

## EFFICACY OF BENDIOCARB AGAINST THE MALARIA VECTOR *ANOPHELES ALBIMANUS* IN URBAN AREAS OF NICARAGUA

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Malaria is endemic in Nicaragua, with the majority of cases occurring in the Pacific coastal region where the dominant vector is *Anopheles albimanus*. The widespread use of agricultural insecticides in this region has led to the development of resistance in *An. albimanus* and difficulties in the control of malaria. For this reason bendiocarb, which has been used successfully against *An. albimanus* in El Salvador, was evaluated as a replacement insecticide for house-spraying.

Two study areas, each of about 3800 inhabitants, were selected and one was treated with three spray cycles of bendiocarb at 400 mg ai/m<sup>2</sup> at four monthly intervals whilst the other was treated with deltamethrin at 25 mg ai/m<sup>2</sup> at the same intervals.

Bendiocarb treatment gave a drastic fall in indoor mosquito biting rates, from 12.6 per man per hour before treatment to 0.1 per man per hour 3 months later. Apart from a slight increase at the beginning of the dry season, biting rates remained low throughout the study period. A similar pattern was observed in the deltamethrin area and outdoor biting rates showed similar trends.

However, mosquito longevity was much more reduced in the bendiocarb area and this marked reduction in numbers of epidemiologically dangerous female mosquitoes explains the superior malaria control given by bendiocarb (0.36 cases/month) as compared with deltamethrin (3.09 cases per month).

Bendiocarb was well accepted by householders because of its lack of smell; it was non-irritant to the skin of spray operators and in addition controlled other household pests such as cockroaches and bed-bugs.

On the basis of this study bendiocarb is recommended for malaria control in Nicaragua.