

EFFECT OF CYPERMETHRIN INSECTICIDE AGAINST ADULTS OF *CULEX QUINQUEFASCIATUS* (SAY)

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Toxicity of cypermethrin against adults of *C. quinquefasciatus* has been studied here within two parameters *i. e.* lethal time (LT) and lethal concentration (LC). Cypermethrin was found to have a very fast killing effect. On the very low concentration of 54.59 ppm, it kills 50% of population and 221.9 ppm, concentration/kills 90% of mosquito population. These results were verified by the LT_{50} , LT_{90} values with a very low 5 ppm conc. of cypermethrin which kills 50% of population within 33 minutes and 90% of population in 40.8 minutes.

Mosquitoes are among the best known group of insects because of their importance to man as noxious pest and vectors of some of the most distressing human disease. Mosquitoes belong to family Culicidae. In the present study effect of cypermethrin has been studied against *Culex quinquefasciatus* adult.

Egg rafts of *C. quinquefasciatus* were collected from stagnant water around Agra city. They were reared under moderate laboratory condition as referred by Wright (1958). The adults so reared were kept in mosquito breeding cages of 65 × 65 × 65 cm.

The adults were treated with cypermethrin for which the stock solution was prepared by dissolving 1 g of cypermethrin in 1000 ml of acetone (1% of 10,000 ppm conc). Different grades of solution were prepared by serially diluting this stock solution.

The film of different concentrations were prepared by applying 2 ml insecticide solution on filter paper and after an hour these dried paper were kept in holding glass tubes. A day old mixed population of *C. quinquefasciatus* (5 ♂ + 5 ♀) were released in each tube and were kept for two hour exposure period after covering the tube with the nylon mesh. Then mortality counts were made and LC_{50} and LC_{90} values were calculated statistically by probit analysis.

Table I. Insecticidal activity of cypermethrin against *Culex quinquefasciatus* adult.

Lethal concentration				Lethal time (at 100 ppm dosage)			
Conc	% Mortality	LC ₅₀ ppm	LC ₉₀ ppm	Time (Min)	% Mortality	LT ₅₀	LT ₉₀
12.5	10			7.5	10		
25	25	54.59	221.9	15	20	30.3	40.8
50.0	40			30	70		
100.0	75			60	90		
				120	100		

as described by Finney (1971). In the same fashion a single dose of 5 ppm was selected to determine knockdown speed. The mortality counts were made after two hour of exposure period at intervals of 7.5, 15, 30, 60 and 120 minutes. The LT₅₀ and LT₉₀ values were obtained from the time mortality curves drawn on the log probit paper.

Lethal concentration

From Table I, it is evident that 50% of population (LC₅₀) will be killed by a solution of cypermethrin having 54.59 ppm and 90% of population will be killed by a solution of cypermethrin having 221.9 ppm.

Lethal time

From Table I, it is evident that 50% of population will die with dose of 5 ppm conc. of cypermethrin in 33.3 minutes whereas 90% of population with dose of 5 ppm conc of cypermethrin in 40.8 minutes.

This shows cypermethrin is a very effective insecticide in controlling *C. quinquefasciatus* adults. These results also confirm with the work of Caaboun *et al.* (1981) in Egyptian *Culex pipiens* and with the work of Georgiou *et al* (1965) in *Culex pipiens fatigans* Wild.

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REFERENCES

- CAABOUB, I. A. & ABU-HASHISH, I. A. 1981. Susceptibility of Egyptian *Culex pipiens* L. to six synthetic pyrethroids. *Insect science and application*. **1** (3) : 297-301.
- FINNEY, D. J. 1971. Estimation of the median effective dosage, Probit analysis. Cambridge University Press, London.
- GEORGHIOU, H. P., METCALF, R. L. & GIDDEN, F. E. 1965. Carbamate resistance in mosquitoes relation of *Culex pipiens fatigans* Wild. for resistance to Baygon. *Bull. WHO* **35** : 691-708.
- WRIGHT, J. R. 1958. Standard test methods for determining and measuring the resistance of insects to insecticides. *Ind. J. Malar.* **12** (4) : 269.