B-43 Evaluation of insect growth regulators; juvenoids for outdoor control of cat fleas (*Ctenocephalides felis*) in soil

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The cat flea is an ectoparasite of cats and dogs, is the primary vector of dog tapeworm and is a suspected vector of murine typhus in humans. Photostable

formulations of methoprene, pyriproxyfen and fenoxycarb were tested for juvenoid activity in an attempt to develop a standard procedure for screening insect growth regulators for outdoor control of cat flea.

Clay, peat and plastic nursery pots and wooden plant flats filled with sandy clay loam topsoil were used to determine whether container type influenced juvenoid activity. Soil samples treated with juvenoids were infested with flea larvae and assayed at one day and at weekly intervals by counting the number of fleas that develop to the adult stage.

Methoprene, fenoxycarb and pyriproxyfen were equally effective against cat fleas for 6-7 weeks in clay, peat and plastic pots at a concentration of 64.56 mg a.i/m^2. However, the activity of methoprene declined significantly thereafter, compared with the other two juvenoids which continued to cause nearly 100% mortality for the entire 9 week test period. The efficacy of methoprene declined even more rapidly in wooden flats losing much of its effectiveness within 2 weeks. In contrast, the other 2 juvenoids at the same concentration caused 90% mortality effective after 9 weeks.

It was apparent that the methoprene formulation was less stable in soil than fenoxycarb and pyriproxyfen especially in wooden flats.