



Study of Adsorption Isotherms of Congo red dye Using Biosorbent (*Polyalthia longifolia* Seeds)

Musale S. S.^{1*}, Kashalkar R. V.²

¹Mewar University, Gangrar, Chittorgarh, Rajasthan 312901, India

²Head of Chemistry Department (Retd), S.P. College Pune, India

Abstract : Study of removal of Congo red from aqueous solution at 500 nm wavelength has been investigated through a batch study. The adsorption process was found to be dependent on adsorbent dose, contact time, pH, initial concentration and temperature of Congo red solution. Solutions of Congo red having concentrations 10, 20, 30 & 40 ppm were used. It was found that maximum removal of dye was 91% for 10 ppm solution, in 120 min with 6.5 pH, 200 mg/50 ml as dose and 40°C temperature. The equilibrium data were described by Freundlich, Langmuir & Tempkin isotherm model. Langmuir isotherm considers monolayer adsorption while Freundlich isotherm considers multilayer adsorption. Adsorption isotherm obtained fitted well into both Freundlich and Langmuir equation but Tempkin isotherm provides a reasonable model for the adsorption of Congo red onto CPPL because of its high value of R^2 . Result suggests that it is a non conventional and efficient biosorbent for the removal of Congo red from aqueous solution and can be used for the development of clean and cheap technology for effluent treatment.

Key words: Adsorption Isotherms, Congo red dye, Biosorbent, *Polyalthia longifolia*.

Musale S. S. et al / International Journal of ChemTech Research, 2017,10(6): 1219-1226.
