

Preparation and characterization of silica aerogel immobilized with cyanex 301 for extraction of Zn (II)

Abstract

A new solid phase extractant silica aerogel immobilized with Cyanex 301 {bis(2,4,4-trimethylpentyl) dithiophosphinic acid} (SAWC) was prepared via a sol-gel method and investigated for the extraction of Zn(II) from aqueous solution by a batch extraction technique. It is found that SAWC can extract about 100% zinc at equilibrium pH 1.7. Prepared SAWC was characterized by FT-IR, BET, EDX and SEM which proved the presence of Cyanex 301 into silica aerogel. Moreover, the material is also easily regenerated and reused in the subsequent removal of Zn(II) in five cycles. Therefore, it could be concluded that it may perform as a solid phase extractant in the extraction of metal ions from the aqueous solution.

Keywords

Cyanex 301; Immobilization; Silica aerogel; Solid phase extraction; Zinc