

TITLE: ANTIMICROBIAL RESISTANCE OF *ESCHERICHIA COLI* ISOLATED FROM MINAS FRESCAL CHEESE MARKETED AT PUBLIC FOOD MARKETS IN THE FEDERAL DISTRICT, BRAZIL

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ABSTRACT: Brazilian Minas Frescal cheese is one of the most popular cheeses produced in Brazil and is characterized by its soft texture and high moisture content (>55%). These characteristics and the considerable handling during the manufacture of these cheeses are factors that can favor the contamination and growth of spoilage and pathogenic microorganisms, such as *Escherichia coli*. *E. coli* is present in the intestinal tract of humans and warm-blooded animals, has pathogenic serotypes and is an indicator of direct or indirect fecal contamination of foods. Its presence in cheeses indicate poor hygiene conditions during processing and poor milk quality. Thus, this study aimed to evaluate the antimicrobial resistance of *E. coli* strains isolated from artisanal Minas Frescal cheeses marketed at public food markets in the Federal District. For the isolation of *E. coli* strains from the cheese samples, the thermotolerant coliform enumeration method was performed. For analysis, 25 g of each sample were diluted in 225 mL of 0.1% peptone water (w/v). To determine the Most Probable Number of thermotolerant coliforms, the samples were inoculated in Lauryl Sulfate Triptose broth, at 37°C for 24 h. Aliquots of the positive tubes were inoculated in *Escherichia coli* broth (EC broth) in a water bath at 45°C for 24 h. *E. coli* strains were isolated from the EC broth in Agar Mac Conkey medium. The susceptibility of *E. coli* strains to antimicrobials was evaluated using the disk diffusion technique (Kirby-Bauer method). In the results, 38 strains of *E. coli* were isolated from three cheese samples. These samples were considered unfit for consumption because they exceed the limits of Brazilian legislation for thermotolerant coliforms (> 3 log MPN/g). The antimicrobial susceptibility profile of the 38 *E. coli* strains isolated from the artisanal Minas Frescal cheeses samples showed that the strains were more resistant to Sulfonamide (100%), Tetracycline (55%) and Amoxicillin with Clavulanic acid (35%). And of the 38 strains of *E. coli* tested, 21 strains (55%) were classified as multiresistant (strains resistant to three classes of antibiotics or more). As a conclusion, *E. coli* strains isolated from Minas Frescal artisanal cheeses showed a high level of antimicrobial resistance and multidrug resistance, which is a cause for concern due to the high consumption of these products by the population of the Federal District.

Key words: fresh cheese, *Escherichia coli*, antimicrobial susceptibility, multidrug resistance

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