

Microbiological Safety of Fresh Tilapia (*Oreochromis niloticus*) from Kenyan Fresh Water Fish Value Chains

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ABSTRACT

The consumption of food contaminated with microbial populations remains a key route of foodborne infection in developing countries and creates a serious public health burden. This study aimed at identifying foodborne pathogens and their antibiotic resistance profiles in ready-to-eat meat sold in public eateries in the Johannesburg area. A total of 115 samples were examined for the incidence of bacteria pathogens and their antibiotic resistance profiles against commonly used antibiotics (ampicillin, tetracycline, chloramphenicol, erythromycin, ciprofloxacin, streptomycin, and sulphonamides) using the molecular and the disc diffusion methods. Fifteen bacteria species were detected in the samples. *Staphylococcus aureus* had the highest prevalence (25%), and 53.33% of the isolates exhibited multidrug resistance to the antibiotics tested. Among the isolated bacteria, *S. aureus* was resistant to at least six antimicrobial agents, whereas 100% of *S. aureus*, *Enterococcus faecalis*, and *Planomicrobium glaciei* were resistant to streptomycin, ciprofloxacin, and chloramphenicol, respectively. This study revealed that a wide diversity of bacteria species contaminate meat sold on the street, which indicates that consumers of ready-to-eat meat sold in public eateries are at risk of food poisoning. Hence, strict intervention strategies should be put in place by government agencies to reduce the menace of food poisoning in the country.

HIGHLIGHTS

- RTE meats were analyzed for microbial contamination.
- Foodborne pathogens were detected in the meat samples.
- Antibiotic resistance profiles were tested.
- RTE meats contain foodborne pathogens, and isolates exhibited antibiotic resistance.
- Consumers of RTE meat in the Johannesburg CBD are at risk of food poisoning.

Keywords: Antibiotic resistance, Meat, Molecular characterization, Pathogens, Public eateries, Ready-to-eat

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