TITLE: ANTIMICROBIAL ACTIVITY OF TWO BIOMOLECULES PRODUCED BY TWO LACTIC ACID BACTERIA AND THEIR ACTION AGAINST L*isteria monocytogenes* and *Salmonella* spp.

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ABSTRACT:

The growing search for healthier protein sources such as poultry meat, has been causing big concerns referring to the contamination of the meat by pathogenic micro-organisms. Among the pathogens that cause the most enteric diseases in humans are *Salmonella* spp. and *Listeria monocytogenes*. As alternative to avoid the contamination by pathogens and to reduce cases of resistance to antibiotics, there is the use of probiotics, which in addition to providing benefits to the animals and improving the quality of their meat, they can also reduce the viability of the pathogenic microorganisms. Thus, the aim of this work was to produce BLIS (bacteriocin-like inhibitory substances) by the cultures *Lactobacillus salivarius* ATCC 11742 and *Enterococcus faecium* 135, as well its action against *Listeria monocytogenes* IOC 934, *Salmonella enterica* CECT 724 and *Salmonella typhimurium* IOC 5551/16. First, the strains of *L. salivarius* ATCC 11742 and *E. faecium* 135 were grown in MRS for 24 hours at 25ºC, 100 rpm then the broth was centrifuged at 4470g for 15 minutes and the supernatant had its pH adjusted to 6-6.5, it was filtered (0.22µm) and placed in a bath at 70 ° C for 20 minutes for protease denaturation. The antimicrobial activity against the strains of *S. enterica* CECT 724, *S. typhimurium* IOC 5551/16 and *L. monocytogenes* IOC 934 was verified by the inhibition halo technique in which BLIS activity is calculated by the formula $\pi.r^2/v(mL)$ and the result is obtained in arbitrary units AU/mL. BLIS from the *E. faecium* 135 culture, obtained the best results with 24.25 mm halos and 23081.4 AU/mL activity against *L. monocytogenes* and activity of 9429.8 AU/mL and 8831.2 AU / mL against *S. typhimurium* and *S. enterica*, respectively. On the other hand the BLIS obtained from the culture of *L. salivarius* presented reduced activity when compared to that of *E. faecium*, first because it's activity were of 3179.2 AU/mL against *L. monocytogenes* and 3542.3 AU/mL against *S. enterica*, however, it had no activity against *S. typhimurium*. Besides the BLIS production the strains of *L. salivarius* and *E. faecium* also produce organic acids, which have antimicrobial activity, these results elucidate that the use of these two strains can be considered to produce poultry meat.

Keywords: acid latic bacteria, poultry meat, probiotics, biomolecules, pathogenic bacteria.

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