METHYLENE BLUE DYE REMOVAL BY ADSORPTION USING DIFFERENT TYPES OF FRUIT WASTE

AMIRA DELAILA BINTI MOHD NASIR

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This Final Year Project Report entitled **"Removal of MB by Adsorption Using Different Types of Fruit Waste"** was submitted by Amira Delaila Binti Mohd Nasir in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Chemistry with Management, in the Faculty of Applied Sciences, and was approved by

_____

Sir. Dzulkifli Bin Osman
Supervisor
Faculty of Applied Sciences
Universiti Teknologi MARA

_____

Dr. Zuliahani Binti Ahmad
Department of Polymer Technology
Faculty of Applied Sciences
Universiti Teknologi MARA

_____

Dr. Siti Nurlia Binti Ali
Project Coordinator
Faculty of Applied Sciences
Universiti Teknologi MARA

_____

Dr. Rosyaini Binti Afindi Zaman
Head of Programme
Faculty of Applied Sciences
Universiti Teknologi MARA

Date: _____

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ABSTRACT

REMOVAL OF METHYLENE BLUE DYE BY ADSORPTION USING DIFFERENT TYPES OF FRUIT WASTE

In order of the removal of Methylene Blue (MB) from wastewater, the activated carbon was synthesized by using orange, dragon fruit and pomegranate peels while thermally activated using an activating agent such as phosphoric acid. Activated carbon were used for the removal of MB dye using the adsorption technique made of different types of fruit waste. The capacity to use pre-treated fruit as an adsorbent to remove the MB dye is the significance of the output. It can be determined for its efficiency and cost-effective treatment for purification and as an alternative to using natural products as a wastewater treatment system and the function of the reusability of water. The effects of contact time, initial dye concentration and pH on the adsorption process were studied to determine the best conditions for preparing the three different types of fruit peel activated carbons. The optimal conditions included an impregnation with different contact time at at 400℃ for 4 hours. The characterization was done using UV visible spectrophotometer and Fourier Transform Infrared Spectroscopy (FTIR). The findings of the absorbance reading on the UV visible spectrophotometer determines the adsorption capacity from the MB dye solution. This proved that physical adsorption dominates in the adsorption process and the activated carbon fruit peels showed significant adsorption performance for a variety of dye wastewater. A comparation by using three fruit peels showed potential to be synthesized into activated carbon with a high adsorption capacity for dyes.