

عنوان مقاله:

Suppression of $\text{IL-1}\beta$ and $\text{TNF-}\alpha$ by Thymoquinone

محل انتشار:

کنگره توسعه همکاری های علمی منطقه ای علوم صنایع غذایی و کشاورزی (سال: 1397)

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خلاصه مقاله:

This study showed for the first time that the thymoquinone can have anti-inflammatory effects through inhibition of gene expression of cytokines $\text{TNF-}\alpha$ and $\text{IL-1}\beta$ in LPS-stimulated Bovine Fibroblast like Synoviocyte cells (BFLS). BFLS cells were obtained by culture of the bovine synovial fluid that aspirated from the metacarpophalangeal joints of 8-month-old Holstein calves. BFLS cells were cultured and treated with thymoquinone. Cytotoxicity of thymoquinone against BFLS cells was estimated by the MTT test method. The absorbance was measured using an ELISA plate reader at 570 nm. Cells were activated with 100 ng/ml lipopolysaccharide (LPS) for 24 h, and then $\text{TNF-}\alpha$ and $\text{IL-1}\beta$ cytokines gene expression were evaluated by Real-time PCR. MTT method estimated $36\mu\text{g/ml}$ and PIC_{50} ($\text{pIC}_{50} = -\log_{10}(\text{IC}_{50})$) is equal to $2.59\mu\text{g/ml}$. Results of Real-time PCR showed that relative expression of studied cytokines in presence of thymoquinone was down regulated and this reduction in expression is comparable with effects of common drugs, NSAIDs and steroids. While relative expression of $\text{TNF-}\alpha$ in LPS-induced cells was 128, relative expression of this gene in cells that were treated with steroid, NSAID and thymoquinone was 0.004, 0.016 and 0.031 respectively. These results show that thymoquinone can be used as a potent anti-inflammatory agent in OA treatment.

کلمات کلیدی:

Osteoarthritis, Cytokines, Thymoquinone, $\text{TNF-}\alpha$, $\text{IL-1}\beta$

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