

عنوان مقاله:

Chemical composition and fumigant toxicity of essential oil from *Thymus daenensis* against two stored product pests

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خلاصه مقاله:

Plant essential oils and their constituents are recognized as proper alternatives to fumigants. *Thymus daenensis* Celak is one of these plants that have medicinal properties and is endemic to Iran. The essential oil was isolated by hydrodistillation from dry leaves using a modified cleverger-type apparatus and the chemical composition of the oil was assessed via GC and GC-MS. Fourteen compounds (100% of the total composition) were identified. Thymol (57.4%), carvacrol (9.8%), β -caryophyllene (6.9%), γ -terpinene (6.7%) and p-cymene (6.3%) were found to be the major compounds of the essential oil. The fumigant toxicity of the essential oil was tested against 1-3 days old adults of *Callosobruchus maculatus* (F.) and *Sitophilus granarius* (L.) at 27 ± 1 °C and 65 ± 5 % R. H. in darkness. The mortality of adults was tested at different concentrations (28.12, 40.62, 53.12 and 65.62 μ l/l air) and different exposure times. At the highest concentration (65.62 μ l/l air), *T. daenensis* oil caused 90 and 60% mortality with a 3 h exposure on *C. maculatus* and *S. granarius*, respectively. Based on LC₅₀ values, *C. maculatus* (4.22 μ l/l air) was significantly more susceptible than *S. granarius* (6.55 μ l/l air). These results show the efficacy of *T. daenensis* oil for stored-products protection.

کلمات کلیدی:

fumigant toxicity, Essential oil, *Thymus daenensis*, *Callosobruchus maculatus*, *Sitophilus granarius*

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