

Differential susceptibility to malathion by two members (B and E) of the *Anopheles culicifacies* (Diptera: Culicidae) species complex in Sri Lanka.

Recent studies based on Y chromosome dimorphism in larval progeny of natural population of Sri Lanka and the analogy with the situation in Rameshwarm Island revealed the possible presence of species B and E in the *Anopheles culicifacies* species complex, the major vector of malaria in Sri Lanka. As the sibling species exhibit differences in various biological and behavioral aspects, it is essential to understand the response of these two sympatric sibling species to commonly used insecticides in Sri Lanka as this affects the efficacy of vector control operations by the Anti-Malaria Campaign in Sri Lanka. Here we report the response of two members (B and E) of the *An culicifacies* of Sri Lanka population to various insecticides. Susceptibility of one-day-old female progeny from karyotyped females of species B and E were tested using WHO recommended discriminating dosage of DDT, malathion, lambdacyhalothrin and deltamethrin. 100% mortality was recorded for both siblings against lambdacyhalothrin and deltamethrin while 100% resistance was observed for both siblings against DDT. Against malathion, 54% resistance was recorded for sibling species E while 22% was recorded for sibling species B. Chi-square analysis showed these differences highly significant ($P < 0.001$). Though resistance to DDT and malathion among *An culicifacies s. l.* population of Sri Lanka has already been reported, no previous studies were undertaken to establish the differential response to various insecticides by members of *An culicifacies* complex in Sri Lanka. The significant difference between two sibling (B and E) species in malathion resistance, clearly indicates that species E is more resistant than species B. The present observation has great significance since sibling species E, based on our

infectivity study, is the efficient vector. It is, therefore, essential to re-evaluate the vector control strategy adopted by the Anti Malaria Campaign, especially in the Northern Province, where malathion is still used at the operational level.