عنوان مقاله:

FABRICATION OF CHITOSAN NANOFIBER BY ELECTROSPINNING PROCESS AND ITS APPLICATION FOR THE REMOVAL OF CD2+, NI2+, PB2+ AND CU2+ IONS FROM AQUEOUS SOLURIONS

محل انتشار:

اولین همایش ملی فناوری های نوین در شیمی و مهندسی شیمی (سال: 1392)

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خلاصه مقاله:

In the current study, chitosan nanofibers were prepared by the electrospinning process and their application for the removal of Cd2+, Ni2+, Pb2+ and Cu2+ were investigated. In the electrospinnig process, the homogeneous electrospun nanofibers with the average diameter and surface area of 158 nm and 260.8 m2 g-1 were obtained by applied voltage of 20 kV, tip-collector distance of 13.5 cm and solution flow rate of 0.2 mL h-1. Batch adsorption studies such as chitosan content, pH and contact time on the removal of metal ions by the chitosan nanofibers were evaluated. Results showed that the adsorption capacity of different metal ions were decreased in order of Pb(II) < Cd(II) < Cu(II) < Ni(II). The kinetic data were analyzed by pseudo-first-order and pseudo-second-order kinetic models. Based on results, the kinetic data were found to follow the pseudo-second-order model for all of metal ions data. The reusability of chitosan nanofibers for the removal of different metal ions was also determined after five sorption–desorption cycles.

کلمات کلیدی:

Chitosan, Electrospinning, Nanofiber, Heavy metal, Adsorption