

Decorative paint with insecticidal properties

The mosquito-borne diseases, malaria, filariasis, dengue, and Japanese encephalitis contribute significantly to diseases burden, death, poverty and social debility in tropical countries. The damage and inconvenience caused by termites and houseflies is also significant. The control of these insects is an essential component for public health.

The objective of this study is to develop a water-based decorative contact insecticide paint with insecticidal properties, in particular against mosquitoes, houseflies and termites. Preliminary work has been therefore carried out for the development of an anti-insect paint to be used as an alternative method for pest control.

A series of emulsion paints were formulated incorporating different concentrations of pyrethroid insecticide as an active ingredient and, by using 100% acrylic binder. The insecticidal properties of different concentrations of pyrethroid incorporated emulsion paints were evaluated against mosquitoes (*Culex quinquefasciatus* and *Anopheles tessellatus*), houseflies (*Musca domestica*) and termites (*Odontotermes* species) under laboratory conditions. The bioassay followed the WHO standard method using the conicla exposure chambers.

The paint containing 0.29% (w/W) of active ingredient showed 100% knock-down and mortality values against *A.tessellatus*(n=360) and termites(n=240) and 80% knock-down and 100% mortality values against houseflies(n=240). The same formulation was less effective against *C.quinquefasciatus* (n=360). Bioassay studies indicated that the stage where the active ingredient is added to the paint formulation is crucial for the activity. It also indicated that the type of binder, colour of paint and pigment volume concentration (PVC) level have no significant effect on the insecticidal activity. Aging studies of the insecticide paint indicated that the activity against *A.tessellatus* and *M.domestica* remains unchanged for a period of one year.

This preliminary study indicates that the insecticide paint containing 0.29% (w/w) of active ingredient could be used as an alternative method for insect control.