

**BIOSORPTION OF METHYLENE BLUE BY SULFURIC ACID
TREATED SPENT GRATED COCONUT (COCOS NUCIFERA) IN
FIXED-BED COLUMN STUDY**

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ABSTRACT

BIOSORPTION OF METHYLENE BLUE BY SULFURIC ACID TREATED SPENT GRATED COCONUT (*COCUS NUCIFERA*) IN FIXED-BED COLUMN STUDY

Plant waste which comes from coconut process output was determined as new adsorbent to be analysed to optimise the efficiency of adsorbent to be used. In this study, the treated spent grated coconut, *cocos nucifera* was chosen to be investigated for treating dyes contaminant. Parameter or condition such as mass of adsorbent, bed depth, inlet concentration, flow rate and pH value of Methylene blue are fixed for this study. Inlet concentration used 100.0 mg/L, 1.0 g of mass adsorbent at 1.5 cm bed depth. The flow rate 12.0 mL/min and pH value for MB is pH 6 . Breakthrough curve resulted breakthrough time, t_b is 120.8 min at volume v_b is 1450.0 mL. The amount adsorption capacity, q_b at 115.0 mg/g and an exhaustion time, t_{exh} is 220.8 min with volume exhaustion, v_{exh} is 2650.0 mL.. Based on Thomas and Yoon-Nelson model showed that the internal diffusion mechanism and chemical nature process occur in this adsorption.

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