

**TITLE:** ANTIMICROBIAL ACTIVITY OF LACTIC ACID BACTERIA ISOLATED FROM RAW MILK AGAINST *STAPHYLOCOCCUS AUREUS* AND *ESCHERICHIA COLI*

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**ABSTRACT:**

Many factors contribute to the assurance of a safe food for human consumption and lactic acid bacteria (LAB) plays an important role in some food products. Its ability to exert strong antagonistic activity against many food contaminating microorganisms contributes to this safety. The selection and addition of new autochthonous LAB isolates can enhance hygiene and food safety, since the lineages of LAB hold distinct technological properties among themselves. The research aimed to evaluate the antimicrobial activity of autochthonous lactic acid bacteria isolated from the northwestern fluminense against pathogens of food origin. Thirty-seven strains of lactic acid bacteria isolated from raw milk from Bom Jesus do Itabapoana, RJ, Brazil, were selected for antagonistic activity detection against *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* ATCC 12600. The overlayed test was performed by LAB strains spread plate on MRS and M17 Agar, with incubation in an anaerobic jar with CO<sub>2</sub> environment at 37 and 30 °C, respectively. After 48hrs incubation, the plates received an overlay of the pathogenic inoculum in semi medium of TSA, being reincubated for 24 hours at 37 °C. Subsequently, the growth inhibition of pathogenic bacteria was observed. The results showed that 64.9% of the tested strains were active against the two pathogens. The antagonism against only one of the pathogens was observed in 2% for each of them. Researchers emphasize the important role that the inhibitory effect of lactic acid bacteria can play in the food industry, so as to improve the quality and safety of food. Considering that the majority of the LAB evaluated in this research has the potential to inhibit both Gram-negative bacteria and Gram-positive bacteria, new studies will be done with these autochthonous strains in order to identify them, with new tests realization to detect their biotechnological, safety and compatibility properties to assess their potential for application in the food industry.

**Keywords:** *Staphylococcus aureus*, *Escherichia coli*, antagonistic activities, inhibitory effect, autochthonous LAB

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