

Residual efficacy of deltamethrin and α -cyfluthrin against warehouse beetle, *Trogoderma variabile* Ballion (Coleoptera: Dermestidae)

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Abstract

The warehouse beetle, *Trogoderma variabile* Ballion (Coleoptera: Dermestidae), is a cosmopolitan pest of stored products. We conducted a series of laboratory bio-assays to evaluate residual toxicity of deltamethrin and α -cyfluthrin against larvae and adults of warehouse beetle. The results from these studies show that pyrethroid insecticides used as surface treatments give residual effectiveness against adults for several months. However, larvae are less susceptible than adults and hence there was a decline in residual efficacy against larvae. Studies are also underway to determine if *T. variabile* can serve as a surrogate or substitute species for studies activity of pesticides against *Trogoderma granarium* (Everts), the Khapra beetle, a pest that is quarantined in the USA and other countries. The results generated from this study may have important implications for developing alternatives to methyl bromide for control of *T. granarium* and other dermestid pests that spend a majority of their life cycle in the larval stage.

Keywords: stored-product insects, insecticides, khapra beetle, methyl bromide alternatives