

Chromium (VI) sorption on quaternized rice hulls

ABSTRACT

The sorption of Cr(VI) from synthetic solution and electroplating waste by quaternized rice hulls was investigated under laboratory conditions to assess its potential in removing Cr(VI). The results show that quaternized rice hulls provided higher sorption capacity and a more workable pH range as compared to the untreated rice hulls. From the Langmuir isotherm the maximum sorption capacity of Cr(VI) was 32.3 mg/g at pH 4.82 at 25°C. Column studies showed that Cr(VI) and Cu(II) from electroplating waste could be successfully removed or reduced using a combination of untreated and quaternized rice hulls. The effect of different anions on the sorption capacity of quaternized rice hulls was discussed.

Keyword: Electroplating waste; Hexavalent chromium; Quaternized rice hulls; Sorption