عنوان مقاله:

Preparation of Curcumin-Containing Beta Cyclodextrin Conjugated chitosan Multifunctional Nanoparticles: Improved Anti-cancer efficacy

محل انتشار:

دومین کنگره ملی شیمی و نانو شیمی از پژوهش تا فناوری (سال: 1398)

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خلاصه مقاله:

A modified inclusion complex was prepared by chitosan (CS) nanoparticles in acetic acid 1% with cyclodextrin(CDs) of beta-cyclodextrin for the sustained and controlled effects of various pharmacology of curcumin (CUR). Curcumin (CUR) has various pharmacological effects, but its extensive first-pass metabolism and short elimination half-life limit its bioavailability. CUR-CD was then encapsulated into positively charged biodegradable chitosan (CUR-CD-CS) nanoparticles. Therefore, transdermal application has become a potential alternative to delivery CUR. To increase CUR solubility for the development of a transparent homogenous and also enhance the permeation of CUR into the cells of body, nanoparticle complex CUR/CDsCS as drug was developed. The drug bioactivity studies were performed and found that modified complex occurs excellent which is due to CS 1% and diffusion of CUR/ beta -CD from CS nanoparticle. The drug characterization data best fitted. Antioxidant efficiency of CUR/β-CD-CS was found to be 50%. Further, the complexed particles possessed significantly IC50 value (0.06mM of CUR/β-CD-CS1%) indicating its synergistically enhanced radical scavenging property. The antibacterial carried out using the nanoparticle compound, CUR/CDs-CS. Also cytotoxicity studies CUR/CDs-CS on A549 cells reveal the advantage of the CUR/β-CD over CS nanoparticle compound. Overall, CUR in the form of the CUR/ beta -CD-CS improved the solubility further on the penetration of CUR

کلمات کلیدی:

Curcumin; Anticancer; β -cyclodextrins; Modified inclusion complex; Chitosan nanoparticles; A549 cells