Enterococci - probiotics or pathogens?

Abstract: Enterococcus faecium and E. faecalis are natural components of animal and human intestinal microflora. The presence of enterococci in food products is considered as an indicator of fecal contamination and poor hygiene. On the other hand they are present in many traditional fermented foods without any apparent risk. They play an important role in cheese ripening and contribute to taste and flavour. They produce bacteriocins (enterocins) with activity against other enterococci as well as Listeria monocytogenes and Clostridium spp, which can grow in dairy products. In meat products these bacteria are undesirable because of their potential role in spoilage and quality defects. Some strains of E. faecalis and E. faecium are used as probiotics for animals and few strains of E. faecium are used for humans (SF68), especially in the treatment of diarrhea. On the other side enterococci are now leading cause of nosocomial infections in humans mainly endocarditis, bactearemia, urinary tract infections and others. More than 80% of the enterococeal infections are caused by E. faecalis and the remaining by E. faecium. Due to the ease with which enterococci acquire and transfer antibiotic resistance genes (for example vancomycin resistance) they are particularly dangerous. Strains harboring mobile elements carrying resistance genes should not be used either as human or animal probiotics. It is not possible to make a risk assessment of probiotic strain only on the basis of its belonging to a species. The safety of a strain can be assured by its full characterisation e.g. virulence factors and antibiotic resistance genes.

1. Introduction. 2. Enterococci application in dairy and meat industry. 3. Enterococci as probiotics. 4. Nosocomial enterococcal infections. 5. Pathogenecity characters of some strains. 6. Conclusions.