عنوان مقاله:

Adsorption of Chromium (IV) by a Low Cost Adsorbent Prepared from Neem Leaves

محل انتشار:

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نویسندگان:

A.S Kovo - *Department of Chemical Engineering, Federal University of Technology, Minna*

S.C Olu - *Department of Chemical Engineering, Federal University of Technology, Minna*

E.S Gwatana - *Department of Chemical Engineering, Federal University of Technology, Minna*

خلاصه مقاله:

The adsorption capacity of Neem Leaves powder (NLP) used as a low-cost adsorbent for the removalof Chromium (VI) from aqueous solutions was investigated. During the adsorption process, batch techniquewas used. The effects of initial metal ion concentration, adsorbent dose, temperature, pH and agitation/contacttime on adsorption rate at constant solution pH of 6.4, under a constant temperature of 30°C were studied.The results were analyzed using three adsorption isotherm models; Freundlich, Langmuir and Temkin.Evaluating the correlation coefficients showed that Langmuir isotherm described the data more appropriatelythan the other isotherms. The adsorption capacity (qm) from Langmuir isotherm for Chromium (VI) was foundto be 125.83mg g 1. The effectiveness of Neem Leave Powder (NLP) in the adsorption of the heavy metal(Chromium VI) from aqueous solution, kinetic studies showed that a pseudo second order model was moresuitable than the pseudo first order model. It was concluded that Neem Leave Powder (NLP) can be used as aneffective adsorbent for the removal of Chromium (VI) from aqueous solutions. The adsorption process wasobserved to be exothermic. The negative value of Gibb free energy indicates feasibility and spontaneity of thesystem while the negative values of the entropy and enthalpy indicate randomness and the exothermic natureof adsorption, respectively.

کلمات کلیدی:

Neem leave Adsorption isotherm Adsorption kinetics Chromium (IV) Thermodynamic properties

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