



# Evaluation of Botanical Oils against Red Flour Beetle *Tribolium castaneum* (Herbst) Coleoptera: Tenebrionidae

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**Abstract:** Among botanical extracts used as insecticides, essential oils are promising alternatives to chemical insecticides. In this study, essential oils of *Eucalyptus* sp, *Syzygium aromaticum*, *Cinnamomum verum*, *Sinapis alba* and *Lepidium sativum* were investigated for their insecticidal activity against one of the most destructive insect pest on stored material, the red flour beetle *Tribolium castaneum*. The fumigation with *Eucalyptus* and *C. verum* oils mixed methyl alcohol resulted in high mortality rates that of 60.67 and 63.33%, respectively, compared to significantly less mortality from the using the same oils alone. Findings also showed that *Eucalyptus* and *C. verum* showed more repellency than other oils with repellence rate of 46.66 and 33.33%, respectively 12h post treatment while all the oils resulted in 100% repellence after 36h of the treatment. In case of contact toxicity test, *Eucalyptus* and *C. verum* were also the most effective oils at 1h post treatment resulting in mortality rate of 20 and 10%, respectively, and 100% mortality 6h post treatment, while the other plant oils were effective even 24h post treatment.

**Keywords:** *Tribolium castaneum*, Red flour beetle, Botanical oils, Repellence, Wheat, Stored grains

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