

# Regression analysis for the sorption isotherms of basic dyes from wastewater on local feldspath

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## **Abstract**

The sorption of a basic dye, named methylene blue, from aqueous solutions onto local feldspath was studied. The results revealed the potential of this clay to be a low-cost sorbent. The equilibrium adsorption data were analyzed using four widely applied isotherms: Langmuir, Freundlich, Timkin and D-P. In order to determine the best-fit isotherm for this system, two error analysis methods were used to evaluate the data: the coefficient of determination  $R^2$  and the Chi-square statistic test  $X^2$ . Results of the linear and non-linear regression analysis of these four isotherms were compared, and The best-fitting isotherm was found to be Timkin isotherm with the best values of  $R^2$  and  $X^2$ .

**Keywords:** Sorption; Methylene blue; Feldspath; Regression analysis; Timkin ; Isotherms