Biological Control of Mosquito Larvae Diptera; Culicidae in the Tizi Ouzou Region Algeria

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Abstract:

Background and aim: To fight against mosquitoes responsible for nuisance or disease vectors, considerable quantities of chemical insecticides have been used around the world, unfortunately these vectors have developed resistance to the most commonly used insecticides. These means of vector control have harmful effects for humans, animals and the environment. The implementation of new alternative control methods is therefore essential. In this study we we developed an experiment on the use of biopesticides of aqueous extracts of two plants namely Citronella (*Cambopogon citratus*) and Geranium (*Pelargonium graveolens*) on the fourth instar larvae of Culex pipiens , a species known to be a nuisance and a transmitter of the West Nile virus under laboratory conditions.

Methods: Various concentrations were used 1%, 2%, 3%, 4%, 5% with a total of five replicates for the aqueous extracts over a variable duration of 24,72,48 hours of exposure according to the WHO Protocol.

Results: Preliminary results showed a variable sensitivity of the larvae; this sensitivity is even higher with increasing concentration of the aqueous extract. Furthermore, the toxicity is well marked when the exposure time of the larvae is longer. The aqueous extract of these plants produces a mortality rate by acting at relatively low concentrations. This efficiency is expressed by the calculated toxicological parameters which are successively the LC50 and LC90, with 2.56 g/l and 128 g/l for *C. citratus* and 2.90 g/l ; 98.5 g/l for *P. graveolens.*

Conclusion: In the context of mosquito control, the extracts of these plants can be used as natural biocides and present a good alternative for biological control, economical and less harmful to the environment.

Keywords:

Biological control, Aqueous extracts, *Cambopogon citratus, Pelargonium graveolens, Culex pipiens*.