Prophylactic effects of *Bifidobacterium bifidum* (strains of human origin), probiotic feeding on *Escherichia coli* O157:H7 infection, in rats (*in vivo* antagonism)

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The *B. bifidum* strain (Bf1) was isolated on MRS medium contained 0.5 g/L of cysteine hydrochloride, 2 mg/L of naldixic acid and 0.1 mg of mupirocin. This strain was isolated from (breastfed infant feces). The effectiveness of *Bifidobacterium bifidum* Bf1 as a probiotic against enterohemorrhagic *Escherichia coli* O157:H7 infection was studied using the rats model, were fed the probiotic for 7 days before or after single challenge with *E. coli* O157:H7. Fecal *B. bifidum* Bf1 and *E. coli* O157:H7 counts obtained by selective culturing methods were assessed for 1 week before and after infection while feed intake, body weight and composition were monitored during 1 week after infection. Histology of gut tissue (intestine) was analyzed until 1 and 2 weeks post infection, respectively. The pathogenicity of *E. coli* O157:H7, marked by body weight loss and intestinal histopathological changes in the infected group was significantly reduced in the *B. bifidum* treated group. Feeding *B. bifidum* Bf1 for 7 days before infection resulted in greater post challenge feed intake and weight gain and lower fecal levels of *E. coli* O157:H7. A lesser degree of protection against *E. coli* O157:H7 infection was observed when bifidobacteria were given during the 7 days after *E. coli* O157:H7 infection. These results demonstrate that feeding the probiotic *B. bifidum* Bf1 to rat can reduce the severity of *E. coli* O157:H7 infection and suggest that this strain represents a good candidate for the prevention of enteric infections in human.

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Probiotic effect of Lebanese Darfiyeh cheese: A randomized case control prospective study in the elderly

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A randomized case control prospective method was adopted in this study in order to assess the health benefit associated with the Darfiyeh cheese, a traditional Lebanese raw goat milk cheese ripened in goat skin. 21 participants were recruited and divided into 2 groups: Test group (n=10) and control group (n=11). Venous blood and stools were collected at day 14, 21 and day 0 and 21 respectively. Flow cytometry was performed on blood sample. Fecal samples were plated on Plate Count Agar (PCA) and de Man, Rogosa and Sharpe Agar (MRS) agar in order to monitor any alteration in the gastrointestinal tract (GIT). At day 24, a significant increase by 27.67% (p=0.043) in the bacterial count was seen on the MRS agar for the test group in comparison to no change in the total bacterial count. At day 14 a significant drop (p=0.026) in CD3+/CD4+ population in the test group (35.67 vs. 42.87) and a non-significant drop (p=0.818) in CD8+ (24.76 vs. 28.28) is seen when compared to control group. At day 24, no significant change (p=0.20) in the CD3+/CD4+ population in comparison between both groups and no change in CD8+ or Geo means in both groups. In conclusion, an alteration in the GIT microflora could be hinted at by the lactobacilli bacterium, which was not reflected on the total bacterial count.

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