

## **Comparative pesticidal and repellent effects of some selected plant species on cowpea bruchid *Callosobruchus maculatus* (Fab.) (Coleoptera:Bruchidae)**

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### **Abstract**

Toxic and repellent effects of four plants belonging to the family Lamiaceae against the stored legume pest, *Callosobruchus maculatus* (Coleoptera:Bruchidae) were investigated. Several bioassays were carried out under ambient laboratory conditions, to evaluate the effects using powdered leaves of *Hyptis suaveolens*(L.), *Mentha viridis*(L.), *Ocimum gratissimum*(L.), and *Ocimum sanctum*(L.). Repellency tests were conducted using four (2.5, 5.0, 7.5 and 10.0g) doses of powders from each plant in a multi-choice bio-assay apparatus and observations were recorded 3 hours after the exposure of adult *C. maculatus* beetles to the treatments. Observations on toxicity were obtained with five doses (1.0, 3.0, 5.0, 7.0 and 10.0g) of each plant after 6, 18 and 24 hours of exposure using a no-choice bio-assay apparatus. In each experiment, 50.0 g of mung bean (*Vigna radiata*) seeds were mixed with different doses of leaf powders separately before the introduction of the adult 58 beetles. All four plants at all doses produced significantly higher ( $p < 0.05$ ) toxic and repellent effects in ( $p < 0.05$ ) *C. maculatus* when compared with the controls. The highest repellency (96.45%) in *C. maculatus* was observed after 3 hours with the dosage of 10.0g of powdered leaves of *M. viridis*. This was followed by *H. suaveolens*, *O. gratissimum* and *O. sanctum* eliciting repellent effects of 83.72%, 77.07% and 74.63% respectively. Just after 4 hours, a hundred percent mortality was observed when the beetles were exposed to 5.0 g of leaf powder of *M. viridis*. Furthermore, *O. gratissimum* also elicited relatively high mortality in the beetles at the dose of 10g. When compared with the other three plants *M. viridis* was extremely effective in inducing both repellent and toxic activities in the beetles. In general, the strong repellent and insecticidal properties of the leaves of these four plants especially those of *M. viridis* suggest that stored legumes can be efficiently protected from *C. maculatus* infestations