**Abstract**

 In recent years, heavy metal contamination is the major cause for water \_pollution. The current study deals with the trapping of Ni(II) ions employing Tamarind hull (TH) and *Terminalia catappa*seed shell (TCSS) wastes, Ni(II) ions being discharged from various industries viz., electroplating, batteries manufacturing, mining, metal finishing and forging either directly or indirectly into water bodies without adequate treatment. The potentiality of the chosen shells are improvised by treatment with O .1 N Hydrochloric acid for 3 hours and adjusting to pH 5, thereafter referred to as treated Tamarind hull (TTH) and *Terminalia catappa* seed shell (TTCSS). The sorptive efficiency of the two materials are experimentally verified under varied operating factors and conditions by means of batch equilibration method. Investigation of results reveal that both the sorbents exhibited maximum removal of Ni(II) at 0.18 mm particle size, 100 mg dosage and pH 5 .5. But the adsorption capacity for Ni(II)-TTH system is observed . to be 91.59 mg/g (30 minutes contact time) and Ni(II)-TTCSS ·system is 32.43 mg/g (50 minutes contact time) indicating the better sorptive efficiency of TTH. Isotherm analysis of Langmuir, Freundlich and Tempkin models are studied where the best linear. fit is registered for Langmuir plot and constant value supports the performance of TTH. Optimization of the studied materials suggest both the adsorbents to be promising in the sequestration of Ni(II) ions.