# BIOCIDAL ACTIVITY OF SELECTED PLANT EXTRACTS AGAINST *CULEX PIPIENS* (Linn.)

A Thesis
Presented to the Faculty of Science
Ain Shams University

**For the Award of the Ph.D. Degree**
Entomology

By

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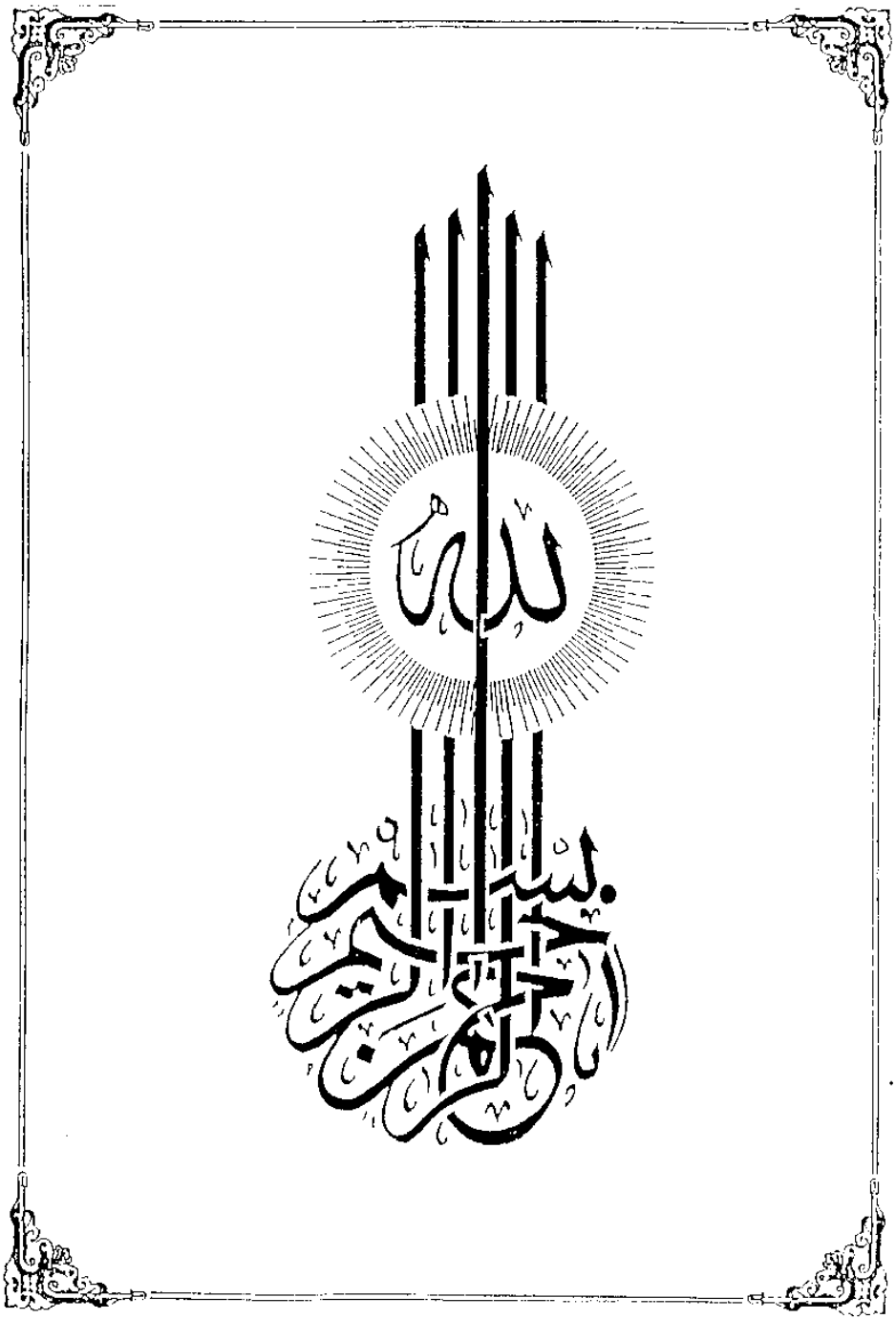

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**Prof. Dr. Sameeh A. Mansour**
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## ABSTRACT

Out of 40 different crude extracts (obtained by extraction with pet ether, chloroform, acetone and ethanol), a sum of 21 extracts showed high mortality percentages against the fourth instar *C. pipiens* larvae at 1000 ppm concentration level

The promising extracts were classified into four groups according to their $LC_{50}$ values as criteria of potency Pet ether, chloroform and acetone extracts of *Piper nigrum* were the most potent extracts showing $LC_{50}$ <100 ppm (group 1) Group 4 ( $LC_{50}$ >300 ppm ) includes seven plant extracts (e.g. *Matricaria chamomilla* chloroformic extract and *Melia azedarach* pet. ether extract)

In combining the different plant extracts with Malathion, potentiation was achieved in all cases Different degrees of joint action were resulted from combining with Permethrin or Pirimiphos - methyl

Out of ten pet. ether extracts tested for their adulticidal potency, against the female mosquitoes, three of them (*C. rotundus*, *T. capitatus* and *C. cyminum)* showed high potency Their $LC_{50}$ values were 0.05, 0.06 and 0.068 mg/cm$^2$, respectively

Fourty plant extracts were evaluated as repellent or antifeeding agents. All pet. ether extracts of the tested plants, except that of *L. termis*, showed repellency of 50% or more. *C. cyminum* extract caused 100% repellency.

Some of the studied plant extracts showed considerable decrease in egg hatching (e.g. Acetone extract of *P. nigrum*, chloroform extracts of *N. sativa* & *P. nigrum*, pet. ether extract of *C. rotundus*& *M. azedarach* and ethanol extract of *P. nigrum).*

*Thymus capitatus* and *Nigella sativa* were subjected to further phytochemical and biological studies. Thymol was the main constituent of *T. capitatus* volatile oil , while ρ -Cymene was the major constituent of *N. sativa* volatile oil . The volatile oil of *T. capitatus* was more effective than *N. sativa* volatile oil either against larvae or adults of the tested insect.

α-Amyrin, Thymol, Carvacrol and β- Caryophyllene were isolated

from *T. capitatus*,. while 3 Sterols (Campesterol, α-Spinasterol, β-Sitosterol) and Hydrocarbons were isolated from *N. sativa*. All the above mentioned compounds were evaluated biologically against the larvae and adults of *Culex pipiens*.

In conclusion, the results obtained in the present study may encourage further research of practical nature for mosquito control.

**Key words:**

Plant extracts - insecticides - *Culex pipiens* - larvicidal action - adulticidal action.

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