ZOOPLANKTON COMPOSITION ANDA WATER QUALITY ASSESSMENT OF INANAM-LIKAS RIVER BASIN (ILRB), KOTA KINABALU, SABAH

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ABSTRACT

ZOOPLANKTON COMPOSITION & A WATER QUALITY ASSESSMENT OF INANAM-LIKAS RIVER BASIN (ILRB), KOTA KINABALU, SABAH

ILRB is an urban and industrial area, where rapid development occurs. These situations make it vulnerable to pollution and affect the water quality there. So, few parameters and zooplankton species were determined to indicate the river's water condition. The study was carried out to determine the water quality status of Inanam-Likas River Basin (ILRB) by using physico-chemical parameters and zooplankton as bio-indicators. Sampling activities were done between the months of January to March 2018. Water samples collected from five stations along ILRB with each station consist of three replicates. The five stations were namely Mari-mari Cultural Village, Kg. Kobuni, Kg. Ulu Kionsom, Kolombong and Kg. Bangka-bangka, Likas. For the determination of physico-chemical level, methods involved were on-site analysis using portable pH meter and Dissolved Oxygen meter and laboratory analysis using DR2800 spectrophotometer. For zooplankton sampling, a 53 μm zooplankton net was used to filter river's water to get the organisms and preserved with Lugol's iodine solution. From this study, the results shown physico-chemical parameters that namely pH (7.23 - 8.15), dissolved oxygen (6.96 - 8.89) mg/L, water temperature (25.07 - 29.63) °C were within the standard parameters range except nitrate (0.04 - 0.77) mg/L and phosphate (0.08 - 1.08) mg/L. In the other hand, there are 14 species of zooplankton identified in the ILRB. The species were found from two main taxa group of zooplankton such as phylum Rotifera and subphylum crustacea. Meanwhile, the Shannon-Wiener Diversity Index (H') shows that Kg. Bangka-bangka, Likas have the highest H' which was 1.4952 while the lowest was at Mari-mari Cultural Village with H' = 0.9986. A zooplankton diversity value should increase in a less polluted and decrease in a polluted environment. However, the value calculated for zooplankton species diversity is high in a polluted station which was station 5 which is more polluted rather than in station 1. This maybe due to growth of species that have high tolerance towards a harsh change in the environment. Lastly, from the analysis of species indicators, there were more pollutant indicators than non-pollutant indicators found. This may due to area such as the industrial sites at Kolombong which triggered the growth of the species. The results indicated that ILRB has poor water quality.