



## Abstract

In research work modification of natural glucuronoxylan for the removal of arsenic from ground water was carried out. Hydrogel was isolated from seeds of Cydonia Oblanga. Seeds were soaked in distilled water at different temperatures for different duration to isolate maximum yield of hydrogel. Maximum yield was obtained at 323.15 K. Hydrogel was then modified by using anhydride and sodium bicarbonate. FTIR of simple and modified hydrogel was taken. Transfer of peak from  $1727\text{ cm}^{-1}$  to  $1738\text{ cm}^{-1}$  confirmed that hydrogel has been modified. Sorption experiments were carried out to study the effect of sorbent dosage, pH, initial metal ion concentration, temperature and contact time. Adsorption capacity increases upto sorbent dosage of 20mg, after that adsorption capacity decreases. When concentration of metal ion increases adsorption capacity increases upto 140 mg/L and then start to decreases. Maximum adsorption occur upto 20 minutes. Optimum pH for present work was found to be 6. Study of effect of temperature showed that it is exothermic process because during process temperature decreases by 9%. Kinetic modeling was applied to study whether adsorption follow pseudo first order or pseudo second order. It was found that pseudo second order explains this adsorption process. Sorption isotherms were also applied to fit the data in Langmuir or Freundlich adsorption isotherm. It was found that data of experiment best fit in Langmuir isotherm.