عنوان مقاله:

Inhibitory Effects of β-Cyclodextrin-Helenalin Complexes on H-TERT Gene Expression in the T47D Breast Cancer Cell

محل انتشار:

یازدهمین کنگره بین المللی سرطان پستان (سال: 1394)

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خلاصه مقاله:

Background: Nowadays, the encapsulation of cytotoxic chemotherapeutic agents is attracting interest as a method for drug delivery. We hypothesized that the efficiency of helenalin might be maximized by encapsulation in β- cyclodextrin nanoparticles. Helenalin, with a hydrophobic structure obtained from flowers of Arnica chamissonis and Arnica Montana, has anticancer and anti-inflammatory activity but low water solubility and bioavailability. β-Cyclodextrin (β-CD) is a cyclic oligosaccharide comprisingseven D glucopyranoside units, linked through 1,4-glycosidic bonds. Materials and Methods: To test our hypothesis, we prepared β-cyclodextrin-helenalin complexes todetermine their inhibitory effects on telomerase gene expression by realtime polymerase chain reaction (q-PCR) and cytotoxic effects by colorimetric cell viability (MTT) assay. Results: MTT assay showed that not only β-cyclodextrin has no cytotoxic effect on its own but also it demonstrated that β-cyclodextrin-helenalin complexes inhibited the growth of the T47D breast cancer cell line in a time and dosedependent manner. Our q-PCR results showed that the expression of telomerase gene was effectively reduced as the concentration of β- cyclodextrin-helenalin complexes increased. Conclusions: β-Cyclodextrin-helenalin complexes exerted cytotoxic effects on T47D cells through down-regulation of telomerase expression and by enhancing Helenalin uptake by cells. Therefore, β-cyclodextrin could be superior .carrier for this kind of hydrophobic agent

کلمات کلیدی:

Breast cancer, Helenalin, Telomerase, β-cyclodextrin