

EVALUATION OF DIFFERENT CYPERMETHRIN FORMULATIONS AND CONCENTRATIONS IN THE CONTROL OF *MUSCA DOMESTICA*

AMIR BERTONI GEBARA, CLÁUDIO SANTOS FERREIRA & JOSÉ HENRIQUE GUIMARÃES

Instituto de Ciências Biomédicas da Universidade de São Paulo, Departamento de Parasitologia, Caixa Postal 4365, 01000 São Paulo, SP, Brasil

Cypermethrin (4 g/l, 5 g/l wettable powder and 7 ml/l, 10 ml/l emulsifiable concentrate) was tested, under laboratory conditions, against the adult Musca domestica. As a standard for comparison, a 6 ml/l concentrate suspension formulation of deltamethrin was used. One and twenty-four hours after application, mortality counts showed that the substances under test killed, respectively, more than 80% and 85% of the exposed insects. Under the conditions of the test, cypermethrin was considered effective in the control of the house fly.

Key words: *Musca domestica* – pyrethroid insecticides – cypermethrin

Highly synanthropic and cosmopolitan, the house fly must be controlled, not only because it is a nuisance, but also for its habit of alternately feeding on filth and foodstuffs, thus mechanically carrying pathogens to humans and animals.

When such insects are present in large numbers, insecticides efficient under environmental conditions are indicated. The activity of cypermethrin against the adult house fly was evaluated by using different formulations and concentrations of this pyrethroid insecticide.

MATERIALS AND METHODS

Cypermethrin ((RS-alpha-cyano-3 phenoxybenzyl(1RS)-cis, trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboxylate) was tested in the formulations: wettable powder and emulsifiable concentrate, containing, respectively, 4 g/l-5 g/l and 7 ml/l-10 ml/l. As a standard for comparison, a concentrate suspension formulation containing 6 ml/l of the pyrethroid deltamethrin ((S) alpha-cyano-m-phenoxybenzyl(1R,3R)-3-(2,2 dibromovinyl)-2,2-dimethyl cyclopropane carboxylate) was used.

Five groups of 60 insects were used, each group in three standardized cages (Gebara & Almeida, 1988). Each cage contained 20 insects, four- to five-days-old (Frudden & Wellso, 1968)

of both sexes. The flies were reared in the laboratory under controlled conditions of temperature, relative air humidity and light-dark (LD) cycles (Keiding, 1986). The control group was contained in the three cages not exposed to the insecticides under test.

Testing started at 2 p.m., at room temperature (24°C). After application, each cage was supplied with 15% sugar water on a cotton pad as an energy source for the test animals (Fernandez & Randolph, 1967). After periods of one and twenty-four hours from the moment of application, mortality counts were recorded.

RESULTS AND DISCUSSION

The average mortality rates after the application of the insecticides are shown in the Table. Mortality counts one hour after application of cypermethrin in the formulation emulsifiable concentrate (7 ml/l) were significantly the lowest ($p < 0.05$). All the other counts for this period were statistically comparable. Twenty-four hours after application, the results were similar: significantly lower counts only in connection with 7 ml/l cypermethrin emulsifiable concentrate. No significant mortality differences were observed within each group. It was accordingly inferred that the insecticides had been the source of mortality variation. As the mortality rate observed in the control cages was below 5%, it was not necessary to include the Abbot (1925) formula in the calculations.

TABLE

Efficacy of pyrethroid insecticides in the control of *Musca domestica* (groups of 20 specimens)

Insecticide	Average mortality	
	1 hr	24 hrs
Cypermethrin w.p. (4 g/l)	19.33	19.33
Cypermethrin w.p. (5 g/l)	19.67	20.00
Cypermethrin e.c. (7 ml/l)	16.33	17.00
Cypermethrin e.c. (10 ml/l)	18.33	20.00
Deltamethrin c.s. (6 ml/l)	19.33	20.00
Controls	0.00	0.67

All the tested substances killed more than 80% of the *M. domestica* specimens within the first one-hour period after application, the extreme values being within 16% (82-98%) variation. When 24-hour periods are considered,

this variation is reduced to 15% (85-100%). It was concluded that cypermethrin, used in the concentrations and formulations tested is, under laboratory conditions, effective in the control of adults of *M. domestica*.

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