

## BIORESMETHRIN FUMES AGAINST FLYING INSECTS IN ROOMS

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Bioresmethrin (NRDC 107) is certainly one of the least toxic insecticides existing to date. Its acute toxicity is negligible, its long term toxicity does not present any hazard, and its metabolisation by oxidative and hydrolyzing enzymatic processes is well known. Droplets of pure active preparation rubbed on human hands and legs may induce a loss of sensitivity for one or two hours. No adverse effect is noted when coil fumes or aerosol droplets containing NRDC 107 are inhaled. All natural and synthetic pyrethroids are toxic to fishes. In proper utilization of coils no adverse effect is noted in fishes or birds kept in homes or exposed to aerial or ground applications under recommended conditions. Bioresmethrin has the highest selectivity ratio known in any insecticide chemicals, it is 32,000 times more toxic (on a mg/kg basis) when applied topically to house — flies than when given orally to rats (Verschoyle et al., 1972; Fujita et al., 1970).

Bioresmethrin consists in the technical form of 5-benzyl-3-furylmethyl d-trans chrysanthemate. It is a yellow-brown liquid, which sets solid.

The effect of NRDC 107 against house — flies consists mainly in its powerful insecticidal property, although it should be stressed that the effect is extremely fast and is therefore considered to be knockdown effect. NRDC 107 is very potent against flies, in aerosol form. This potency is only apparent, however, after 10 or 15 minutes and therefore NRDC 107 is mainly used as a killing agent in a formulation based on a fast knockdown agent. NRDC 107 may find technical and economic application against mosquitoes when used in U.L.V. sprays or foggs. (Lhoste, 1973; Lhoste et al. 1974).

### Methods and material

Females *Culex pipiens* mosquitoes were caught in a cellar of the hospital in Hodonin. 15 females were placed in a silon cage (25 × 25 ×

25 cm), which was placed in a room ( $3 \times 3 \times 1,5$  m). This room was fumed by means of a "frankincense" (a pyramid 5 cm high, from charcoal with mastic materials) produced in Tatrachema, Trnava, ČSSR. In anti-mosquito fumigation this frankincense was impregnated with 1 droplet (0.0234 ml), 2 droplets or 3 droplets of NRDC 107. In one case an experiment was also carried out with the frankincense impregnated with 3 droplets of NRDC 107, but one week after the impregnation. In other cases several applications were made. The effect of the insecticide fumes were observed after one and then two hours. In one case an experiment was conducted with several house flies sitting on the window. During these experiments the air temperature of the room was 18-21°C and the air humidity 62-74%.

### Results

It was observed from the experiments in the room that after one and then two hours, the fumes from frankincense impregnated with 1 droplet of NRDC 107 did not kill all the female *C. pipiens* mosquitoes. After using frankincense impregnated with 3 droplets of NRDC 107, all the mosquitoes were killed after the exposure for two hours, even if the impregnation took place one week before the experiment. It would appear that this application of NRDC 107 is very good for mosquito control in closed rooms. The houseflies present in the room were knocked down after several minutes and all flies were killed after one hour.

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### LITERATURE

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FUMIGACJA PREPARATEM "BIORESMETHRIN" JAKO SPOSÓB ZWALCZANIA  
OWADÓW LATAJĄCYCH W POMIESZCZENIACH

D. NOVÁK

Bioresmethrin (NRDC 107) jest jednym z najmniej toksycznych współczesnych środków owadobójczych. Zastosowany w postaci aerosolu, jest bardzo skuteczny przeciw owadom latającym.

Samice *Culex pipiens* odławiano w piwnicy i umieszczano w klatce ze sztucznego włókna (Silon) o wymiarach  $25 \times 25 \times 25$  cm. Klatkę umieszczano w zamkniętym pomieszczeniu  $3 \times 3 \times 1,5$  m i przeprowadzano fumigację za pomocą produkowanych w Czechosłowacji kostek stosowanych zwykle jako „kadzidło”, które obecnie skrapiano 3 kroplami (= 0,0702 ml) badanego preparatu. W jednym przypadku wykonano też doświadczenie z muchami siedzącymi na oknie wspomnianego pomieszczenia. Badania wykonywano w temperaturze 18-21 °C i wilgotności powietrza 62-74%. Pełna skuteczność fumigacji ujawniła się w ciągu 2 godzin (wszystkie komary i muchy zginęły) zarówno po użyciu kostek świeżo impregnowanych bioresmethryną, jak i impregnowanych na tydzień przed doświadczeniem.