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**Predatory efficacy of *Mesocyclops* and *Cyclops* Copepods on *Aedes aegypti* and *Aedes albopictus* larvae under laboratory settings**

Menaka Hapugoda,<sup>1</sup>N.W.B.A.L. Udayanga,<sup>1</sup> R.M.T.B. Ranathunga,<sup>1</sup> M C M Iqbal,<sup>2</sup> and W. Abeywickrama<sup>3</sup>

<sup>1</sup>Molecular medicine unit, Faculty of Medicine, University of Kelaniya

<sup>2</sup>National Institute of Fundamental Studies

<sup>3</sup>Department of Parasitology, Faculty of Medicine, Kothalawala Defence University

As the most challenging health issue in Sri Lanka, dengue remains unchallenged, recording the most severe epidemic of 154,311 suspected cases from January to 21<sup>st</sup> of September, 2017. With the limitations in conventional vector controlling approaches such as systemic use of insecticides, novel methods are needed to manage low densities of dengue vectors, *Aedes aegypti* and *Ae. albopictus*. Copepods are considered as a leading predator in many aquatic ecosystems and have been used effectively as biological controlling agents, in successful attempts to control *Aedes* mosquito larvae. The current study attempts to determine the predatory efficacy of three copepod species, viz, *Mesocyclops scirassus*, *Cyclops varicans*, and *C. languides* under laboratory conditions. Copepods were collected from pre-identified locations in the Kandy district, and were cultured under laboratory conditions by providing *Paramecium* culture and wheat grain as supplementary food. Groups of 200 *Ae. aegypti* larvae (1<sup>st</sup> instar) were introduced into containers with 5 adult copepods of individual copepod species in three different containers, and the number of remaining larvae were enumerated at 3 hour intervals within a duration of 24 hours. The same methodology was followed with *Ae. albopictus* and for each *Aedes* species, five replicates were conducted. The average number of larvae consumed by a single copepod was calculated for each copepod species and General Linear Modelling technique (GLM) followed by Tukey's pair-wise comparison was used to identify the effectiveness of copepod species for controlling of *Aedes* larvae. All statistical analyses were performed in SPSS (version 23). The predatory efficacy of copepods varied significantly, in terms of both copepod species ( $p=0.01$ ) and larval species ( $p=0.04$ ) at the 5% level of significance. Consuming 31 and 29 larvae of *Ae. aegypti* and *Ae. albopictus*, respectively (within 24 hours), *M. scirassus* displayed the highest predacious efficiency. Meanwhile, *C. languides* had the lowest predatory efficacy of 11 and 9 larvae of *Ae. aegypti* and *Ae. albopictus* within 24 hours. Based on the findings, both *M. scirassus* and *C. varicans* could be recommended as potential candidates for biological controlling of *Aedes* vectors in Sri Lanka. Further studies on the predatory efficacy of the above copepods could be suggested under semi field and field settings.

Keywords: Dengue, copepods, biological control

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[menakaha@yahoo.com](mailto:menakaha@yahoo.com)

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