Hp-45: Gas chromatography analysis and insecticidal activity of *eucalyptus radiata* essential oil against *culex pipiens* larvae

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Abstract

Culex pipiens L. (Diptera: Culicidae) constitute a mosquito vector of important diseases such as the West Nile virus. For the control of *Cx. pipiens* larvae, different types of insecticide groups are widely used but this mosquito developed resistance to many of these insecticides.

The present study aimed to evaluate the larvicidal effect of *Eucalypltus radiata* (*E. radiata*) essential oil (EO) against mosquito larvae *Cx pipiens*. The EO was extracted by steam distillation method. Chemical composition of essential oil was analyzed by gas chromatography (GC), and the *E. radiata* EO toxicity was tested against fourth-instar of *Cx pipiens* larvae following the procedure of the World Health Organization under laboratory conditions.

The EO yield was 1.12%. GC analyses revealed thirty compounds in *E. radiata* EO, only five of them were identified wich are viridiflorol (5.20%), globulol (0.74%), piperitone (0.37%), and Guaiol (0.27%).

The larvicidal assay showed that the *E. radiata* EO exhibited insecticidal activity against the fourth instar larvae of *C. pipiens* (LC_{50} = 95.2 ppm and LC_{90} = 164.9 ppm at 24 hour exposure). The investigation confirmed the toxicological effects of *E. radiata* EO against mosquito larvae ; consequently, it could be considered as a potent source for producing natural larvicidal agents and bioinsecticides for pest an insect vector control.

Key Words : toxicity, plant essential oil, larvicidal activity, *Eucalypltus radiata*