

**TREATMENT OF SYNTHETIC AZO DYES
WASTEWATER BY USING RICE HUSK AS ADSORBENT**

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ABSTRACT

TREATMENT OF SYNTHETIC AZO DYES WASTEWATER BY USING RICE HUSK AS ADSORBENT

The discharge of synthetic azo dyes wastewater without further treatment direct from various industries could affect human's health, ecosystem of aquatic life and the environment. The disposal problem of untreated agricultural wastes can lead to greenhouses effect resulting from the open burning. This study aimed to measure the adsorbent capacity of rice husk and to optimize the parameters for further batch sorption. The feasibility of low cost agricultural waste adsorbents toward the decolourization of different azo dyes was measured throughout the adsorption process. The raw rice husks undergo chemical activation of phosphoric acid (H_3PO_4) before further carbonization. The rice husk activated carbon was characterized using FT-IR Spectrometer and UV-VIS spectrophotometer. The optimization independent parameter such as adsorbent dosage (1.0, 1.5 and 2.0 g), pH (3, 7 and 10) and contact time (1, 2 and 3 hours) was studied. In this study, screening of different azo dyes resulted in higher removal efficiency towards Congo red (43.85%) followed by Tartrazine (43.84%) and Remazol black 5 (11.85%). The batch adsorption showed maximum adsorption capacity of 7.38 mg/g dye with respect to 2.0 g of adsorbent dosage at pH 7 for 60 minutes. Hence, the activated carbon of rice husk was capable to remove the selected azo dyes and can be economically used for wastewater treatment throughout this study.