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عنوان مقاله:

Kinetic and thermodynamics analysis: effect of eudragit polymer as drug release controller in electrospun nanofibers

محل انتشار:

فصلنامه ارتباطات شیمی ایران, دوره 8, شماره 2 (سال: 1399)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

The purpose of the present study was investigating kinetic and thermodynamic analysis using eudragit (EUD) polymer as controller to drug release mebendazole. nanofibers containing various proportions of EUD polymer, that were prepared with electrospinning technique. In this study, the amount of drug mebendazole release was investigated using nanofibers containing EUD at concentrations 50, 250, 500 ppm as controller at 0 -312 time by a Spectrophotometry (UV) method Measured. For every Nanofiber at 25 °C, 31 °C, 37 °C, and 43 °C, drug release studies were performed for 72 h. The nanofibers of EUD 500ppm, EUD 250 ppm and EUD 50ppm had the highest resistance to drug release, respectively. The results showed that EUD plays a very good role in controlling drug release at the nanofiber. Experimental data were done fitted better with the Sahlin-Peppas model. Kinetic studies have shown that due to the hydrophilic nature of EUD, both diffusion and swelling mechanisms contribute to the drug release process. Thermodynamic analysis showed that drug release leading to increased disorder (ΔS<0) is also an endothermic process (ΔH> 0) and at all controlling concentrations is not spontaneous (ΔG> 0). As the amount of the .controller increases, activation energy increases

کلمات کلیدی:

Drug release, thermodynamics, kinetic, electrospinning, eudragit, mebendazole

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