

**REMOVAL OF METHYLENE BLUE USING ACTIVATED CARBON
PREPARED FROM TAMARIND SEED**

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JANUARY 2017

This Final Year Project Report entitled “**Removal of Methylene Blue Using Activated Carbon Prepared from Tamarind Seed**” was submitted by Intan Naquiah Hashim, in partial of the requirement for the Degree of Bachelor of Science (Hons.) Chemistry, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

REMOVAL OF METHYLENE BLUE USING ACTIVATED CARBON PREPARED FROM TAMARIND SEED

The removal of methylene blue dyes as water pollutants using the activated carbon that prepared from the tamarind seed (*Tamarindus indica*) was ascertained. The tamarind seed activated carbon was activated using phosphoric acid as an activating agent at temperature 500 °C for 4 hours. The FTIR spectrum showed that tamarind seed activated carbon do not have any functional group on its surface like commercial activated carbon. The percentage yield of the prepared activated carbon is 86.61 %. Meanwhile for the moisture, ash and carbon content in tamarind seed activated carbon were calculated which are 14.33 %, 14.46 % and 71.22 % respectively. Based on the single point BET surface area (S_{BET}) of the prepared tamarind seed activated carbon was 594.04 m² g⁻¹. The adsorption variables are studied were the temperature and concentration of the methylene blue dyes. The tamarind seed activated was used for the adsorption of the methylene blue dyes at concentration of 120 ppm at temperature, 323 K. The maximum adsorption of methylene blue dye was 102.7657 mg g⁻¹. The experimental data were fitted to Freundlich isotherm compared to the Langmuir isotherm. From this study, it was indicated that the prepared AC from tamarind seed has a significant capacity for adsorption of methylene blue dye from wastewater streams.