

Fumigant Toxicity of *Cuminum cyminum* Against *Callosobruchus maculatus* F.(Coleoptera, Bruchidae)

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Callosobruchus maculatus F. has involved the great attention because it is widely distributed throughout the tropical and sub-tropical regions. It is an important pest of several pulses including cowpea (*Vigna unguiculata*) chickpea (*Cicer arietinum* L.), lentil (*Lens culinaris* Medik.), soyabean (*Glycine max* Mer.) and haricot beans (*Phaseolus vulgaris* L.). The pulses are very important source of vegetable protein for millions of people of tropical and subtropical regions. It usually commences from the field where the crops are grown and continues during storage. In order to keep these stored grain products free from pest attack, various synthetic chemicals have been used. Synthetic pesticides are currently the method of choice to protect stored grain from insect damage. But, continuous or heavy uses of synthetic pesticides has created serious problems arising from factors such as direct toxicity to parasites, predators, pollinators, fish and man. It also develops pesticides resistance, susceptibility of crop plant to insect pests and increased environmental and social cost. Therefore, environment needs some other alternatives of chemical pesticides. One alternative to synthetic insecticides is the botanical pesticides. Insecticidal plants or plant compound and the use of natural compounds, such as essential oils that result from secondary metabolism in plants. Essential oil and their constituents have been shown to be a potent source of botanical pesticide. The toxicity of a large number of essential oils and their constituents has been evaluated against a number of bruchid pests. In this research have been studied toxicity effect of five levels of essential oils of *Cuminum cyminum* (0.1, 0.4, 0.8, 1.4, 2.2 $\mu\text{L L}^{-1}$) was applied on petri dish (9 cm long by 1 cm in diameter) in five replicate. All experiment have been done at in an incubator that was set at 30 ± 2 °c, RH (65%) and photoperiod D:L , 8:16. Mortality were recorded until 72 hours. Pretests and final tests were done in factorical experiment of completely randomized. The results illustrated LC_{50} *C. cyminum* oil (1.33 $\mu\text{L L}^{-1}$ for male and 1.72 $\mu\text{L L}^{-1}$ for female). It was found that mortality depended on concentration and exposure time in addition to essential oil types. The observed fumigant activity showed that essential oil is sources of biologically active vapors that are potentially efficient insecticides.

Key words: Fumigant Toxicity, *Callosobruchus maculatus* F., *Cuminum cyminum*.



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