

عنوان مقاله:

Cell-bound Exopolysaccharide Extract from Indigenous Probiotic Bacteria Induce Apoptosis in HT-29 cell-line

محل انتشار:

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خلاصه مقاله:

Background and Objective: The aim of this study was to compare the cytotoxic effects of local probiotic bacteria, including *Lactobacillus paracasei*, *Lactobacillus brevis*, while isolated from Tarkhine food and the induction of apoptosis in the HT-29 human colon adenocarcinoma cell line and normal fibroblasts. **Methods:** HT-29 and L-929 cell lines were treated with cell-bound exopolysaccharide extract (cb-EPS) from *L. paracasei* and *L. brevis*. The MTT assay was used to analyze cell viability. Cellular apoptosis was examined by flow cytometry and DNA fragmentation assay. **Results:** The cb-EPS from both probiotic bacteria prevented the proliferation of HT-29 colon cancer cells. In addition, the cytotoxic and anti-proliferative effects of the exopolysaccharide extract from both bacteria in L-929 fibroblasts were much lower than HT-29 cells. The induction of apoptosis in HT-29 cells was observed at 48h compared with 72h. It seems that the exopolysaccharides extracted from both bacteria have a greater effect on the induction of apoptosis at 48h. The cb-EPS of *L. brevis* showed more potent anti-proliferative and apoptotic properties than the cb-EPS of *L. paracasei*. The ladder pattern of DNA fragmentation confirmed the induction of apoptosis in cancer cells. **Conclusion:** The results of the MTT assay and apoptosis indicate that the induction of apoptosis by the exopolysaccharide from bacteria depends on the dose, time, and strain of bacteria. Further studies may contribute toward the understanding of using these probiotic bacteria as biological products to treat and prevent cancers.

کلمات کلیدی:

Lactobacillus, Probiotic, Apoptosis HT-29 Cells

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