored products. Volatile oils are secondary metabolites of plants for defending against insects and other herbivores. Some of them are very repellent for insects. The intent of the present study is to examine effect of *Thymus kotschyanus* Boiss and Hohen. and *Mentha longifolia* L. essential oils on Red flour beetle and Mediterranean flour moth. Essential oils were extracted by hydrodistillation. Experiments were done by RZR olfactometer model. Food plus essential oil was put in one arm and only food in the other side. Each insect was left for an hour let to choose one arm. In addition, another experiment was done to ten insects in each group. The results showed that, at 0.4 µL/L air, *T. kotschyanus* and *M. longifolia* had 83.33 and 93.33% repellent effect on *T. castaneum* and 90 and 100% repllenency on *E. kuehniella*, respectively. These essential oils could have potential to prevent infestation of the stored product pests in the warehouses.

Keywords: *Tribolium castaneum, Ephestia kuehniella, Thymus kotschyanus, Mentha longifolia*, Repellency