Poster (Painel)

1144-1 Brazilian goat milk as a source of bacteriocinogenic strains

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Resumo

Goat breeding in North-East of Brazil´s states is an important source of income for agricultural and pastoral activities. Goat milk indeed is intended for direct consumption and cheese processing. In this study, goat milk was used as source of bacteriocin-producing strains. Many lactic acid bacteria (LAB) produce bacteriocins with rather broad spectra of inhibition and could offer potential applications in food preservation. Production of bacteriocin produced by goat milk isolated strains was tested by agar spot-test against test panel of microorganisms, including *Listeria monocytogenes* from different serological groups and variety of lactic acid bacteria. Bacteriocin producing strains were identified using biochemical, physiological and biomolecular techniques (species specific-PCR and 16S rDNA sequencing). Some aspects of the mode of action against *Listeria monocytogenes* were also studied. A group more than 200 LAB were isolated from goat milk collected from different regions of North-East of Brazil and tested for the production of bacteriocin/s by agar spot-test against several food-borne pathogenic microorganisms. Five isolates (186, 253, 485, 925 and 933) were selected for their effective inhibition on *Listeria monocytogenes*. The selected isolates were classified as member of *Enterococcus* genus according to their biochemical and physiological characteristics. Based on 16S rDNA sequencing, the four isolates was then classified as *Enterococcus faecium*. In MRS broth at 37oC, bacteriocins produced by *E. faecium* 485 and *E. faecium* 925 were produced at much higher levels (3200 AU/mL) compared to bacteriocin produced by *E. faecium* 253 (800 AU/mL) and bacteriocins produced by *E. faecium* 186 and *E. faecium* 933 (200 AU/ml). Their peptides were inactivated by proteolytic enzymes, but not when treated with a-amylase, catalase and lypase. The five bacteriocins remained stable at pH from 2.0 to 10.0 and after exposure at 100oC for 120 min and in presence of surfactants and salts (such as N-Laourylsarcosine, NaCl, SDS, Triton X-100, Tween 20, Tween 80 and urea). In conclusion, the bacteriocins produced by *E. faecium* 186, 253, 485, 925 and 933 activity was determined against several LAB, *L. monocytogenes* from different serological groups and Gram-negative bacteria. Since the strains exhibited a strong antimicrobial activity against different *L. monocytogenes* strains, they should be considered as a potential bio-preservatives starter cultures for fermented food productions. A future study on their technological properties and safety needs to be performed. Acknowledgment: EMBRAPA and CNPq