

### Research Notes

## EFFECT OF NICOTINE ON DEVELOPMENTAL PERIOD AND POPULATION OF THE PUPAE OF SEPIA MUTANT OF THE FLY, *DROSOPHILA MELANOGASTER*

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Human population mainly depends upon crops for their food. But the insect pests destroy about 70% of the world's crops every year. *Drosophila* flies have been reported as pest in tomato fields. The eggs are oviposited on the damaged parts or cracks of tomatoes thus leading to the problem of food contamination. Efforts to get relief from this problem by use of safe products have been successful. Hence, Nicotine was chosen as an insecticide because of its broad spectrum and low mammalian toxicity. Toxic effect of Nicotine against different strains of *Drosophila* has been reported by several workers, such as Choudhary (2002), Choudhary & Razdan (2003) and Akhter & Bahadur (2002).

A pure culture of flies was obtained from *Drosophila* Stock Centre, School of Life Sciences, Indore. It contained the sepia mutant. The flies were reared on artificial diet which was prepared, according to the method described by Aijaz et al. (1987). Flies were used for experiment after 5-6 generation, when they were fully acclimatized to the laboratory conditions, at 25±5°C.

The sub-lethal dose (0.132 µl / 100 ml food) of test chemical was selected after the determination of LC<sub>50</sub>. The flies were grouped as sets and cross-combined into treated sets as (i) T♀ x U♂, (ii) T♀ x T♂, (iii) U♀ x T♂ and control set (U♀ x U♂). The selected sub-lethal dose was given to the treated (T) sets according to the method described by Dhingra et al. (1988), where as control set was not given any

chemical treatment.

Observations revealed that Nicotine affects on the rate of development of *D. melanogaster*, which supports the view of Choudhary (2002). Table 1 shows that developmental period (in days) increased due to overcrowding (Choudhary, 2003). The population decreased in second set as compared to the first, third and control sets respectively, due to larval mortality and number of larval – pupae intermediates were also observed, which supports the findings of Akhter (1999, 2002) using Fenvalerate and Nicotine.

### References

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**Table 1. Development period and population of pupae of mutant Sepia *Drosophila melanogaster* after the treatment of Nicotine.**

Nature of Cross	No. of larvae emerged	No. of Pupae formed	Average % of pupation	% mortality	Developmental period
T♀ x U♂	308.66	258.33	83.69	16.30	9.20
T♀ x T♂	292.33	215.66	73.77	26.22	12.00
U♀ x T♂	325.33	296.66	91.18	8.81	5.33
U♀ x U♂	350.66	346.66	98.85	1.	2.00