

PR-179**SYNTHESIS AND CHARACTERIZATION OF AMINO-BASED CARBOXYMETHYL CHITOSAN AND ITS ADSORPTION FEATURES TOWARDS CU (II) AND ZN (II) IONS**

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Abstract. Modification of chitosan with new functional groups is of great significance to promote its sorption capacity towards heavy metals¹. In the present work, the sorption characteristics of modified chitosan (CTS-CAA) towards copper and zinc have been tested. Chitosan was functionalized by carboxyl groups after a series of reactions. The new sorbent (CTS-CAA) was depicted by FT-IR, elemental analysis, Differential scanning calorimetry, SEM, XRD, and was utilized for the sorption of both copper and zinc from their aqueous solutions. The sorption tests were carried out by changing pH, contact time, and the initial copper or zinc concentrations were varied against temperature for elucidating the thermodynamic nature of the sorption process. The thermodynamic studies detect that the sorption of both copper and zinc has exothermic and spontaneous nature. The maximum sorption capacity was 270.7 and 124.3 (mg/g) for copper and zinc respectively. The desorption of copper and zinc was greatly accomplished by using 0.5 M of HNO₃ and 0.2 M of urea for copper and zinc respectively.

References

1. Choong Jeon, Wolfgang H. Holl, Chemical modification of chitosan and equilibrium study for mercury ion removal, *Water Research* 37 (2003) 4770–4780.

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