

# INCREASE IN THE EFFICACY OF BLATTICIDES THROUGH IRRITATION REDUCING COMPOUNDS

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## INTRODUCTION

Cockroach infestations are a severe public health problem which requires control measures. The success of such controls is often reduced by the irritation effect of the used Blatticides. The addition of cockroach faeces extracts reduces this irritation but for commercial use the production of sufficient amounts is impossible. On the other hand many compounds in the faeces of *Blattella germanica* have been described but nothing is known about their ability in reducing the irritation effects of Blatticides.

It was the aim of our work to investigate different compounds concerning this property. LEJ 829 L, an organic acid (patent pending) was found to be an interesting substance.

## TEST METHODS

### Test in containers

The trials were conducted in containers (59 cm wide, 49 cm deep and 19.5 cm high) with an electrical barrier around the upper part of the inner walls to prevent the escape of the insects. Inside there was a drinking station, feeding source and harborage. Illumination ran from 5.00 until 17.00 h. The temperature was 24–46°C, the relative humidity about 60 %. One day before the trial started five males, five females and ten nymphs (3rd instar), species: *Blattella germanica*, *Periplaneta americana* or *Blatta orientalis*, was introduced into the container (without test compounds).

One day later a glazed tile was prepared with <sup>®</sup>Solfac EW (Cyfluthrin) alone or in combination with an irritation reducing compound and placed in one corner of the container. The percentage of mortality was recorded after one and two days. Dead animals were not removed.

### Test in apartments

A field trial in Australia was carried out in low income housing with high levels of *Blattella germanica* infestation. Cockroach populations were measured using 4 sticky traps per kitchen and 9–10 kitchens were used per treatment. Efficacy was expressed as the mean percentage reduction in populations from pre-treatment levels.

The formulation tested was Responsar SC (b-Cyfluthrin) used at half the normal label rate with and without LEJ 829 L. Application to cracks and crevices and the inside of cupboards was made using a pneumatic knapsack sprayer. An average of approximately 2 litres of spray solution was applied per kitchen.

## Results

In laboratory trials Cyfluthrin in combination with LEJ 829 L caused higher mortality of all cockroach species (*Blattella germanica*, *Blatta orientalis*, *Periplaneta americana*) than Cyfluthrin alone. Cyfluthrin with faeces extract increased mortality of *Blattella germanica* and *Blatta orientalis* but was not better as Cyfluthrin alone against *Periplaneta americana*.

In the field test against *Blattella germanica*  $\beta$ -Cyfluthrin with LEJ 829 L caused a greater population reduction than  $\beta$ -Cyfluthrin alone, especially at the end of the trial.