

EVALUATION OF *LANTANA CAMARA* LINN LEAVES AND FLOWERS FOR LARVICIDAL PROPERTY

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ABSTRACT

One of the biggest health problems threatening the developing countries are mosquito borne diseases. Most of the time they are controlled by Larviciding process. Larviciding is an easiest way of reducing mosquito population at their place of breeding itself. The current study aims at exploring the larvicidal properties of aqueous extracts of leaves and flowers of *Lantana camara* Linn. The present study was carried out using 3rd and 4th instar larvae of *Aedes aegypti*. *Lantana camara* leaves and flowers aqueous extracts was prepared by cold process. The larvicidal assay was evaluated at 250, 500, 750, 1000 and 2000 µg/ml. The larvicidal potential was determined at 0, 1st, 2nd, 3rd, 4th, 6th 12th and 24th hours and the percentage mortality was determined. Both the aqueous extracts had found to possess no larvicidal property. Thus, it can be concluded that, the aqueous extracts

of leave and flower of *Lantana camara* Linn was not suitable for larvicidal action.

KEY WORDS: *Lantana camara*, Mosquito, larvicidal and *Aedes aegypti*.

1.0 INTRODUCTION

Mosquito borne diseases are one of the world's biggest hazardous health problems.^[1] These tiny creatures are the major vector for the transmission of numerous diseases such as filariasis, dengue fever, yellow fever, Japanese encephalitis, malaria and schistosomiasis.^[2&3] The main vector that that transmits the virus that causes dengue and dengue hemorrhagic fever is *Aedes aegypti*. These diseases are widely distributed throughout the world ranging in about 100 countries and threatens the health of 2.5 billion people.^[4] Mosquitoes can be

hugely controlled through some of the synthetic agents of organophosphates class. But, it is believed that these synthetic agents to a major extent alter the environmental and health conditions of people on a repetitive usage.^[5] Thus, it become necessary to search newer agents with larvicidal potential of commercial significance.

Lantana camara Linn(Verbenaceae), popularly known as “Sleeper weed or wild sage”, is a species of flowering plant and it is known to be as the native of America. It is a small perennial shrub and grows up to 2 m in height. The plant bears tiny tubular shaped flowers and found to posses 4 petals. Flowers are small, usually orange, sometimes varying from white - red with various shades and having a yellow throat, in axillary heads, almost throughout the year.^[6] The plant is a rich source of flavonoids, flavones, isoflavones, anthocyanins, lignans, coumarins, catechins, isocatechins, alkaloids, tannins, triterpenoids and saponins.^[7] The leaves are boiled and applied for swellings and pain of the body, treat cuts, rheumatism, ulcers and intestinal worms.^[8]

2.0 MATERIALS AND METHODS

2.1 Collection of plant material: The leaves and flowers of *Lantana camara* Linn was collected from in and out skirts of chelembra and the same was authenticated by Dr A.K Pradeep, Herbarium curator, Department of Botany, Calicut University, Malappuram.

2.2 Preparation of extracts

The collected leaves and flowers of *Lantana camara* was shade dried and coarsely powdered. The coarse powder was extracted using cold maceration technique. The extracts were dissolved in water prior to use for the study.

2.3 Larvicidal assay

The larvicidal assay was performed using 3rd and 4th instar larvae of *Aedes aegypti*. The assay was evaluated at 5 test concentrations such as 250, 500, 750, 1000 and 2000µg/ml of aqueous extracts of leaf and flower of *Lantana camara*. 1 ml of different concentration of the aqueous extracts were added to water in a beaker and the final volume of was maintained at 250ml for all extract samples. 20 larvae of *Aedes aegypti* per concentration was used for the study. The number of dead larvae at 0, 1st, 2nd, 3rd, 4th, 6th 12th and 24th hours was observed and the percentage mortality was calculated. A control group was maintained with 250 ml of water and 20 larvae. The study was performed in triplicate and the average of the study is taken.^[1&9]

3.0 RESULTS AND DISCUSSIONS

India is a rich source of flora, but still today its herbal formulation share in the global market is just 0.5%. Kerala is one of the rich sources of flora in India. Exploring these rich resources in our country remains at the base level. In the present study, an attempt has been made to untap one of the commonly available plant of Kerala, *Lantana camara* Linn leaf and flower aqueous extracts for its larvicidal potential. The aqueous extracts of leaf and flower was evaluated against 3rd and 4th Instar larvae of *Aedes aegypti* at test concentrations of 250, 500, 750, 1000 and 2000 µg/ml. The results were shown in the Table: 01. The extracts were evaluated at 0, 1st, 2nd, 3rd, 4th, 6th, 12th and 24th hour. The study clearly depicts that none of the aqueous extracts possess larvicidal properties.

Mosquitoes are the tiny characters which causes biggest threat to the common people in creating numerous health problems in the developing countries. To a major extend these can be controlled through usage of mosquito repellent, causing larval mortality and killing mosquitoes. Plant derived toxicants are believed to be a rich source of potential insecticides. They play a vital role in mosquito control programs in near future.^[10] There is always a great need of plant derived insecticides throughout the world. These plant insecticides are found to be successful against specific target insects, cost effective, easily bio degradable and non toxic also.^[11]

Table: 01 Evaluation of larvicidal potential of *Lantana camara* Linn

Treatment	Concentration (µg/ml)	Percentage Mortality							
		0 hr	1 st hr	2 nd hr	3 rd hr	4 th hr	6 th hr	12 th hr	24 th hr
Control	-	00	00	00	00	00	00	00	00
<i>Lantana camara</i> leaf aqueous extract	250	00	00	00	00	00	00	00	00
	500	00	00	00	00	00	00	00	00
	750	00	00	00	00	00	00	00	00
	1000	00	00	00	00	00	00	00	00
	2000	00	00	00	00	00	00	00	00
<i>Lantana camara</i> flower aqueous extract	250	00	00	00	00	00	00	00	00
	500	00	00	00	00	00	00	00	00
	750	00	00	00	00	00	00	00	00
	1000	00	00	00	00	00	00	00	00
	2000	00	00	00	00	00	00	00	00

4.0 CONCLUSIONS

Lantana camara Linn leave and flower aqueous extracts were evaluated for larvicidal property using 3rd and 4th instar larvae of *Aedes aegypti*. Both the aqueous extracts were found to possess nil activity against the tested larvae. Thus, it can be concluded that, the

aqueous extracts of leave and flower of *Lantana camara* Linn are not suitable for larvicidal actions.

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