

# Molecular Characterization and Antimicrobial Resistance Patterns of *Escherichia Coli* Isolates from Goats Parts of Kenya.

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## Abstract

**Objective:** To determine the antibiotic resistance patterns of pathogenic *Escherichia coli* on goat meat carcass at Huruma and Kiserian abattoirs in Kenya.

**Design:** Laboratory based study.

**Setting:** Huruma and Kiserian abattoirs in Kenya,

**Subjects:** 400 slaughtered goats inspected by veterinary health officers and approved for human consumption.

**Methods:** A Total of 400 slaughtered goats which were inspected by veterinary health officers and approved for human consumption were sampled from Huruma and Kiserian abattoir. Goat carcass swabs were collected by passing each swab tissue on four parts of the carcass mainly neck, right and left forelimbs, right and left hind limbs, and brisket.

**Results:** A total of 54 *E. coli* isolates were isolated and confirmed to be pathogenic. The percentage of isolates resistant to various microbial agents was recorded as follows: ampicillin (26%), amoxicillin-clavulanic acid (17%), tetracycline (15%), chloramphenicol (4%), and ceftriaxone (2% each). All *Escherichia coli* isolates were susceptible to gentamicin sulphamethaxazole-trimethoprim, kanamycin, ceftriaxone (CAZ, 30µg), ciprofloxacin, nalidixic acid and chloramphenicol. Isolates were resistant to one or more of the antibiotics tested. Among the drugs tested, resistance was more frequently observed against ampicillin, amoxicillin-clavulanic acid, tetracycline, and ceftriaxone and chloramphenicol antibiotics.

Among the isolates 26(48%) were positive for the *stx1* gene, 19(35%) had the *eae* gene, 10(19%) possessed *est* gene, while 8(15%) harboured *elt* gene. Overall five isolates (10%) possessed *aspu* gene and two (4%) had *aggR* gene. No isolate possessed *ipah* gene.

**Conclusion:** This study demonstrated that there is a significant level of antimicrobial resistance in pathogenic *E. coli* isolated from goat meat from Huruma and Kiserian abattoir. This indicates that goat meat from abattoirs could pose a risk of transmission of pathogenic antibiotic resistant strains to human. Poor hygienic standards and indiscriminate use of antimicrobials are the two main reasons for the presence of resistant pathogens in goat carcasses.

**Recommendations:** Implementation of appropriate hygiene measures to control contamination of meat with pathogenic *E. coli*.

**Keywords:** *Escherichia. Coli* pathotypes, Antibiotic resistance, Goat meat, Abattoirs.

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