ASSESSMENT OF WATER QUALITY OF INANAM-LIKAS RIVER BASIN AT UPPER STREAM OF INANAM RIVER AREA,SABAH, MALAYSIA USING AQUATIC INSECT AS BIO-INDICATOR

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(Siti Amira Amansah)

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ABSTRACT

ASSESSMENT OF WATER QUALITY OF INANAM-LIKAS RIVER BASIN AT UPPER STREAM OF INANAM RIVER AREA, SABAH, MALAYSIA USING AQUATIC INSECT AS BIO-INDICATOR

This study was conducted to assess the water quality at the Inanam-Likas River Basin, Sabah Malaysia using aquatic insects as bio-indicators. Upper stream of Inanam River area was chosen as study area. Three different stations were set up to represent different type of land use such as forest area, human settlement and poultry area. Kicking method was used to collect aquatic insects in the streams. Water physico-parameters such as dissolved oxygen (DO), pH value, temperature and total dissolved solid (TDS) were measured *in situ* by using YSI550A DO metre, portable E-1 TDS & EC meter and portable pH meter. A total of 87 aquatic insects were collected from 5 Orders and 11 Families. Interim National Water Quality Standard for Malaysia (INWQS) revealed that phyico-chemical parameters in these three stations were categorized in Class I. Water Quality Index with Missing Parameter (WQI_{MP}) and Family Biotic Index (FBI) showed that all the station were in a good condition except for Station 3 was categorized as fair by using FBI. Spearman's Rho Correlation indicated that the abundance of aquatic insects had significant relationship with DO ($r_s = 0.762$, $p = 0.017$) and temperature ($r_s = -0.731$, $p = 0.025$) while it has no significant relationship with pH ($r_s = 0.167$, $p = 0.667$) and TDS ($r_s = -0.351$, $p = 0.354$). Besides that, Spearman's Rho correlation also showed that there was no significant relationships between FBI and WQI ($r_s = -0.500$, $p = 0.170$) which might caused by environmental factors such as weather. Hence, this showed that aquatic insects were suitable to be used as bio-indicator to determine the water quality of streams. As a recommendation, further study on aquatic insects as bio-indicator of water quality need to be implemented.