REMEDIATION OF NAPHTHALENE FROM SYNTHETIC WASTE WATER USING RICE HUSK AND RICE STRAW AS BIO-SORBENT
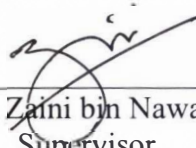
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**Final Year Project Report Submitted in
Partial Fulfillment of the Requirement for the
Degree of Bachelor Sciences (Hons) Biology
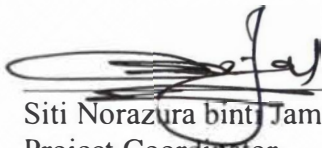in the Faculty of Applied Sciences
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This Final Year Project Report entitled **"Remediation of Naphthalene from Synthetic Waste Water Using Rice Husk and Rice Straw as Bio-Sorbent"** was submitted by Siti Hazirah binti Md Rudin, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

REMEDIATION OF NAPHTHALENE FROM SYNTHETIC WASTE WATER USING RICE HUSK AND RICE STRAW AS BIO-SORBENT

Naphthalene is two ringed PAHs which mainly formed and accumulated in the surface of water. It is one of the organic pollutant, insoluble in water and difficult to remove. However, previous study stated that adsorption is the most efficient method. In addition, adsorption by using agricultural waste such as rice husk and rice straw are effective and economical way for removing PAHs. Rice husk and rice straw are agriculture waste and inexpensive bio-sorbent material. The aim of this study was to compare the potential activated carbon from rice husk and rice straw in eliminating the naphthalene from synthetic waste water. The sample with highest percentage of naphthalene adsorption was used to analyze the effect of adsorbent dosage, initial concentration of naphthalene, contact time and agitation speed on naphthalene adsorption. The most optimized parameter were continued for batch adsorption experiment. Based on this experiment, it was found that the percentage of naphthalene adsorption was at the highest by using AC-RH (96.20%). The naphthalene adsorption in synthetic waste water continuously increased with increasing of adsorbent dosage (40mg), contact time (80min), and initial concentration of naphthalene (25mg/L). The highest percentage of naphthalene adsorption for batch adsorption experiment was 97.94%. The results were analyzed using the statistical analysis. It showed there was significant difference between them ($p < 0.005$). This study demonstrate that rice husk and rice straw which are the agriculture waste could be used to adsorb naphthalene as they have high bio-sorption capacity, low cost, unique composition which make them good bio-sorbent for removing naphthalene from water.