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In vitro and *In vivo* Safety Analysis of *Enterococcus facieum* 2C Isolated from Breast Milk

Soodabeh Khalkhali[1,2*] and **Naheed Mojgani**[3,4]
[1]Department of Microbiology, Islamic Azad University, Shiraz, Iran
[2]Department of Microbiology, Islamic Azad University, Iran
[3]Biotechnology Department, Razi vaccine and Serum Research Institute, Iran
[4]Research & Development Department, IR Iran

Safety analysis of the probiotic bacteria is an obligatory characteristic evaluated prior to introducing them to food or pharmacological industry. This study was designed to evaluate in vitro and in vivo safety of *Enterococcus faecium*, a probiotic candidate isolated from human breast milk.

E.faecium isolated from breast milk was studied for its hemolytic activities, phenotypic antibiotics resistance profile and antibacterial activities in *in vitro* condition. During in vivo investigations, the oral toxicity of the mentioned probiotic strain was evaluated in Wistar Male rats. The animals were fed daily with dose of 1 x 10^{11} CFU/kg of body weight, respectively, for 21 consecutive days and their hematological, biochemical parameters, organ weight, body weight and common health features were recorded.

The results revealed that *E.faecium* 2C was non-hemolytic, sensitive to majority of tested antibiotics and was able to inhibit the growth of several pathogenic bacteria. During in vivo investigations, the Wistar male rats fed orally fed rats survived during the test period and showed normal growth and development. There were no adverse effects on the general condition, behavior, growth, feed and water consumption, hematology, clinical chemistry values, organ weights and histopathologic analysis of the rats. Results of this study demonstrate that consumption of strain *E. faecium*2C, even in large quantities, is not associated with any obvious signs of toxicity in Wistar rats. All physiological and biological health parameters including body and organ weights, biochemical blood and serum analysis revealed the safety of *E. facieum* isolate in study. None of the vital organs showed the sign of bacteremia or infectivity in the tested rat models.

E.faecium strain isolated from human breast milk is a safe probiotic with several beneficial properties; hence, it can be introduced for use as supplement for man and animals.

Biography:

Ms. Soodabeh Khalkhali, born on January 2, 1981 in Tehran Iran, is a Ph.D. candidate (Microbiology) at Islamic Azad University Shiraz Iran. Her masters and PhD thesis has been on Probiotic bacteria and has published couple of papers on the importance of enterococcus species and significance of candidate probionts in mothers' milk. Ms. Khalkhali is also a part time teacher at a university in Tehran.