

Fumigant toxicity of some plant derived essential oils against all life stages of confused flour beetle, *Tribolium confusum* Duval, (Coleoptera:Tenebrionidae)

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DOI: xx.xxxx/xxx.2014.xxx.xxx.xxx

Abstract

This study was carried out to determine fumigant toxicity of some essential oils derived from 32 different plants against all life stages of *Tribolium confusum* Jacqueline duVal. At different exposure times and dosages all tested essential oils had different fumigant toxicities against all life stages of the test insect species. Among the essential oils tested, only garlic and onion had fumigant toxicity against all life stages of *T. confusum*. Eggs were found to be most susceptible stage by LT₉₀ values ranging from 1.1-105.8 hour against essential oils. The order of susceptibility of stages were egg> adult> pupa> larva, respectively. Toxicity tests indicate that garlic and onion essential oils can be used as a possible alternative bio-fumigant in controlling stored product insects.

Keywords: essential oil, fumigant toxicity, *Tribolium confusum*