

## **A review of eco-sustainable techniques for the removal of Rhodamine B dye utilizing biomass residue adsorbents**

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### **ABSTRACT**

Rhodamine B is a toxic dye due to its carcinogenic, neurotoxic, and disease-causing properties. Appertaining to the removal of Rhodamine B, the adsorption with biomass residues adsorbent demonstrated positive results. The primary objective was to evaluate the feasibility of various adsorbents used throughout recent years to remove Rhodamine B dye from wastewater. Biomass residues and adsorbents as an alternative to activation have garnered considerable interest among researchers. Microbial enzymes and biomass eliminated Rhodamine B at approximately 76% and 90.1%. In contrast, the adsorption of white sugar using biomass residues, especially AC, achieved 98% in 12 min. Due to the zwitterionic forms of Rhodamine B, the adsorption process has a broad pH range (3–10). Gamhar leaves AC is one of the agriculture waste absorbents with an adsorption capacity of 1000 mg g<sup>-1</sup>. The biomass residue adsorbents appeared to have a high potential for removing Rhodamine B from wastewater.

### **KEYWORDS**

Rhodamine B; Adsorption; Biomass residues adsorbents; Sustainable

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