Abstract No: 79 ***Life Sciences***

EFFECT OF PH ON THE GROWTH AND DEVELOPMENT OF IMMATURE STAGES OF DENGUE VECTOR MOSQUITOES; *AEDES ALBOPICTUS*

K.M.K.S Dissanayake[1], W.M.S.H Wijesundara[2] and T.C Weeraratne[3*]

[1]Faculty of Science, University of Colombo, Colombo, Sri Lanka.
[2,3]Department of Zoology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka.
**thiliniw@pdn.ac.lk*

Dengue has been prevalent in Sri Lanka for almost seven decades. Controlling the growth of vector mosquito larvae is still a widely researched area. pH index in breeding sites plays a significant role in the growth, development, and survival of larvae of vector mosquitoes. This study aims at identifying the effect of pH on the growth and development of *Aedes albopictus* larvae. *Aedes albopictus* larvae hatched from eggs of established colonies were used for the experiments. Ten 1st instar larvae were exposed per replicate to pH 5, 6, 7, 8, and 9 with buffer solutions of KH_2PO_4, Na_2HPO_4/ NaH_2PO_4 and Tris HCl, respectively (three replicates per each pH). Dechlorinated tap water was used as the control. Development, mortality rate and emergence rate were recorded daily. Further, wing lengths of emerged adult mosquitoes were measured to relate the effect of treatments on body size. Results showed that pH 7 and 8 have a higher survival rate (90%). Significantly higher mortalities were observed in pH 5 (86.6%) and 9 (66.6%) ($p<0.05$). This can be attributed to the fact that pH 7 and 8 are often seen in natural breeding conditions of vector mosquitoes. However, results indicated the adaptability of these larvae to a broader pH range. The highest growth rates were observed in pH 7 and 8, with the least time to pupate (an average of 8 days). A significant difference between the overall time taken to transition from 1st to 4th instar was seen between pH 7 (7.66 days) and 8 (4.66 days) ($p=0.035$). Respectively, 43.3%, 60%, 46.6% of adults emerged from pH 6, 7 and 8. There was a notable difference in the wing size of adults between the pH treatments ($p= 0.038$). Larger body size was observed in 6-8 pH treatments. Results revealed the significance of pH on larval growth and development, which can be implemented in better vector control approaches.

Financial assistance from University research grant year 2023 (*Grant No. URG/2023/31/S is acknowledged.*

Keywords: *Aedes albopictus,* Breeding habitats, Dengue, Mosquito control, pH