FICUS ELASTICA L. (MORACEAE) PROP ROOTS AGAINST MOSQUITO LARVAE!

Abstract

Ficus elastic L., (Moraceae) an tree native to has been utilized in traditional medicinal practices such as Ayurveda, Unani and Siddha. This plant was studied for its larvicidal activity. Test concentrations of 1000,750, 500,250 µg of hexane, chloroform:methanol [1:2] were investigated for activity against the fourth instar larvae of Aedes aegypti and Culex quinquefasciatus The chloroform:methanol [1:2] extract showed 91% mortality after 48 hrs of incubation against the Aedes, LC50 of 0.302 followed by 0.219 and 0.214 for 750,500, and 250 µl concentrations respectively. This article leads to possible extracts and their role in the near future as eco-friendly natural pesticide to control mosquito larvae.

Keywords: Aedes, larvicidal, Culex, root, natural pesticides

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I. INTRODUCTION

A larvicide is a type of insecticide used to control mosquitoes indoors and outdoors. They work by killing mosquito larvae before they can grow into adults. The market is flodded with Citronella, eucalyptus, neem and pepper mint oil derived from natural resources help in commercially formulated repellent. Cymbopogon citratus [1] Eucalyptus globulus [2] Azadirachta indica [3] and Mentha piperita [4]. this study was undertaken to assess the larvicidal potential of *Ficus elastica* against Aedes aegypti and Culex quinquefasciatus C. quinquefasciatus transmits.Ecofriendly plant products- in the market increased the quest to control the vectors. Plant products are promising and effective known to have insecticidal properties [5,6].

II. MATERIALS AND METHOD

1. **Collection of Plant Material:** Guru Nanak college campus was the site for collection during the month of March identified and authenticated by botanist of Plant Biology . A voucher specimen was maintained in the department and numbered 101 PBPBT 2021, roots were then shade dried and powdered in a mortar and pestle.

2. **Extract Preparation:** 100 ml of solvents hexane, Chloroform:methanol (1:2) and ethanol for 48 hrs separately were subjected to 10 gms of the experimental plant material. Extract then filtered evaporated under vacuum until completely dry and used for further assay.

3. **Rearing of Aedes Aegypti and Culex Quinquefciatus Larvae:** Eggs of Aedes aegypti were procured from the Central Research Medical Entomology Institute at Madurai, Tamilnadu, India. The egg rafts of Aedes were kept in the tray at 29±1 °C. After a day of incubation the first instar larvae emerged. The nutrient (sterilized yeast powder and dog biscuit in 1:1 ratio) were added to enhance the growth of larvae. But in this present study the fourth instar larvae were used. Culex quinquefasciatus were maintained at 27 ± 2 ℃ and 70 ± 5% relative humidity and provided with 10% sucrose in laboratory conditions.

4. **Larvicidal Bioassay:** Larvicidal activity was determined according to WHO protocol [7]. The larval mortality of fourth instar of Aedes and Culex was observed. The surviving larvae at the end of 24 and 48 hours were recorded and the percent mortality was calculated by the formulae [8].

   Percentage of mortality = (Number of dead larvae/Total number of larvae) x 100.

5. **Lethal Concentration:** The LC50 was calculated by a Probit analysis, Percentage Mortality = mean ±SD [9].

6. **Statistical Analysis:** Software SPSS (Statistical Package for Scientific Studies) was used for statistical significance - data obtained.

III. RESULTS AND DISCUSSION

Neem Azal popular in India has replaced all chemical insecticides, neem leaves and fruits [10 and 11] against larvae and pupae of Culex pipiens mosquito in the Republic of

Algeria . Hexane extratcs of *Cyperus rotundus* were effective against *Culex quinquefasciatus* was reported by Sharma, Selection of a mosquito repellent cannot be based on any one test against a single insect because mosquito responses to repellents vary within and among species [12] Alkaloids from plant sources can act as larvicide, repellent and ovipositor attractant as observed by many researchers [13 and 14]. This present study showcases the effect of prop root of Ficus trees being prevalent in rice fields control population of insects and pests hence this study to access its activity.Stem leaves are used but prop root being used for its activity is one of its kind in the present study.

Figure 1: Experimental Plant

Figure 2: Prop Roots of the Experimental Plant

Table 1: Efficacy of Ficus against Mosquito Larvae

Serial Number	Mosquito Larvae (Fourth Instar Larvae)	% Mortality At 1000 µg/Ml Concentration		
		Concentration	Duration	Efficiancy
1	*Aedes aegypti*	1	24	85
		10	24	90
		100	24	100
		1000	24	100
		1	48	65
		10	48	80
		100	48	100
		1000	48	100
2	*Culex quinquefasciatus*	1	24	85
		10	24	90
		100	24	100
		1000	24	100
		1	48	65
		10	48	80
		100	48	100
		1000	48	100

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