

عنوان مقاله:

Cinnamaldehyde and eugenol change the expression folds of AKT1 and DKC1 genes and decrease the telomere length of human adipose-derived stem cells (hASCs): An experimental and in silico study

محل انتشار:

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خلاصه مقاله:

Objective(s): To investigate the effect of cinnamaldehyde and eugenol on the telomere-dependent senescence of stem cells. In addition, to search the probable targets of mentioned phytochemicals between human telomere interacting proteins (TIPs) using in silico studies. Materials and Methods: Human adipose derived stem cells (hASCs) were studied under treatments with 2.5 μ M/ml cinnamaldehyde, 0.1 μ g/ml eugenol, 0.01% DMSO or any additive. The expression of TERT, AKT1 and DKC1 genes and the telomere length were assessed over 48-hr treatment. In addition, docking study was conducted to show probable ways through which phytochemicals interact with TIPs. Results: Treated and untreated hASCs had undetectable TERT expression, but they did affect the AKT1 and DKC1 expression levels (CI=0.95; $P<0.05$). The telomere lengths reduced in phytochemicals treated with hASCs when compared with the untreated cells ($P<0.05$). Docking results showed that the TIPs might be the proper targets for cinnamaldehyde and eugenol. Data mining showed there are many targets for cinnamaldehyde and eugenol in the intracellular environment. Conclusion: The general effect of cinnamaldehyde and eugenol is their induction of stem cell senescence. Therefore, they could be applicable as chemo-preventive or antineoplastic agents

کلمات کلیدی:

Aging, Cinnamaldehyde, Eugenol, Stem cells, Telomerase, Telomere

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