

(032)

**Detection of *Escherichia coli* O157 in Raw and Processed Dairy Products in Colombo District**

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**Abstract**

*Escherichia coli* O157:H7 is a virulent Shiga toxin-producing strain capable of producing *stx1* and *stx2* toxins, which can cause severe gastrointestinal illness in humans, including abdominal cramps, bloody diarrhea, vomiting, and in severe cases, hemolytic uremic syndrome (HUS), particularly in children and the elderly. One major route of transmission is through the consumption of contaminated milk and dairy products. This study assessed the presence of *E. coli* O157 in raw milk, milk products, and commercially available dairy items from the Colombo district. A total of 30 samples including raw cow and goat milk, pasteurized milk, yoghurt, and cheese were collected from 15 locations. Detection methods included microbiological culturing on EMB agar and molecular PCR targeting *stx1*, *stx2*, and *eae* genes. Results showed that generic *E. coli* was present in all goat milk samples and in two of three cow milk samples, indicating potential fecal contamination at the farm level. However, none of the samples tested positive for *E. coli* O157. All processed dairy products were free from *E. coli* and coliforms, highlighting the effectiveness of pasteurization and hygienic processing. These findings confirm that while raw milk can harbor generic *E. coli*, proper processing effectively eliminates bacterial contamination. The study underscores the need for ongoing microbial surveillance, strict adherence to hygiene protocols at the farm and processing levels, and public education to ensure dairy safety in Sri Lanka. Future studies should include larger sample sizes, seasonal variations, and screening for other virulent *E. coli* strains to strengthen risk assessment and inform policy development.

**Keywords:** *Escherichia coli* O157:H7, Dairy products, *stx1*, *stx2*, *eae* gene