

Diversity of aquatic macroinvertebrate assemblages and their functional feeding groups in the streams of Kota Marudu, Sabah.

ABSTRACT

Increasing human activities at Kota Marudu (an economic and agricultural hub of northern Sabah) affects water quality and related ecosystem services. However, the impacts of these human activities on the aquatic biological assemblages in tropical streams were poorly understood. Thus, the objective of this study was to determine the biological diversity and functional feeding groups of aquatic macroinvertebrate assemblages of some streams near different types of land use. Water samples and aquatic macroinvertebrates were collected from 6 streams, in 6 sampling trips. A total of 22994 individuals were identified with 136 genera and 17 orders corresponding to 3 main faunal phyla (Annelida, Mollusca, Arthropoda). Biodiversity indices and biotic indices showed significant spatial differentiation. The biodiversity of aquatic macroinvertebrate assemblages was highest at forested streams and lowest at streams from agricultural lands. In addition, the functional feeding groups also showed significant differences between the forested streams and human-disturbed rivers. Shredders and predators were more abundant in forested streams. In general, land use is an important factor influencing the structure of aquatic communities.