



Removal of Remazol Brilliant Blue from Aqueous Solution by Iraqi Porcelanite rocks

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Abstract : It has been studied to removal Remazol Brilliant Blue dye from Aqueous Solution by Iraqi Porcelanite rocks. Conducted a series of experiments have been evaluated several experimental variables included initial dye concentration, contact time, adsorbent dose, initial pH, and temperature. Results showed a maximum absorption of Remazol Brilliant Blue dye in optimal conditions are initial dye concentration (40 mg.L^{-1}), weight of adsorbent (0.06 g), pH solution (6.7) and contact time (20 min). The removal of Remazol Brilliant Blue dye using Iraqi porcelanite rocks has been studied at different temperatures (298.15, 308.15, 318.15, and 328.15)K to determine the adsorption isotherms. The shapes of the isotherms obtained from the experimental data were found to be comparable in all cases to the (S- curve) type according to Giles classification. Langmuir and Freundlich isotherm models were used to describe the experimental isotherms and isotherms constants. Equilibrium data for Remazol Brilliant Blue fitted very well with Freundlich isotherm model. Accounts indicated thermodynamic parameters such as Gibbs free energy changes (ΔG), standard enthalpy changes (ΔH) and standard entropy changes (ΔS). The negative values of (ΔG) in remazol Remazol Brilliant Blue dye at different temperatures indicate possible spontaneous removal (adsorption/sorption) of the mentioned adsorbates on leaf powder surface. The negative value for the standard entropy changes (ΔS) show the decreased randomness at the surface /solution interface to Remazol Brilliant Blue and Iraqi Porcelanite rocks. Standard enthalpy changes (ΔH) value were found to be negative indicating an exothermic nature of the removal processes.

Keywords : Adsorption, Porcelanite rocks, Remazol Brilliant Blue, isotherms, Langmuir, Freundlich.