

# **ADSORPTION OF METHYL ORANGE FROM AQUEOUS SOLUTION USING WATER HYACINTH BIOCHARS** *(Eichhornia crassipes)*

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## **Summary**

The present study compared the adsorption capacity of Methyl Orange (MO) dye from aqueous solution onto biochars produced from water hyacinth. The optimal conditions of the variables: pH, adsorbent dosage, initial dye concentration, contact time and adsorbent size were ascertained. Experimental data were applied to the Langmuir and Freundlich sorption isotherms using the non-linear equations form. The optimal removal of MO dye with biochars (around 15 mg/g) was obtained at pH 2.0, 0.02 g adsorbent dosage, and the equilibrium reached after 120 min of contact time. Pseudo second order model best described the kinetics of adsorption process. Equilibrium Langmuir isotherm, which indicated a heterogeneous process, gave a better conformity than the Freundlich model. The water hyacinth biochars, in conclusion, can be used as effective, low-cost and environmentally friendly adsorbents for MO dye.

**Keywords:** *Water hyacinth biochar, adsorption, methyl orange, dyes.*