

**Microbial Analysis of Common Selected *Enterobacteriaceae* Contaminants of Raw Beef  
Sampled from Selected Retail Butcheries in Kakamega Town, Kenya**

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## **Abstract**

Microbial beef contamination is a significant cause of food spoilage, disease and economic losses. The current study aimed at determining the prevalence and characterization of selected enterobacteriaceae bacteria that are common contaminants of raw beef meat. A cross-sectional study was done that involved collection of 1,296 meat samples from 54 selected butcheries in Kakamega town, Kenya. Meat samples were prepared for isolation and culturing using appropriate and established techniques. After Gram staining and culturing, biochemical tests were also done as confirmatory tests. The study further characterized the various pathotypes of *E. coli*. Statistical analysis techniques such as descriptive statistics and chi-square test of homogeneity were used for data analysis. Samples were obtained from selected 54 retail butcheries in Kakamega town, analysis was done at Masinde Muliro University microbiology laboratory. The study deduced that out of the 1296 samples collected, 548/1296(42.3%) were contaminated with *E. coli*, 80/1296(6.17%) with *Salmonella sp.* and 20/1296(1.54%) with *Shigella spp.* The common pathotype was EPEC (30%) being the most dominant followed by ETEC (24%), EHEC (9.8%) and EIEC (6.2%). Our findings demonstrate that meat sold in Kakamega town is contaminated. *E.coli* pathotypes found to harbour virulent genes. The findings of this study will give an insight into the possible pathogenic strains of bacteria contaminating beef meat retailed in butcheries in Kakamega town and also their virulence so as to ascertain its safety.

**Keywords:** Isolates, Beef, Pathotypes, *Enterobacteriaceae*, Butcheries