

## Composition and Acaricidal Activity of *Elettaria cardamomum* Essential Oil Against *Oligonychus afrasiaticus*

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**Abstract :** *Oligonychus afrasiaticus*, is an important pest that devastates date palms (*Phoenix dactylifera*). They caused serious damage to date palm fruits. They start feeding on dates at Kimri stage (greenish color dates with high sugar and moisture level) resulting severe fruit losses and rendering them unfit for human consumption. Currently, acaricides are the only tool available to Saudi growers to prevent *O. afrasiaticus* damage. Many acaricides are available in the Saudi markets in order to control the mites on date palm trees but their efficacy against *O. afrasiaticus* is questionable. The intensive use of acaricides has led to resistance in many mite species around the globe and their control becomes exceedingly challenging. The current investigation explored for the first time the acaricidal potential of *Elettaria cardamomum* essential oil for the environmentally safe management of date mites in the laboratory. *E. cardamomum* exhibited acaricidal activities in a dose dependent manner. GC-MS fractionation of *E. cardamomum* detected numerous compounds. Among the identified compounds, Guaniol caused 100% mortality compared to other identified compounds including (+)- $\alpha$ -Pinene, Camphene, (-)-B-Pinene, 3-Carene, (R)-(+)-Limonene, and Citral. Our laboratory results showed that *E. cardamomum* and its constituents especially Guaniol are promising for the eco-friendly management of date mites, *O. afrasiaticus*, although their field efficacy remains to be evaluated.

**Keywords :** cardamom, old world date mite, natural acaricide, toxicity

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