

IMPACT OF FEMALE AGE AND EGG QUIESCENCE OF *Aedes aegypti* ON INSECTICIDE SUSCEPTIBILITY

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The control of *Aedes aegypti* is primarily based on insecticides, which have selected resistant populations. While resistance mechanisms are extensively studied in this biological model, the impact of female age and egg quiescence on insecticide susceptibility remains unknown and was the focus of this study. To evaluate the influence of female age, three groups of 45 *A. aegypti* (Rockefeller strain, 1–3 days post-emergence, fed with 10% sucrose ad libitum) couples were assembled on day 0. On day 2, a blood meal was provided, followed by the insertion of an oviposition container. On day 5, the container was removed, and the paper strips with eggs were dried. On day 8, the eggs were hatched in dechlorinated water, and the L3/L4 larvae (n=30, triplicates) were subjected to deltamethrin GT (0.05 µg/mL in ethanol P.A.) following gold-standard bioassays. This procedure was repeated over three consecutive weeks with the groups in parallel, with egg strips originating from the 1st, 2nd, 3rd, and 4th gonotrophic cycles. Mortality data were analyzed using PROBIT regression and ANOVA. Lower susceptibility to deltamethrin was observed in larvae from the 2nd cycle (2.32%) compared to the 1st (17.80%) and 3rd (39.25%) cycles. Larvae from the 4th cycle could not be evaluated due to high parental mortality. To assess the impact of egg quiescence, the methodology above was applied using only eggs from the 1st gonotrophic cycle. The egg strips were divided into four parts and hatched 3, 30, 60, and 90 days post-oviposition. Larvae from eggs with 60 days of quiescence showed higher susceptibility (35.28%) compared to those hatched after 3 (24.44%), 30 (25.93%), and 90 (22.41%) days. These findings demonstrate that the age of *A. aegypti* females and egg quiescence significantly affect susceptibility to deltamethrin.

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