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Effect of contact time and adsorbent dose on the removal of zinc cation using polypyrrole nanoparticles

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Abstract:

One of the suitable methods for removing heavy metals from aqueous solution is using surface adsorption process. In this article, the effect of Polypyrrole (PPy) nanoparticles and also, the influence of contact time and adsorbent dose on the removal of zinc cation (Zn(II)) from aqueous solution were studied. The Polypyrrole nanoparticles were prepared using Hydroxyethylcellulose (HEC) as surfactant in the presence of Ferric chloride ($FeCl_3$) as an oxidant in various solutions. The capability of separating Zn(II) ions was studied. The results indicate that the removal percentage is related to the Contact time and type and dose of adsorbent. Removal percentage was increased by increasing the adsorbent dose and contact time. The structure of obtained product was determined by FTIR spectroscopy.

Keywords: Polypyrrole, Removal, Zn(II), Nanoparticle, Adsorption, Chemical Structure