insecticidal Activity of an Essential Oil, Geranium, and its Effects on *Drosophila melanogaster* (Diptera)

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Abstract:

Essential oils derived from plants may be used as effective alternatives/adjuvants in pharmaceuticals, biomedical, cosmetic, food, veterinary and agriculture applications. These oils have also gained popularity and interest for prevention and treatment of various disorders. However, several reports on adverse effects are available for synthetic repellent in the literature. The commercialized essential oil of Geranium rosat was tested by fumigation on adults of Drosophila melanogaster in the laboratory to evaluate the insecticidal activity of this oil by assessing its toxicity. Different doses were tested, and the doses were determined from a dose-response curve. The determined doses were used in experiments to evaluate the effect of the commercialized essential oil of geranium on reproduction in D. melanogaster. Indeed, the results demonstrated a decrease in the number of eggs laid, with a significant percentage decrease for the high doses. These trials allowed us to assess the effectiveness of commercial geranium essential oil under real conditions using the non-target biological model D. melanogaster, aiming to provide an environmentally friendly alternative biopesticide to traditional chemical pesticides. Results suggest a potential use of Geranium as biopesticide in integrated pest management programs as an alternative to synthetic pesticides.

Keywords:

Essential oil, Geranium rosat, *D. melanogaster*, Reproduction, Toxicity.