SAFETY ASPECTS OF PRE-SELECTED ENTEROCOCCI FOR PROBIOTIC USE IN IBERIAN DRY-FERMENTED SAUSAGES

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The fermented Iberian dry sausages are adequate for carriage of LAB with probiotic properties since they are usually not heated. The prolific growth of enterococci, a kind of LAB, could lead to formation of biogenic amines (BA). In addition, enterococci have emerged as important nosocomial pathogens of concern. So, for safety consideration, the enterococci strains should be tested for antibiotic resistance, the presence of different virulence traits.

The aim of the present work was evaluated the safety characteristics of preselected enterococci strains to be used as probiotic or bioprotective culture.

A total of 19 Enterococci strains were used in this survey. Production of BA was assessed with the descarboxylase medium and confirmed by HPLC. The hemolytic reaction was recorded on blood agar. The antibiotic resistance was testing against eight antibiotics by agar disc diffusion method. A total of 14 specifically designed primers for the virulence genes were used and detection of vanA and vanB genes was performed by PCR.

All strains were found to be producers of tyramine (Tyr), although the level production of EP488, ES906 and ES907 strains was smaller than 100mg/l (descarboxylase medium negative). Moreover, all strains were γ-hemolitic, sensitive to vancomycin(V) and chloramphenicol(C), resistant to kanamycin and polymyxin B and were clear of potential virulence determinants, except for efaAfm that was found in all of them. Moreover, it was found that 89%, 84%, 73% and 31% of the strains were sensitive to penicillin(P), tetracycline (TE), trimethoprin(W) and erythromycin(E), respectively. In addition, vanA and vanB genes could not be detected by PCR.

EP488, ES906 and ES907 strains were γ-hemolitic, efaAfm+. BA production practically negative and were found sensitive to V, C, P and E, moreover ES906 and ES907 were sensitive to TE and EP488 and ES907 to W. These strains were considered safe to be used as probiotic cultures in Iberian dry-fermented sausages.