



Adsorption study of methylene blue dye on basil seeds in aqueous solutions

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Abstract:Environmental pollution as a result of the dye presence led to serious health problems. In this study, the adsorption by basil seeds was investigated. The adsorption behavior of basil seeds with Methylene Blue dye has been studied by batch method to consider its application in this field. The effects of various experimental parameters like contact time, dosage of basil seeds, initial concentration of the Methylene Blue, pH and temperature have been investigated. The removal percentage is a pH dependent and decreases with increase in temperature, the best removal was at 293K. The adsorption kinetic data are best described by pseudo-second-order kinetic model with good correlation coefficient. The experimental results indicate that Freundlich isotherm describes the biosorption of methylene blue onto the basil seeds better than others at all the temperatures studied. The calculated thermodynamic parameters (ΔG° , ΔH° and ΔS°) show that its adsorption is spontaneous and exothermic in nature.

Keyword: methylene blue, basil seeds, adsorption, isotherm, kinetic.

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