

Title Fumigant toxicity of essential oil from *Pistacia lentiscus* L. (Anacardiaceae) against stored-product insects

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Abstract

During the past few decades, the need for safer means of pest management have become crucial due to the harmful effects of synthetic insecticides on the environment, problems related to pests' resurgence and resistance to pesticide and risk for users. Therefore, a growing interest in research concerning the possible use of plant extracts as alternatives to synthetic insecticides was developed. In this study, we report first investigations on chemical constituents and fumigant toxicity of *Pistacia lentiscus* L. (Anacardiaceae) essential oil against 1–7 day-old adults of *Tribolium castaneum* (Herbst) (Coleoptera: Tenebrionidae) and *Lasioderma serricornis* (F.) (Coleoptera: Anobiidae). The major compounds of the essential oil determined using the GC and the GC-MS were: α -phellandrene (3.20%), α -pinene (9.48%) and limonene (19.11%). Oil amounts tested were 5 and 45 μ l in each 44 ml Plexiglas bottle with capacity corresponding to concentrations 114 and 1023 μ l/L air. Great differences in insect mortality were observed within insect species, oil concentrations and exposure time. The fumigant toxicity potential of *P. lentiscus* on *L. serricornis* was higher (LC_{50} = 8.44 μ l/L, LC_{95} = 43.68 μ l/L) than *T. castaneum* (LC_{50} = 28.03 μ l/L, LC_{95} = 63.46 μ l/L). The results suggested that *P. lentiscus* essential oil may have potential as a control agent against these two stored product beetles.