

**EVALUATION OF MAGNETIZED MIRACLE FRUIT (*Crescentia
cujete*) PEEL ASH IN THE ADSORPTION OF METHYLENE
BLUE AT DIFFERENT DOSAGE**

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ABSTRACT

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This study evaluated the Magnetized Miracle Fruit Peel Ash (MMFPA) as an efficient methylene blue adsorbent. The effect of dosage (0.5 g, 1 g, 1.5 g, 2 g, 2.5 g, and 3 g) was studied to determine the equilibrium concentration, equilibrium adsorption capacity, and removal efficiency of the adsorbent. The experimental data was analyzed using the One-way ANOVA at 1% and 5% level of significance. The treatment means was compared using the Tukeys's Honest Significant Difference (HSD) test.

Based on the result in the equilibrium concentration, Dosage Six (D6) had the lowest equilibrium concentration at 0.7997 ppm. In relation to the adsorption equilibrium capacity, D6 had the lowest equilibrium adsorption capacity at 1.64 mg/g. In the removal efficiency, D6 exhibited highest removal efficiency at 98.40%, showing a substantial decrease in the concentration in Methylene Blue.

In general, this study concluded that magnetized miracle fruit peel ash demonstrated a high potential as an economical alternative for treatment of dye contaminated wastewater.

Keywords: *Methylene Blue, Magnetized Miracle Fruit Peel Ash (MMFPA), Equilibrium Concentration, Equilibrium Adsorption Capacity, Removal Efficiency*