

## EVALUATING THE EFFECTIVENESS OF CHITOSAN FOR REMOVAL OF HEXAVALENT CHROMIUM FROM WASTEWATER

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### ABSTRACT

Chitosan is a natural biopolymer which is considered as a promising adsorbent to remove heavy metals from wastewater due to its good adsorption properties, low toxicity, and availability. Identification and analysis of the factors affecting the removal of hexavalent chromium using chitosan are vital for the treatment of Cr containing industrial effluents. Main factors which affect removal efficiency include effluent Cr concentration, chitosan loading, mode of operation, pH and presence of other ions. Results of this study show that Chitosan can efficiently remove Cr (VI) at low Cr concentrations, showing higher adsorption capacity than most other natural adsorbents. A study on adsorption kinetics using Langmuir and Freundlich isotherms showed that the acquired data fit better with Freundlich isotherm. Higher adsorption capacities were observed at acidic pH, which can be attributed to the protonation of amine groups. Presence of Cl ions was shown to have a negative impact on adsorption efficiency

**KEYWORDS:** Adsorption, Chitosan, Chromium (VI); Equilibrium & Kinetics