

TITLE: ANTAGONIST ACTIVITY AND PROFILE OF SUSCEPTIBILITY ANTIBIOTICS OF LACTIC ACID BACTERIA OF GENUS *Enterococcus* spp. ISOLATED FROM ARTISANAL COALHO CHEESE OF SERTÃO OF PARAIBA, BRAZIL

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ABSTRACT

The Coalho cheese is produced from milk coagulation and present lactic acid bacteria (BAL) that participate in the sensorial qualities of the product and may present probiotic characteristics, thus conferring benefits to the hosts. The objective of this work was to evaluate the antagonistic activity and the profile sensitivity to BAL synthetic antimicrobial of the genus *Enterococcus* spp. isolated from Coalho cheese from Paraiba, Brazil. *E. faecium* (15), *E. faecalis* (1), *E. durans* (1) and *E. casseliflavus* (1), activated in broth and Agar De Man, Rogosa and Sharpe agar (MRS), standardized to $0.5 (10^8 \text{ CFU} / \text{mL})$, submitted to the susceptibility process on Mueller Hinton agar (MHA) against amoxicillin-10 μg ; ampicillin-10 μg ; azithromycin-15 μg ; chloramphenicol-30 μg ; cefoxitin-30 μg ; vancomycin-30 μg ; aztreonam-30 μg and colistin-10 μg , and the inhibition halos were measured. Were evaluated against pathogens *Pseudomonas aeruginosa* (ATCC 9027), *Klebsiella pneumoniae* (ATCC 3028), *Staphylococcus aureus* (ATCC 29213), *Escherichia coli* (ATCC 3539), incubated in Brain Heart Infusion-BHI broth were evaluated. The producer species were standardized at $0.5 (10^8 \text{ CFU} / \text{mL})$, and 15 μl of the inoculum were pipetted onto discs present on MRS agar, the indicators were standardized at 10^7 CFU mL^{-1} , poured onto the producers, incubated and gauged. inhibition halos. *E. faecium* was sensitive to ampicillin, chloramphenicol, vancomycin, amoxicillin, cefoxitin variations and resistance to aztreonam and colistin. The other species were similar, but also presented resistance to cefoxitin. Resistance to B-lactams (aztreonam) can be explained by the action of B-lactamases. Studies report large variations in susceptibility and multiple resistance of BAL to antimicrobials, as was also observed in this study. About 61%, 72% and 28% inhibited the Gram-negative indicators *Pseudomonas aeruginosa*, *Klebsiella pneumoniae* and *Escherichia coli*, respectively, and did not inhibit the Gram-positive *Staphylococcus aureus*. The aim of the bacteriocins produced by BAL is the cytoplasmic membrane, but due to the Gram-negative external membrane lipopolysaccharides, they are generally active against Gram-positive bacteria. However, Gram-negative cells became susceptible to bacteriocins after exposure to sub-lethal stress. It is concluded that the productive species present preliminary characteristics of the profile probiotic since they are sensitive to some antibiotics and antagonistic to human pathogens.

Keywords: Coalho cheese; sensitivity antimicrobial; antagonistic; lactic acid bacteria.