



Application of response surface methodology (RSM) for optimization of strontium sorption by synthetic PPy/perlite nanocomposite

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ABSTRACT

The aim of this study is to examine the possibility of strontium (Sr) removal from aqueous solution in batch process by synthesized functional polypyrrol/perlite nanocomposite (PPy/Perlite). The morphology and functional groups of the nanocomposites were characterized by scanning electron microscope (SEM) and Fourier-transform infrared spectroscopy (FTIR). Response surface methodology (RSM) was used to optimize the strontium removal efficiency (%) with three experimental factors using central composite design (CCD). The optimum pH, contact time and amount of adsorbent were 5.12, 28.41 min and 0.23 g, respectively. The maximum removal efficiency of strontium in batch administrations was 97.10%.

Keywords: Strontium; Nanocomposite; Adsorption; RSM; Central composite design; Optimization

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