Absorción de Cromo Hexavalente en soluciones acuosas por cascaras de naranja: (Citrus sinensis) [

2015

text (article)

Analítica

Introduction. Chromium can be found in industrial effluents, usually as CR (III) and CR (VI). The latter is very toxic for all of the life forms and is also mutagenic and carcinogenic in humans. The conventional methods to treat effluents with heavy metals, such as reduction, oxidation, ionic exchange, filtering and membrane technologies are expensive and inefficient at low metal concentrations. The use of biomass eliminates the toxicity problem and allows the recovery of the heavy metals retained, plus the possibility of reusing the adsorbent. Objective. Orange peel as a Cr (VI) in aqueous solutions was studied. Materials and methods. The characterization of the functional groups of the peels was performed by means of an elemental analysis and infrared spectroscopy. The determination of the Cr (VI) concentration was made with the diphenylcarbazide method, by the use of a UV-vis spectrophotometer. Results. The agro industrial waste used shows a 66,6 % removal of Cr (VI) in a 120 minutes period. The phenomenon was better described by the Langmuir isotherm, having a 16,66 mg/g adsorption capacity. The kinetics followed the pseudo-second order adsorption behavior. Conclusions. The most favorable conditions for the Cr (VI) ions adsorption on orange peels were those at a 3 pH and an adsorbent size of 0,425mm.It was demonstrated that the peels can be used to remove Cr (VI) from waste water originated by tannery and other industries
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Editorial: 2015

Tipo Audiovisual: Adsorbente lignocelulósico cinética de adsorción cromo (VI) isoterma de adsorción Lignocellulosic adsorbent adsorption kinetics chromium (VI) adsorption isotherm Adsorvente lignocelulósico cinética de adsorção cromo (VI) isoterma de adsorção

Documento fuente: Producción + Limpia, ISSN 1909-0455, Vol. 10, Nº. 1, 2015, pags. 9-21

Nota general: application/pdf

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Lengua: Spanish

Enlace a fuente de información: Producción + Limpia, ISSN 1909-0455, Vol. 10, Nº. 1, 2015, pags. 9-21
