اولین همایش ملی نانوتکنولوژی مزایا وکاربردها
محل برگزاری : همدان دانشکده شهید مفتح
۱۵ اسفند ۱۳۹۲

Fixed-bed column adsorptive removal of Cr(VI) using silver oxide/ sawdust nanocomposite

F. Ostovar [1], R. Ansari [*,2], H. Fallah Moafi [3]

[1] MSc Student, Department of Chemistry, Faculty of Science, University of Guilan, P.O.Box 41635-1914, Rasht, Iran F_os_46@yahoo.com
[2] Professor, Department of Chemistry, Faculty of Science, University of Guilan, P.O.Box 41635-1914, Rasht, Iran ransari271@guilan.ac.ir
[3] Assistant Professor, Department of Chemistry, Faculty of Science, University of Guilan, P.O.Box 41635-1914, Rasht, Iran Fallah.m@guilan.ac.ir

Correspondent author contact phone No: 09113334701

Abstract

This study describes removal of Cr(VI) ions from aqueous solutions using silver oxide sawdust nanocomposite (Ag_2O/SD NC) prepared by chemical precipitation rout. Scanning Electron Microscopy (SEM) and X-ray Diffraction (XRD) techniques were used for characterization of the prepared NC. The effect of various parameters such as feed concentration, feed flow rate and adsorbent amount on the breakthrough curves (BTC) was investigated. Two well-known column adsorption kinetics models including Thomas and Bed Depth Service Time (BDST) were applied to fitting the non- equilibrium experimental data. Desorption studies reveals that recovery of uploaded Cr(VI) from Ag_2O/SD NC or exhausted column regeneration can readily be achieved using a dilute solution of NaOH.

Keywords: Silver oxide, Nanocomposite, Adsorption, Column system, Cr(VI), Regeneration