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A Novel Adsorbent: Barleria Cristata Leaves for Removal of Methylene Blue Dye

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ABSTRACT

The present study is focused on the potential use of cheap and Ecofriendly biosorbent, Barleria cristata (Koranti) leaves to remove Methylene Blue (M.B.) from its aqueous solution. It has been investigated through batch adsorption process. Aqueous solution of M.B. dye was stirred with known amount of adsorbent to determine the adsorption efficiency. The effect of various parameters viz. pH, contact time, adsorbent dose, particle size, concentration and temperature on removal of dye has been studied. The study revealed that the methylene blue dye (8 ppm) showed maximum removal at pH 8, contact time 40 min, particle size 105 µm and adsorbent dose 0.020g. Its adsorption followed pseudo second order kinetics. Thermodynamic analysis showed negative values of ΔG indicating adsorption was favourable and spontaneous, Negative value of ΔH indicate sorption process was exothermic and suggest occurrence of favourable adsorption, While positive value of ΔS indicate increase in randomness at liquid solid interface.

Keywords: Adsorption, Methylene Blue, *Barleria Cristata* leaves, Kinetics and thermodynamic.