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## Induction of Sterility Effects by *Bacillus Thuringiensis* (B.T.) in *Diacrisia Obliqua*

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### Abstract

Well known *Diacrisia obliqua* Walker (Lepidoptera: Arctiidae) causes a huge loss to farmers. In order to control this pest, a bacterial preparation was administered and tested by Leaf Dip Method (LDM) and Topical Method (TM). It was found that bacteria causes a drastic reduction in fecundity and fertility from lowest concentration (0.05%) to highest concentration (1.0%) and causes sterility in adult insects.

**Keywords:** *Diacrisia*, Leaf Dip Method, Topical Method and Pest

### Introduction-

Chemical pesticides also cause development of resistance. So microorganisms like bacteria, virus & fungi are being used as biopesticides & have been tested against various pests. (Gupta L<sup>4</sup>, 2016). *Bacillus thuringiensis* (B.t.) is a gram positive bacteria and pathogenic to over 500 insect species. It is proteinaceous in nature. (Bulla et. al.<sup>2</sup>, 1977).

### Material and Method-

Larvae for the experiment were obtained from eggs of females already treated with thuricidel. The number of eggs laid, hatching and incubation period were recorded. Thuricide is a commercial preparation of B.t. It is a wettable powder. It contains  $30 \times 10^6$  viable spores of B.t. per gram of final product. To increase the stickiness of thuricidel, we added 2% skimmed milk powder to it and we used two methods **Leaf Dip method (LDM) and Topical Method (TM)** to test the effect.

### Result & Discussion-

The results show a clear reduction in fecundity from 36.2% to 74.5% with increasing concentration of bacterial preparation under LDM. This method gives a control over net sterility which varied from 6.78% to 72.35% with the increasing concentration of thuricide. Topical method produced net sterility in the tested insect from 5.93% to 72.48% significantly from concentration to concentration ( $P < 0.05$ ). Moreover, LDM exhibits comparatively better results.

Similar findings have also been reported earlier by Sharma (1993)<sup>5</sup> by using insect growth regulators to observe the effect of these on development and sterility of *U. pulchella*. Chaturvedi (2003)<sup>3</sup> and Bajpai (2003)<sup>1</sup> also worked on microbial preparations against development of different insects. The present findings are in correlation with the results of earlier workers.

### Observation-

**Table – 1**Percent net sterility caused by Thuricide in *D. obliqua*.(Values are mean  $\pm$  S.E.)

Mode of treatment	Concentration(%)	(%) Reduction in fecundity	(%)Net sterility	(%) Control over reproduction
L.D.M.	0.05	36.2	6.78	44.5
	0.10	42.7	34.36	53.6
	0.50	56.5	36.42	73.2
	0.75	67.4	51.36	85.2
	1.00	74.5	72.35	94.4
T.M.	0.05	37.3	5.93	45.4
	0.10	42.1	34.42	52.5
	0.50	59.0	51.76	74.2
	0.75	66.0	62.43	83.4
	1.00	72.7	72.48	93.6

## Conclusion-

In the light of above work done, it is clear that use of bacterial preparation against lepidopteran pests like *Diacrisia* can be very useful in order to check its growing population. Preparations of Bt are remarkably effective in reducing the fecundity of test insect as well as posing sterility in adults. Hence their use in agriculture will reduce the use of chemicals.

## References-

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