

**TITLE:** Analysis of the antimicrobial resistance profile of *Escherichia coli* and *Staphylococcus aureus* bacteria isolated from artisanal coalho cheeses sold in the Federal District.

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### **ABSTRACT**

Coalho cheese is a food widely consumed in the Federal District, due to the history of northeastern immigration that influenced the cultural habits of the population. It is commonly produced in an artisanal way as a means of encouraging economic-regional development. The artisanal production of these cheeses is often related to problems of good manufacturing practices, favoring the development of potentially pathogenic microorganisms, such as *Escherichia coli* and *Staphylococcus aureus*. Thus, this study aimed to evaluate the antimicrobial susceptibility of *E. coli* and *S. aureus* strains isolated from artisanal coalho cheeses marketed at public food markets in the Federal District. For the isolation of *E. coli* strains, the thermotolerant coliform enumeration method was performed by culturing the samples in *Escherichia coli* broth at 45°C in a water bath for 24 h. Positive tubes were inoculated on Mac Conkey Agar at 37°C for 24 h. For the isolation of *S. aureus* strains, the samples were inoculated, by surface method, on Mannitol Salt Agar at 37°C for 48 h, with subsequent isolation of the strains on Mannitol Salt Agar at 37°C for 48 h for obtaining pure colonies. The susceptibility of *E. coli* and *S. aureus* strains was evaluated using the disk fusion technique (Kirby-Bauer method). Of the 18 samples of coalho cheese analyzed, 61.1% (11/18) presented values higher than those established in legislation (3.0 log NMP/g) for thermotolerant coliforms. The *S. aureus* count exceeded the legal value (3.0 log CFU/g) in 55.6% (10/18) of the samples. In total, 88.9% (16/18) of the coalho cheese samples were unfit for consumption. From the analysis of 18 cheese samples, 16 strains of *E. coli* and 18 strains of *S. aureus* were isolated. The antimicrobial susceptibility profile of *E. coli* strains showed greater resistance to sulfonamides (81.3%), cefotaxime (31.3%) and tetracycline (18.8%). *S. aureus* strains showed greater resistance to sulfonamide (77.8%), cefoxitin (66.7%), amoxicillin-clavulanic acid (38.9%) and tetracycline (38.9%). Therefore, strains of *E. coli* and *S. aureus* isolated from coalho cheeses showed important antimicrobial resistance, which causes public health concerns, especially considering that these bacteria can act as a source of horizontal transfer of antimicrobial resistance.

**Key words:** coalho cheese, *Escherichia coli*, *Staphylococcus aureus*, antimicrobial susceptibility, multidrug resistance

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