

ABSTRACT

Comparative Evaluation of Juvenoids for Control of Cat Fleas *Ctenocephalides felis* (Siphonaptera: Pulicidae) in Topsoil. (May 1992)

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The efficacy and residual activity of a photostable formulation of methoprene was studied against the cat flea, *Ctenocephalides felis* (Bouche), in topsoil along with two photostable juvenoids, fenoxycarb and pyriproxyfen. Clay, peat, and plastic nursery pots and wooden flats were used to hold soil samples. Treated samples were exposed to sunlight during the 63-day study period.

Methoprene was as effective as fenoxycarb and pyriproxyfen against cat fleas for up to 6-7 weeks in clay, peat, and plastic pots at a concentration of 64.56 mg ai/m² (6 mg ai/ft²) but its activity declined significantly thereafter. In contrast, fenoxycarb and pyriproxyfen showed strong residual activity for the entire 9 weeks. The activity of methoprene declined even more rapidly over time in wooden flats, while the other two juvenoids at the same concentration showed significant residual activity for 9 weeks. Clay, peat, and plastic pots were therefore considered to be equally effective for evaluating the outdoor efficacy of juvenoids in comparison to the wooden flats. However, the results obtained with the wooden flats may be

more realistic when testing residual activity of volatile chemicals such as methoprene.

Methoprene did not cause a significant reduction of adult emergence at levels below 64.56 mg ai/m². Fenoxycarb and pyriproxyfen showed similar strong efficacy and residual activity at lower concentrations of 8.07 mg ai/m², 16.14 mg ai/m², and 32.28 mg ai/m².

LC₅₀ values of methoprene, fenoxycarb, and pyriproxyfen for cat flea larvae were estimated as 0.643 ppm, 0.031 ppm, and 0.028 ppm, respectively, when applied to topsoil.