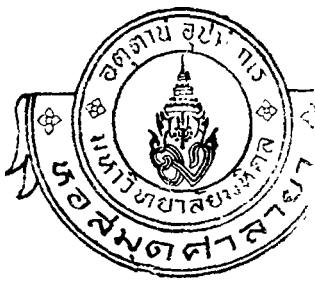

STUDIES ON THE EFFECTS OF CYROMAZIN AND METHOPRENE ON THE DEVELOPMENTAL STAGES OF ANOPHELES (CELLIA) DIRUS PEYTON AND HARRISON, AEDES AEGYPTI LINNAEUS AND CULEX QUINQUEFASCIATUS SAY (DIPTERA : CULICIDAE)

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ABSTRACT

The efficiencies of the two chemical compounds, cyromazin and methoprene on Anopheles (Cellia) dirus Peyton and Harrison, Aedes aegypti Linnaeus, Culex quinquefasciatus Say and Toxorhynchites splendens Wiedemann were inveatigated under laboratory conditions, with the mean temperature of 24 ± 1°C and the relative humidity at 65-75%. Both compounds were tested against the second, third and fourth instar larvae. The concentrations of cyromazin used for An. (Cellia) dirus and C. quinquefasciatus were 0.0008, 0.004, 0.02, 0.1 and 0.5 mg/l; for Ae. aegypti were 0.004, 0.02, 0.1, 0.5 and 2.5 mg/l.; and for T. splendens were 0.00016, 0.0008, 0.004, 0.02 and 0.1 mg/l. The concentrations of methoprene used for An. (Cellia) dirus, Ae. aegypti, C. quinquefasciatus and T. splendens were 0.00016, 0.0008, 0.004, 0.02 and 0.1 mg/l. The morphogenetic aberrations were determined and divided into 6 groups, among which they included (1) larvae (2) pupae not completely out of larval exoskeletons (3) white pupae (4) deformed pupae (5) black pupae (6) adults attached to the pupal cases.

The percentage mortality rates were found to be relatively high in larval and pupal stages when they were treated with cyromazin and methoprene respectively. The primary toxic effects of cyromazin were in the second stage larvae. The LC_{50} values of cyromazin were 0.0027, 0.0042 and 0.0114 mg/l for An. (Cellia) dirus; 0.1662, 0.2307 and 0.3005 mg/l for Ae. aegypti. C. quinquefasciatus was the most

sensitive species to cyromazin, its LC_{50} values were 0.0015, 0.0068 and 0.0130 mg/l. The LC_{50} values of T. splendens were 0.0072, 0.0466 and 0.1393 mg/l for the second, third and fourth instar larvae respectively. The primary toxic effects of methoprene were in the fourth stage larvae. The LC_{50} values of methoprene were 0.0110, 0.0041 and 0.0022 mg/l for An. (Cellia) dirus; 0.0077, 0.0034 and 0.0025 mg/l for Ae. aegypti. C. quinquefasciatus was the most sensitive species to methoprene, its LC_{50} values were 0.0013, 0.0008 and 0.0006 mg/l. The LC_{50} values for T. splendens were 0.0082, 0.0022 and 0.0008 mg/l respectively. Cyromazin presisted as long as methoprene. The effectiveniss of cyromazin in glass jar at concentrations of 0.0027, 0.1662 and 0.0015 mg/l for controlling An. (Cellia) dirus, Ae. aegypti and C. quinquefasciatus were in the periods of 20-39, 18-35 and 39-58 days respectively. The effectiveness of methoprene in glass jar at concentrations of 0.0110, 0.0077 and 0.0013 mg/l for controlling An. (Cellia) dirus, Ae. aegypti and C. quinquefasciatus were in the periods of 21-39, 19-33 and 38-57 days respectively. The effectiveness of cyromazin and methoprene in earthenwares at concentrations of 0.1662 and 0.0077 mg/l for controlling Ae. aegypti were in the periods of 15-30 and 17-31 days respectively.