EFFECTS OF DIFLUBENZURON AGAINST THE LARVAL STAGES OF *ANOPHELES* (*CELLIA*) *DIRUS* PEYTON AND HARRISON AND *ANOPHELES* (*CELLIA*) *MACULATUS* THEOBALD (DIPTERA : ANOPHELINAE) IN THE LABORATORY

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ABSTRACT

Four anopheline species, i.e., *Anopheles dirus* A, *Anopheles dirus* B, *Anopheles maculatus* A, *Anopheles maculatus* B form E were colonized in the insectary and some of their biological charactesistics were observed. The toxic effect of Diflubenzuron -- a chitin synthesis inhibitor -- on these anopheline species was studied in the laboratory by using their larval stages. Then, the persistence of this compound on the second instar larvae of *An. dirus* A and *An. maculatus* B form E at their EC_{50} was investigated. Also, the morphological abnormalities in the mosquitoes due to treatment by Diflubenzuron were observed.

Under laboratory conditions ($26^{o} \pm 1^{o}$ C and 60% - 80% RH) the emergence rates were 93.5%, 95.0%, 95.0% and 96.0% for *An. dirus* A, *An. dirus* B, *An. maculatus* A and *An. maculatus* B form E, respectively. The periods for the life - cycle were from 28 to 30 days for *An. dirus* A, 27 to 29 days for *An. dirus* B, 29 to 31 days for *An. maculatus* A and 30 to 32 days for *An. maculatus* B form E. The mean number of eggs laid by a single female were 76, 142, 59 and 53 for *An. dirus* A, *An. dirus* B, *An. maculatus* A and *An. maculatus* B form E, respectively. The ratio of adult male to female of all 4 experimental anopheline species was 1:1.

Five concentrations of Diflubenzuron : 0.00025, 0.0005, 0.001, 0.002 and 0.004 mg/l were used to test against the second, third and fourth instar larvae of the above - mentioned anopheline species to find the toxic effect of this compound under laboratory conditions at 28 $\pm$ 2 ^{o}C and 60% - 80% RH. The second instar larvae of all 4 species were the most sensitive instar, with the EC_{50} values of 0.00034, 0.000349, 0.000498 and 0.00050 mg/l for *An. dirus* A, *An. dirus* B, *An. maculatus* A and *An. maculatus* B form E, respectively.

Diflubenzuron persisted for 20 to 38 days and 18 to 34 days when testing against the second instar larvae of *An. dirus* A and *An. maculatus* B form E, respectively, at their EC_{50} in glass beakers in the laboratory.

Diflubenzuron indduced various degrees of morphological abnormalities on all 4 experimental anopheline species. These abnormalities were categorized into 8 major categories.