



## **Plant waste - Economical adsorbent for the removal of cationic dye from aqueous solution**

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### **ABSTRACT**

*Removal of Malachite Green (MG) dye in aqueous solution on Osimum Sanctum Carbon (OSC) has been studied at  $30 \pm 1^\circ\text{C}$ . The effect of various experimental parameters has been investigated using a Batch Adsorption technique (BAT) to obtain information on treating effluents from the dye industry. The percentage removal was found to increase with decrease in initial concentration of dye and increase in contact time and dose of adsorbent. The dye adsorption is found to be pH sensitive. The percentage removal increases with increase in initial pH for MG. Adsorption data were modeled using the Freundlich and Langmuir adsorption isotherms and first order kinetic equations. The kinetics of adsorption was found to be first order with regard to intra-particle diffusion as the rate determining step. The results indicate that OSC is one of the best adsorbent that can be used in wastewater treatment for the removal of colors and dyes.*

**Keywords:** Adsorption of Malachite Green dye, Batch Adsorption technique, Osimum Sanctum Bark , adsorption isotherms, Kinetics of adsorption.

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