

## Botanical derivative in mosquito control programme to minimize pesticide pollution hazards

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### Abstract

Alkaloid compound has been isolated from the P. ether chloroform, methanol and water extract of the aerial part of the *Lantana camara* L. The compound demonstrated strong insecticidal activity against *Culex quinquefasciatus*. The chemical derived from plants have been projected as weapons in future mosquito control programme as they shown to toxic growth and reproductive inhibitor.

**Key Words:** Pollution, Botanical derivatives, *Culex quinquefasciatus*, *Lantana camara*

### Introduction

Long before the invent of synthetic insecticides plants and their derivatives were used in agriculture veterinary and public health importance. The chemical derived from plants have been projected as weapons in mosquito control program as they are shown to function as general toxic growth and reproductive inhibitor of laboratory test and fields trials of a series of a plant extract as well as purified phyto-chemical as mosquito larvicidal concentration have shown promising result. The present study project plants species against the early fourth instars larvae of *Culex quinquefasciatus*. The study is a part of our continuous effort for the last ten year or more to investigate the phytochemical against vector control.

### Material and Methods

*Lantana camara* L. (Verbenaceae) is wildy grown shrub. It was collected from Vidisha and Bhopal voucherspecimen plant is produced in herbarium and maintained at pest control research laboratory. the collected plant material leaf of *Lantana camara* was washed with tap water and air dried material was extracted in soxhlet apparatus.

### Culture of test insects

*Culex quinquefasciatus*, larvae were collected from cesspools and ditches. It was then cultured in laboratory. The larvae were fed on yeast tablet and dog biscuits (3:1) powdered material. The culture was maintained in insectary at controlled temperature 27±2°C, R.H.75% and L:D 14:10 photoperiod.

### Extraction and Purification

Extraction was done in soxhlet apparatus using following solvent n-hexane, Benzene, Chloroform, P.ether, methanol water. Purification was done by column chromatography using solvent system. Alkaloid is reported by Harbone (1984).

1. The biological concentration of purified fraction applied on larvae.

2. W.H.O (1971) Methods for bioassay adopted.

### Bioassay Procedure

The larvicidal activity of the extracts was evaluated as per the method recommended by WHO the stock solution of the plant extract was volumetrically diluted to 250 ml. with filtered tap water to obtain the test solution of 10,20,40,60,80 mg the test solution for assaying the larvae of *Culex quinquefasciatus*.

It were prepared in saline water of salinity 15, 10.3 was used emulsified at a concentration of 0.001% in these test solution two control were maintained at a time. One consisted of acetone and the other tap water only early fourth instars larvae (25) were introduced to each of the test solution as well as control for each set of stock solution and with three different batches of mosquito larvae. Botanical evaluation by Finney (1971) ANOVA was carried out.

### Result and Discussion

The result maintained on the effect of Lactic acid of *Culex quinquefasciatus*. Fecundity and fertility of larvae treated adults showed significant difference (P<0.05) than control and loss was markedly observed in *Lantana camara* and decrease in hatching % noticed in *Lantana camara* than control some developmental different and some morphological abbreviation were observed. Botanical derivatives and eco-compatible and do not cause any pollution hazards. They are quite so be to the non target organisms including human beings. hence use of natural products for vector control program is quite promising.

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