

Insecticidal and Antifeedant Property of *Lantana camara* Leaf Extract against Vegetable Crop Pest (*Earias vittella* and *Leucinodes orbonalis*)

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Abstract: In recent year Biopesticides have been proved to be a potential source of plant protecting agents. *Lantana camara* belonging to family verbeceae commonly known as Ghaneri. *Lantana camara* is considered as the useful traditional plant in India. The various properties of plant part are useful as insecticides antifeedant. In this study the bioefficacy of *Lantana camara* against *Earias vittella* and *Leucinodes orbonalis* was investigated under laboratory condition. The biological effect of distilled water and chloroform of leaves of *Lantana camara* at different concentration on the larvae of *Earias vittella* and *Leucinodes orbonalis*. Antifeedent activity of chloroform and water leaf extract of *Lantana camara* were estimated in the present study. All extract moderate antifeedent activity. Highest antifeedent (80%) Activity was observed in chloroform leaf extract of *Lantana camara*. The result suggest that chloroformic leaf extract of *Lantana camara* has potential to be used as Biopesticides for the control of the *Earias vittella* and *Leucinodes orbonalis*.

Keywords: *Lantana camara*, *Earias vittella*, *Leucinodes orbonalis*, Mortality, Antifeedant

I. INTRODUCTION

Plants products have been used to control the pest and disease. In recent year biopesticides had a greater attention has been direct toward discovery and development of phytochemicals or botanical pesticide. ^{1} Pesticides use has certainly contributed towards improving agriculture production in term of both yield and quality. However careless use of pesticides without adhering to the safety norms and recommended practices has posed serious health risks to human other living organism and the environment from on farm workers exposure and release of chemicals into the air water to commodities containing pesticide residue. ^{2,3}

Lantana camara is an erect or sub candent, half climbing gregarious somewhat hairy and strongly aromatic plant. It is small branching shrub with angled and prickly branches that grow up to 2 meter long its root system is very strong and it gives out new flush shoots even after repeated cutting. ^{4}

Earias vittella pest of okra known as fruit and shoot borer and *Leucinodes orbonalis* is known as brinjal fruit borer.

II. MATERIAL AND METHODS

The plant was selected based on available literature ,abundant ,availability , medicinal and insecticidal properties.

2.1 Collection of Plant

Fresh plant material of *L.camara* leaves was collected from nipani.

The leaves was washed with distilled water cut in small pieces and use for extraction.

2.2 Extraction Preparation

Collect 250 gm of fresh leaves . Wash with distilled water and cut into small pieces. Grind the pieces of leaves in grinder with 65 ml of distilled water to make it into paste. The extract was filter through muslin cloth. Again add 25ml of distilled water and grind again, filter again through muslin cloth .Add 2.5 gm finely chopped soap and stir to dissolve it .Then we get 40 ml pure extract.

2.3 Preparation of Chloroform Extract

Allow the plant extract material to dry in shade grind the dried plant material to make powder weight exactly 5 gm powder .Add 100 ml of chloroform then keep it aside for a period of 72 hrs . Then transfer the extract solution in round bottom flask. Note down the Boiling point of chloroform set up the B.P (61⁰) of chloroform by adjusting heating mettle. Meanwhile start the water condenser. Until solvent were completely evaporated to get the satisfied caused extract. The crude extracts thus obtained were stored in sterilized amber colored bottle maintained at 4°C in refrigerator. Then the prepared extracts was used for further concentration of solution

2.4 Antifeedants Acivity

Antifeedent activity of plant extract were studied using leaf no choice bioassay method. Fresh castor leaf discs (1350sq.mm) were dipped in 0.5%,1% and 1.5% concentration of solution . After solvent evaporation at room temp. leaf disc was kept in individual petriplate. In each petriplate a 3rd larvae of *Helicoverpa armigera* was introduced. The larva was allowed to feed on treated discs for24 hrs. A total of 3 triads were carried . At the end of the experiment . Unconsumed area of leaf discs was measured with aid of a leaf area meter and percent antifeedent activity calculated based on the formula of singh and pant

$$\text{Parental larval mortality} = \frac{\text{No. of dead larvae}}{\text{Total no. of treated larvae}} \times 100$$

III. RESULT AND DISCUSSION

3.1 Antifeednt Activity

Antifeedent activity of crude plant extract was assessed based on antifeedant index normally indicate decreased rate of feeding. Antifeedent effects of the plant extracts were evaluated based on leaf area consumed by *Helicoverpa armigera*. Maximum antifeedant activity was recorded is 70% (at 1.5%extract).

Table: Percent antifeedant activity of *L. camara* extract against *E. vittella* and *L.orbonalis*

Time of exposure in hrs	Dose	Total no. of insect	No. of death of insect	Mortality %
24	Pure	10	6	60%
24	5%	10	4	40%
24	10%	10	6	60%

Table 1: For Distilled water

Time of exposure in hrs	Dose	Total no. of insect	No. of death of insect	Mortality %
24	0.5%	10	5	50%
24	1%	10	6	60%
24	1.5%	10	8	80%

Table 2: For Chloroform

Concentration of chloroform	Antifeedant activity (%)
0.5	45
1	55
1.5	70

Table 3: For Antifeedant activity

IV. CONCLUSION

The result of this conceptual study clearly show that the plant have an reduce some target pest organism. The chloroform extracts give best insecticidal and antifeedant effect on pest of okra and brinjal fruit borer.

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