A comparative survey of linear and non-linear regression analysis on removal efficiency of clinoptilolite for sorption of dexamethasone from aqueous solutions

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ABSTRACT

The present study investigated the ability of clinoptilolite zeolite (CP) for removal of dexamethasone from aqueous solutions. The effects of some factors such as adsorbate concentration, adsorbent dosage, pH and contact time had been studied. Determination of dexamethasone was performed using UV-visible spectrophotometer. Four isotherm models including Freundlich, Langmuir, Tempkin and Sips were evaluated using linear and non-linear regression analysis. Results showed that in acidic condition (pH 4), the efficiency reached to maximum (57%) and linear regression had better performance for analyzing the experimental data. The Langmuir model is better than other isotherms to represent equilibrium data in both linear and non-linear methods.

Keywords: Dexamethasone; Aqueous solutions; Adsorption; Clinoptilolite zeolite; Isotherm

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