

Probiotic assessment of *Lactobacillus plantarum* 15HN and *Enterococcus mundtii* 50H isolated from traditional dairies microbiota

ABSTRACT

Purpose: Probiotics are microorganisms, which show beneficial health effects on hosts once consumed in sufficient amounts. Among probiotic bacteria, the bioactive compounds from lactic acid bacteria (LAB) group can be utilized as preservative agents. LAB group can be isolated and characterized from traditional dairy sources. This study aimed to isolate, identify, and biologically characterize probiotic LAB strains from Iranian traditional dairy products. **Methods:** A total of 19 LAB strains were identified by sequencing of their 16S rRNA genes. They were examined for adherence to human intestinal Caco-2 cells and tolerance to low pH/high bile salts and simulated in vitro digestion conditions. Moreover, they were evaluated further to assess their ability to prevent the adhesion of *Escherichia coli* 026 to the intestinal mucosa, inhibitory functions against pathogens, and sensitivity to conventional antibiotics. **Results:** *L. plantarum* 15HN and *E. mundtii* 50H strains displayed $\times 71\%$ survival rates at low pH/high bile salts and $\times 40\%$ survival rates in digestive conditions. Their adherences to Caco-2 cells were 3.2×10^5 and 2.6×10^5 CFU mL⁻¹ respectively and high values of antiadhesion capability were observed ($\times 36\%$). They inhibited the growth of 13 and 11 indicator pathogens respectively. Moreover, they were sensitive or semi-sensitive to seven and three out of eight antibiotics respectively. **Conclusion:** *L. plantarum* 15HN and *E. mundtii* 50H, which were isolated from shiraz product, displayed above-average results for all of the criteria. Therefore, they can be introduced as novel candidate probiotics that could be used in the food industry.

Keyword: Adherence; Antimicrobial resistance; Lactic acid bacteria; Probiotic