

**TITLE:** EXTRAINTESTINAL PATHOGENIC *ESCHERICHIA COLI* IN RAW MILK CHEESES FROM BRAZIL

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**ABSTRACT:**

In Brazil, the production of cheeses from unpasteurized milk is common, even with a legal prohibition imposed on its commercialization, becoming a public health problem. The contamination involves several pathogenic microorganisms, such as *Escherichia coli*, this due to the poor hygienic conditions during the production and the manipulation. The objective of this study was to investigate the presence of extraintestinal pathogenic *E. coli* in raw milk cheese from Brazil. Cheeses were collected from Minas Gerais, São Paulo, Paraná, Bahia and Mato Grosso do Sul states. Primers used for amplification of DNA fragments corresponded to virulence genes *iroN*, *ompT*, *hlyF*, *iss*, *iutA* and phylogenetic group genes which were searched using multiplex-PCR (Polymerase Chain Reaction). A total of 147 unpasteurized cheese samples were collected in this study. A total of 39 *E. coli* colonies were isolated, of which two (5.12%) were positive for ExPEC, both from the Minas Gerais state. The EC2 and EC16 strains, presented at least four (*iroN*, *ompT*, *hlyF* and *iss*) of the five genes that characterized. Although they are found with higher incidence in chickens and clinical samples, the two positive samples isolated from cheeses presented proposed genes as predictors of APEC virulence and which belong to the conserved virulence plasmidic (CVP) region, however showing that these genes are associated with virulence in humans also. Although the phylogenetic group B2 and D have more virulence factors related to ExPEC than the isolates of A and B1 group, among the ExPEC isolates, both belonged to phylogenetic group A, as well as most of the unpasteurized milk cheese isolates, showing that the contamination may originate from the human microbiota, as a study showed that group A was isolated predominantly in human samples and group B1 of bovine isolates. In conclusion, cheeses made with raw milk collected in the various regions of Brazil indicate contamination by ExPEC and the presence of these microorganisms showed potential risk to consumer health and should be monitored more frequently.

**Keywords:** Extraintestinal pathogenic *E. coli*; Raw milk cheese; Multiplex-PCR.

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