

Preparation and Evaluation of Carbon Synthesized by Chemical Activation of Mango Seeds

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Abstract

This project aims to reduce mango waste and clean polluted water by using carbon derived from mango seeds. Mango seeds were carbonized through chemical activation. First, mango seeds were mixed with phosphoric acid and heated to approximately 100 °C. The temperature was later raised to 500 °C in nitrogen. The resulting carbon was washed and dried. Methylene blue was used to represent a water pollutant. Concentrations of methylene blue in the water were monitored by a custom-made photometer. The photometer consists of an Arduino UNO, a colored LED, a light sensor, and an LCD display. The Arduino UNO was programmed through Arduino Web Editor - Arduino Create. Different concentrations of methylene blue were measured. The values were used to calculate adsorption and percent removal, which shows the effectiveness of carbonized mango seeds to clean water. The results from the chemical activation of carbon was compared with thermal activation of carbon.