

عنوان مقاله:

Extraction of Ciprofloxacin in water Samples by nanocomposites of multi-walled carbon nanotubes functionalized with carboxylic acid groups of chitosan chains (MWCNT-Coo/Chitosan/Fe₃O₄) in Biological Samples

محل انتشار:

اولین کنفرانس بین المللی شیمی و مهندسی شیمی ایران (سال: 1399)

تعداد صفحات اصل مقاله: 23

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خلاصه مقاله:

In this method, absorption of Ciprofloxacin in a urine medium was investigated using nanocomposites of multi-walled carbon nanotubes functionalized with carboxylic acid groups of chitosan chains (MWCNT-Coo/Chitosan/Fe₃O₄). The lack of solubility of multi-walled carbon nanotubes in aqueous solutions is a major challenge for such materials in their chemical and biological applications in the industrial sector and the distribution of drugs. In order to solve this problem, factors are used on the surface of the nanotubes and in order to enhance the solubility and power of it, the chitosan material has been used. Chitosans are used as nanocapsules for their particular structure. The alveolar chitosan structure causes more molecular absorption and more efficiency. So inside of the chitosan cone is somewhat non-polar as compared to water and forms a hydrophobic matrix and is used as a microhomogeneous environment. This property of chitosans has made it possible for the materials to be placed as guests in their cones. In this study, we react to chitosan with a carboxylated magnetic carbon nanotube and we have constructed a composite that used SEM, XRD, FT-IR and UV-Vis to test this. Next, we have studied the absorption of Ciprofloxacin in the urine medium and the pH and NaCl parameters have been investigated in which an optimal pH of 6 was obtained and it was understood that the addition of NaCl salt did not have a specific effect on drug absorption. SEM, FT-IR, and XRD spectra were used in each step to prove absorbent synthesis.

کلمات کلیدی:

Carbon Nanotube, Chitosan, Ciprofloxacin, Magnetic, Composite

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