عنوان مقاله:

Controlled release of cefazolin sodium antibiotic drug from electrospun chitosan-polyethylene oxide nanofibrous mats

محل انتشار:

شانزدهمین کنگره ملی مهندسی شیمی ایران (سال: 1397)

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خلاصه مقاله:

Electrospun chitosan–polyethylene oxide (CS-PEO) nanofibrous mats containing cefazolin, fumed silica (F. silica) and cefazolin-loaded fumed silica nanoparticles (NPs) were produced for biomedical applications. The FE-SEM images revealed that the F. silica and F. silica-cefazolin NPs had average diameters of 4010 and 6015 nm, respectively. Also, the fibers diameters were approximately 16030, 9020 and 7015 nm for the pure CS-PEO, CS-PEO-1% F. silica and CSPEO- 1% F. silica-0.5% cefazolin nanofibrous mats, respectively indicating addition of F. silica and cefazolin loaded F. silica NPs to the CS-PEO mat led to decreasing the nanofiber diameter. The cefazolin release from mats was sharply increased within first 24 and 6 hours for the CS-PEO mats including 2.5% cefazolin and 1% F. silica-0.50% cefazolin but after that the drug was released very slowly. The sustained drug release for CS-PEO-1% F. silica-0.50% cefazolin suggested that it was the best nanocomposite tissue/device for biomedical applications among .the mats CS-PEO-2.5% cefazolin and CS-PEO-1% F. silica

کلمات کلیدی:

.Electrospinning; Chitosan–polyethylene oxide; Nanofibrous mat; Fumed silica; Cefazolin