

Total, Faecal Coliform and Aquatic Insects in Wak and Makeli Oya in Wet Zone of Sri Lanka**Arachchi A.A.Y.S.* , Witharana A., Pallewatta N.**

Department of Zoology and Environment Sciences, University of Colombo, Colombo, Sri Lanka
**yasarasamiddhi96@gmail.com*

Abstract

Aquatic insects represent 80% of the total aquatic animal diversity. They play an important role in aquatic ecosystem functioning and sustaining. The present study analyses water quality, aquatic insect diversity and abundance of selected streams in the wet zone of Sri Lanka. The field work was carried out at two sampling sites; Site 1 (a tributary of Wak Oya) and Site 2 (a tributary of Makeli Oya) during November 2020 to March 2021. Water quality analyses were done in both *in-situ* and *ex-situ*. Aquatic insects were collected from different habitats and identified. Order Odonata, Coleoptera, Ephemeroptera, Plecoptera and Trichoptera were commonly found in both sites, although their relative abundances were significantly different ($p < 0.05$). The relative abundances of order Odonata, Plecoptera, Ephemeroptera and Trichoptera in Site 1 was 0.304, 0.228, 0.215 and 0.139, while in Site 2, it was 0.447, 0.053, 0.064 and 0.277. The Shannon Wiener Diversity Index of insect communities in Site 1 and Site 2 were $H' = 1.5$ and $H' = 1.3$, respectively. The shade level and stream depth were correlated with aquatic insect orders of Coleoptera and Plecoptera at Site 1 ($r > 0.8$). Aquatic insects were associated with the habitat type based on what they consumed ($p < 0.05$). The majority of aquatic insects occupied the underside of the stones. The test results for average total coliform and faecal coliform for Site 1 were >750 per 100 ml and >250 per 100 ml respectively. In contrast, Site 2 was reported negative for faecal contamination. This may be due to the anthropogenic activities such as using the stream for washing and bathing purposes by the nearby community and the use of stream by the public for recreational purposes. Moreover, land use patterns around the study site might also impact the water quality, insect diversity and abundance of aquatic insects. One streambank of Site 1 is bordering on a rubber plantation. The land use around Site 2 is mainly confined to state forests and tea plantations. This study shows the importance of monitoring the quality of freshwater streams and the need to regulate human activities take measures for the protection of freshwater streams. Long-term monitoring of freshwater streams is essential to show the impact of human activities on water quality as they impact the health of humans and the rest of the environment.

Keywords: Aquatic insects, Freshwater quality, Habitat diversity