

The aquatic insect communities of Universiti Malaysia Sabah (UMS), Sabah, Malaysia

ABSTRACT

A study was conducted to investigate the aquatic insect communities in Universiti Malaysia Sabah (UMS), Sabah, Malaysia. Two sampling sites were selected: lakes at School of Science and Technology (SST), and another near College E (CE) (student accommodation). Each lake consisted of four sampling stations. Aquatic insects were sampled using dip net from November 2013 to January 2014. Four water quality parameters were measured at each station. Shannon-Weiner's diversity index and biotic indices (BMWP) were used in this study. Student's t-test was used for testing the significant difference of water quality parameters, Shannon-Weiner's diversity index and BMWP between these lakes. Pearson's correlation was used to investigate relationships between aquatic insect assemblage and water quality parameters. A total of 1987 individuals composed of five orders that representing eleven families were recorded in this study. Baetidae (56.67%) was the dominant family in UMS, where Diptera order had least abundant with only 0.4% of overall sample. Aquatic insect abundance were significantly higher ($P < 0.05$) in CE Lake. Bray-Curtis Similarity index showed 53.75% similarity between these two lakes. Pearson's correlation showed that aquatic insect abundance and richness had significant relationships with water temperature, dissolved oxygen, salinity and pH ($P < 0.05$ or 0.01), except for salinity with taxa richness. Based on Malaysia's INWQS, water quality parameters of these two lakes were categorized as Class I, but with dissolved oxygen, the CE and SST lakes were classified as Class IIA and III respectively. The BMWP index showed similar results as dissolved oxygen, where SST Lake (score=40) had poor water quality.