**DECOLORIZATION OF MADDER DYE BIOCHAR DERIVED**

**FROM MORINDA CITRIFOLIA**

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**ABSTRACT:**

Madder dye, a synthetic aromatic dye, is utilized extensively in the textile industry as a direct dye to color substances. It harms the environment and creates the ecosystem worse. This study involved using adsorption charcoal produced by Morinda citrifolia to flush out madder dye from textile wastewater. Research had been performed on the application of acid-resistant KOH-based products for Madder dye adsorption in order to better the adsorption capacity of biochar that has been valorised by KOH molecules. In the batch experiment, basic operating parameters with the value of pH, bed height, contact time, and Madder dye initial concentrations were examined. The projected values for the percentage clearance of the Madder dye were 87.99%, 56.64% and 64.24% for all three different column sizes: 10 cm, 12 cm, and 14 cm. The fading of dyes has been measured through UV-visible spectroscopy of absorption. The transformed surface properties of the adsorbent made from Morinda citrifolia have been demonstrated using SEM, FTIR. Thomas, and Adams-Bohart's computational models were employed to figure out the column's rate of adsorption. The model that most closely matches to the equilibrium isotherm data acquired via adsorption has R2 values of 0.966, 0.786, according to that order.

**Keywords:** Madder dye removal, Textile wastewater, Morinda citrifolia, KOH, Adsorption.