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Evaluation of Mosquito Larvicidal Potential of Calotropis

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Abstract

Mosquitoes are the highly pathogenic insects with variable potential against chemical insecticides. *Calotropis procera* grows in dry and arid zone, it's extract of all the floral parts respond heavily through bioassay against *Culex quinquefasciatus* with 100% mortality

Key words: *Calotropis procera, Culex quinquefasciatus,* Extract, Bioassay.

Introduction

Mosquito-borne diseases contribute significantly to disease burden, death, poverty and social debility in tropical countries (Young-Su et al.,2002). The selective pressure of conventional insecticides is enhancing the resistance of the mosquito population at an alarming rate, increasing the demand for new products that are environmentally safe, target-specific and degradable.

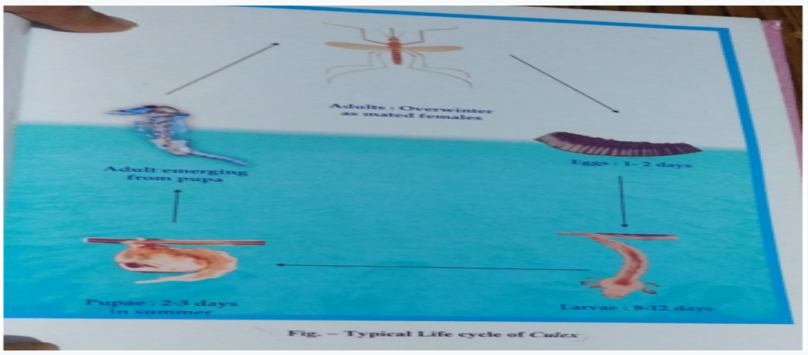


Fig. – Typical Life cycle of Culex

There are approximately 2,700 species of mosquitoes with the majority belonging to major genera: Culex (eggs are laid in quiet, standing water) have abdomens with blunt tips. They include several species such as Culex pipiens. They are weak fliers and tend to live for only a few weeks during the summer months. They persistently bite (preferring birds over humans) and attack at dawn or after dusk. Some species are important as vectors of bancroftian filariasis and arboviral disease, such as Japanese encephalitis. In some areas, they are a considerable nuisance. The different predominant species of Culex are : C. tarsalis, C. salubrious, C. tritaeniorhynchus, C. erythrothorax, C. quinquefasciatus

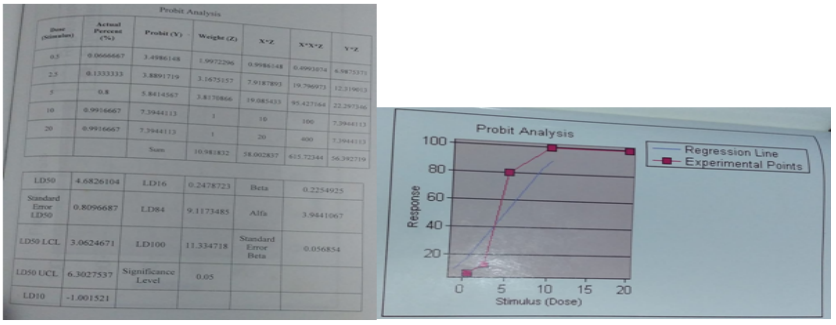
Mosquitoes have four distinct stages in their life cycle: egg, larva, pupa and adult.In India malaria, filaria and dengue are the most prevalent diseases that continue to explode from time to time. The region is that these mosquitoes develop resistance to medicines and chemicals. Eradication of mosquitoes is the only way to protect mankind.

Biological methods fall in two broad categories: I.e. microbial and non-microbial biological control. Microbial agents include entomo-pathogenic bacteria, virus,

fungi and protozoans. Non-microbial agents include plants, nematodes, many fishes etc. More than 13,000
Plants have been studied during the last 5 year period.
Calotropis is a perennial plant of the family Asclepiadaceae.

Review of Literature

Much research in this field has been working, in the future of herbal formulations. R. Maheswaran et al(2012) worked on *Azadirachta indica* and *Pongamia glabra* against dengue vectors, Aedes aegypti. K Kovendam et al, (2012) gave mosquitocidal properties of *Calotropis gigantea* and bacterial insecticide *Bacillus thuringiensis* against the mosquito resistant to botanical ovicides. Ammar Bader et al, (2021) studied on *Calotropis* vectors *Anopheles stephensi, Ae*



des aegypti, and *Culex quinquefasciatus.* R. Benali (2015) discovered plant borne ovicides, *Culex quinquefasciatus* eggs were the most *procera* and the ovicidal effect of their extract to the foodstuff pest *Cadra cautella*

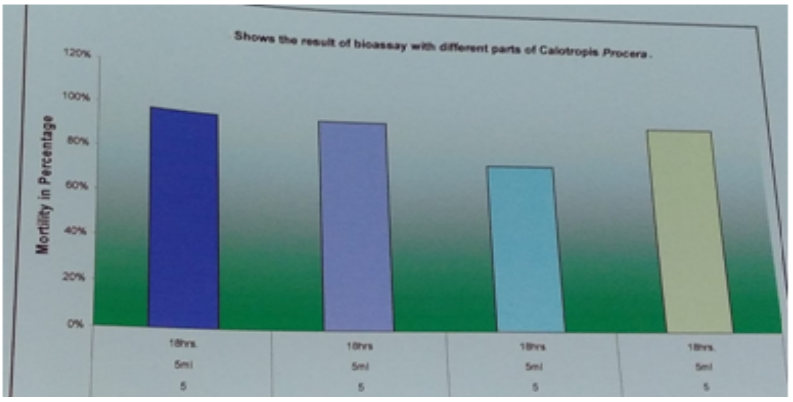
Results and Discussion

Aqueous extract of all the aerial parts i.e twig, leaves, flower and latex were tested by anti larval assay. Results have been shown in table and graph, revealing that the leaves and latex possess larvicidal potential and shown activity in lesser time i.e in 18 hrs

Table

Shows the results of bioassay with different parts of *Calotropis.*

Parts of plants	No.of larvae	Quantity of extract	Observation in hrs.	Mortality in percent
Twig	5	5ml	18 hrs.	100%
Leaf	-	-	-	-
Flower	-	-	-	80%
Latex	-	-	-	100%



LD_{50} is a concentration of a substance or effluent at which 50% of the test organisms die; it is a common measure of acute toxicity. For calculating this value different concentration of leaf extract from 10-400 micron l/ml was prepared and the LD_{50} was calculated by the probit regression analysis software (Finney, 1971)

Conclusion

Calotropis procera deal with *Culex quinquefasciatus* shows great susceptibility for all stages of mosquito life, especially larval stages with Ld $_{50}$ value 10-400 micron l/ml.

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