

**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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JULY 2019

ACKNOWLEDGEMENTS

In the name of Allah SWT, the most Gracious, the most Merciful. First of all, I praise to Allah for helping me to complete this study. My sincere gratitude to my supervisor, Mr. Ajimi Bin Jawan for his support, guidance and suggestions and always show some patience to supervise me. Thank you to Mr. Ansir Salim as my second examiner for his additional guidance.

I would like also to thank Faculty of Applied Science and Universiti Teknologi MARA Kota Kinabalu, Sabah, Malaysia for giving me the opportunity and providing me with all necessary facilities to make my study possible. My gratitude also goes to laboratory assistants, Madam Atifah Remat and Mr. Sufrih for their cooperation to lend me materials and apparatus that were needed during this study.

My genuine thank and love to my family especially to my father and my mother who always give me full support and encouragement. Your supports were my strength especially at the early part of the study.

Last but not least, to all my friends especially those who helped during my hard time collecting data in Inanam River. Thank you to the knowledge we shared and the moment we spent on this research. Thank you to all people who helped me directly or indirectly throughout the study.

(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 physico-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.