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Toxic effect of volatiles from five plants on Sitotroga cerealella (Oliver) (Lepidoptera: Gelechiidae) in stored paddy

Sitotroga cerealella (Oliver) (Lepidoptera: Gelichiidae) is one of the most destructive and common insect pest in stored paddy. The objective of the present study was to evaluate the insecticidal activity of the essential oils of five plants, *Cymbopogon citratus* (Lemongrass), *Cymbopogon nardus* (Citronella), *Cinnamomum zeylanicum* (Cinnamon) leaves, *Alpinia calcarata* (Heen araththa) rhizome, *Murraya koenigii* (Curry leaves) and a synthetic insecticide Pirimiphos methyl (Actellic®) when used as a fumigant and as a contact toxicant against *S. cerealella*.

The highest fumigant effect was shown by the essential oil of *A. calcarata* and its LC50 value was 3.7 mg/L and in the contact toxicity bioassay the highest efficacy was indicated by the essential oil of *C. nardus* leaves and the LC50 value was 4.8 mg/L. The lowest toxic effects were shown by the essential oil of *M. koenigii* with the LC50 values of 41.8 and 82.0 mg/L for the fumigant and contact toxicity bioassays respectively. The LC50 values for Pirimiphos methyl due to the fumigant and contact toxicity effects were 0.56 and 0.62 mg/L respectively. This study reveals that the five essential oils could be developed as botanical pesticides to control *S. cerealella* in stored paddy.