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## CHEMICAL COMPOSITIONS AND LARVICIDAL EFFECTIVENESS ON NERIUM OLEANDER FLOWER ESSENTIAL OIL ON HYPHANTRIA CUNEA LARVAE

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### Abstract

In this research, the chemical composition of oleander (*Nerium oleander* L) (Apocynaceae) flower essential oil was analyzed using GC-MS (Gas Chromatography-Mass Spectrometer), and its larvicidal effectiveness on five Fall webworm (*Hyphantria cunea* Drury) larval stages was investigated. The essential oil was extracted from the flowers of *N. oleander* by the hydrodistillation method using the Clevenger apparatus. A total of 48 chemical constituents present in oleander essential oil were identified using Gas Chromatography-Mass Spectrometry analysis. Camphore (10.3%), Digitoxigenine (10.21%), Eugenol (8.61%), Thymol (6.15%), and 1.8-Cineole (5.05%) were found as the primary components of oil. It is observed that the applications of *N. oleander* essential oil at doses of 10, 15, and 20  $\mu\text{L}$ /Petri and the controls at 24, 48, 72, and 96 hours induced fatalities at varied rates (40.4-100%) on five *H. cunea* larval stages (L<sub>1</sub>-L<sub>5</sub>). The highest toxicity was identified at L<sub>1</sub> (0.56  $\mu\text{L}$ /larva), and the lowest toxicity was determined at L<sub>5</sub> (12.64  $\mu\text{L}$ /larva) according to LD<sub>50</sub> and LD<sub>90</sub> values. The research was conducted in laboratory settings during 2021-22. In conclusion, *N. oleander* essential oil showed high toxicity against L<sub>1</sub> and L<sub>2</sub> larval stages of *H. cunea*.

**Key words:** essential oil, fall webworm, larvicidal effect, oleander

Received: April, 2024; Revised final: June, 2024; Accepted: June, 2024; Published in final edited form: December, 2024

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