

عنوان مقاله:

Synthesis of Halloysite/Zein Nanocomposite for Controlled Drug Delivery of Phenobarbital Sodium

محل انتشار:

بیست و ششمین سمینار شیمی آلی ایران (سال: 1397)

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خلاصه مقاله:

Today, Halloysite nanotubes (HNTs) are used due to its high internal diameter, abundance, non-toxicity, high compatibility and availability in drug release systems. By adding a coat and synthesis a nanocomposite, the release rate of the drug can be further reduced. In this study, zein protein was used for coating and fabricate nanocomposites. Fabrication of nanocomposites was done via creating an electrostatic force between Halloysite and Zein via adjusting the pH via layer by layer synthesis. Synthesis of nanocomposite was assessed by FT-IR, Zeta potential, scanning electron microscopy, dynamic light scattering, X-ray diffraction, differential scanning calorimetry, and thermogravimetric analysis. Then, loading and release of the phenytoin sodium from pure nanotubes and nanocomposites was investigated using Ultraviolet-visible spectrophotometry. The results showed that the loading of the drug by the nanocomposite was twice as high as the loading of pure halloysite. The release rate of the drug also dropped dramatically, so that 50% of the drug loaded in halloysite was released in the first hour and the same amount of drug was released from the nanocomposite within 9 hours.

کلمات کلیدی:

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