

Antimicrobial activity of lactic bacteria

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Lactic-Acid Bacteria (LAB) are gram-positive bacteria, catalase negative, glucose and other sugar fermenter, from which the main product is lactic acid. The capacity of LAB to inhibit pathogens is well known because of the long time they are used to food preservation. This action is due to several mechanisms and produce acid or active peptides such as bacteriocins. The goal of this project is to evaluate the antimicrobial activity of 14 strains of lactic bacteria, which were isolated from Minas Standard Crafted cheese. Spot-on-the-lawn and well diffusion were the two methodologies used in this work. The selected bacteria were *Escherichia coli* ATCC 25922, *Enterococcus faecalis* ATCC 19433, *Listeria monocytogenes* ATCC 15313, *Staphylococcus aureus* ATCC 29213 and (*Salmonella enterica* subsp. *enterica* serovar Enteritidis ATCC 13076. In the first method, 3µL of the culture of LAB previously grown was added to plates containing 10mL of MRS. After incubation at 98,6°F for 24h, it was added to this agar MRS 9mL of agar BHI semisolid containing 1,0x10⁵UFC/mL of each one of the selected microorganisms. According to the results, *S. aureus* showed higher sensibility (24mm), followed by *E. coli*, *L. monocytogenes* and *S. Enteritidis*. In the second test, the cultures of bacteria were centrifuged at 4000rpm for 10 minutes, and the supernatant was neutralized with pH 7, filtrated. Then, it added catalase to the samples. Simultaneously, in the plates containing 1,0x10⁵UFC/mL of selected bacteria were made wells diameter equal to 3mm, and the prepared supernatant was added. After incubation, the inhibition halos were measured. Among the 14 strains, 8 shown antimicrobial activity against three microorganisms, *S. aures*, *E. coli* and *S. Enteritidis*. The other, *L. monocytogenes* and *E. faecalis*, did not show sensitivity to the lactic isolated. Probably, the detected activity on the test was due to the production of bacteriocins, but it is still needed to confirm the protein nature of the substance.

Keywords: Antimicrobial activity, Bacteriocins, lactic bacteria

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