

Abstract

Probiotics are normal flora bacteria microorganisms, when consumed generally by improving nutritional benefits, or restoring health benefits. These health benefits include the prevention of bacterial diarrhea, skin eczema, and recently prevented and even controlled in various cancers. So far, different mechanisms of probiotic effects include the following: stimulating the immune system, modifying the composition of normal gastrointestinal and urinary and genital and preventing the carcinogenic activity of fecal enzymes. As the concentration of normal flora is particularly high in the intestine and the nature of the colorectal cancers, probiotics are one of the most important candidates in prevention and treatment these cancers. In this study, direct effects of Lactobacillus Probiotics on tumor cells were investigated. The aim of this study was to determine the effect of cytotoxic bacteria lactobacillus in Koumeh (A kind of Iranian food) on using HCT116 cell line of the clone as a model. HCT116 colonal cancer cells were cultured in DMEM medium. A series of Lactobacillus extracts employing different combinations of extract times (24, 48, and 72 h) were prepared, and cell bioavailability using MTT assay were performed. According to time and dose-dependent model, these MTT assay results indicated that lactobacillus existing in Koumeh, reduced the survival and proliferation of cancer cell type- HCT116 clones, while the highest cytotoxic effect, namely, 250 mg / ml concentration at time of h72 were observed, which is significantly higher than other control treatment tested in this study. Using bacteria cultures, supernatant and bacterial extracts were prepared and cells treated with these factors. By employing a Microculture Tetrazolium Test (MTT) method, the effect of these materials on cell proliferation was investigated, and IC 50 values by using this method was calculated. Cell apoptosis studied using flow cytometry. Our result of study reveals that the lactobacillus extract in the Koumeh had a cytotoxic effect on HCT116 clone cancer cells, which this factor could be the potential role of major bioactive components in the prevention and treatment of cancer. The results showed that Lactobacillus supernatant reduced cell proliferation and also increased apoptosis of cells.

Keywords: Colorectal cancer, lactobacillus, Koumeh, , Probiotic



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