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Cr(VI) Ions Removal from Aqueous Solutions Using Natural Adsorbents – FTIR Studies

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ABSTRACT

The ability of eight natural adsorbents were investigated for adsorptive removal of Cr(VI) from aqueous solutions. Various physico-chemical parameters such as pH, initial metal ion concentration, adsorbent dose level and equi-librium contact time were optimized in batch adsorption technique. A detailed Fourier Transform Infrared Spectrophotometer (FTIR) study of adsorbents and Cr(VI) loaded adsorbents at the optimized condition was carried out to identify the different functional groups that were responsible for the adsorption. The important functional groups like hydroxyl, alkene, aromatic nitro, carboxilate anion, silicon oxide, sulphonic acid etc. were present in the natural adsorbent and were responsible for the chemical adsorption of Cr(VI) from aqueous solutions. The sorption energy calculated from Dubinin-Radushkevich isotherm indicated that the adsorption process were chemical in nature.

KEYWORDS

FTIR, Chromium (VI), Rice Straw, Hyacinth Roots, Saw Dust

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