

A-32 Susceptibility/resistance status of *Anopheles culicifacies* to malathion in Sri Lanka

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An.culicifacies is the major vector of malaria in Sri Lanka. Indoor residual application of insecticides formed the major attack measure against the vector for malaria control in Sri Lanka. Until 1977, DDT (an organochlorine insecticide), was used for this purpose. Due to widespread development of vector resistance to DDT, it was replaced by malathion (an organophosphate insecticide) which was used at 2 g/m², 3 monthly in almost all the malarious areas until recent time.

In order to determine the present status of susceptibility/resistance of *An.culicifacies* to malathion, tests were conducted in 1992 and 1993 in different provinces in Sri Lanka adopting the standard WHO procedure. Malathion (5%) impregnated papers for test chambers, Olive oil impregnated papers for controls and normal white sheets for holding mosquitoes for observation were placed in the relevant chambers of the test kit.

Blood fed *An.culicifacies* mosquitoes, gathered from cattle baited collection huts and net traps were collected in paper cups. Maximum number of mosquitoes introduced per chamber was 25. Approximately an equal number

were used for the control and test chambers. Mosquitoes introduced into holding chambers were kept for some time before they were transferred to test chambers or control chambers. After 60 min exposure they were transferred back to the holding chamber and kept cool for 24h providing humid condition with wet pads. Mortality counts were then taken. Results of tests with over 20% control mortalities were discarded. Those with control mortalities between 5-20% were corrected using Abbot's formula.

A total of 339 tests in 1992 and 166 in 1993 were carried out using 5273 and 2385 *An. culicifacies* mosquitoes respectively. Since there was no significant difference in the results of tests carried out in different health areas during 1992 and 1993 the data per health area were pooled and mortalities determined and then the average mortalities were calculated for respective provinces.

Low susceptibility levels were recorded from Western (39.65 ± 9.65), North-Central (51.26 ± 23.0), Central (57.57 ± 25.9), North-Western (64.33 ± 24.6) and Sabaragamuwa (67.31 ± 35.8) provinces. *An. culicifacies* from Uva (90.98 ± 12.3) and Southern (98.2 ± 1.8) provinces showed a high level of susceptibility to malathion according to results of tests carried out during this period.

It can be concluded that *An. culicifacies* had developed resistance to malathion in most of the areas in the country.