ANTIBIOTIC RESISTANCE OF GRAM NEGATIVE ORGANISMS
FROM RAW BEEF AND ‘TSIRE’ SOLD IN AHMADU
BELLO UNIVERSITY, ZARIA, NIGERIA

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ABSTRACT
The use of antimicrobials in animal feed formulations has given rise to resistance noticed in bacteria species like Citrobacter, Enterobacter, Escherichia, Klebsiella, Proteus, Salmonella and Shigella, which are commonly associated with food borne diseases. This study was aimed at the detection, characterization and determination of the antibiotic resistance of some Gram negative organisms from raw beef and “Tsire” sold in Ahmadu Bello University, Zaria, Nigeria. A total of 240 raw beef and processed beef (“Tsire”) samples were collected and assayed for bacteria contaminants using standard cultural and biochemical methods. Susceptibility pattern of isolates to conventional antibiotics was also determined. The total bacterial counts for the raw beef ranged from 2.61x10^4±4.89x10^5 to 5.24x10^4±9.41x10^5 while the bacterial counts for the “Tsire” also ranged from 1.37x10^4±1.77x10^5 to 1.87x10^4±2.78x10^5. Though all the counts were within the acceptable range, there was no significant difference in the bacterial counts of these locations (p>0.05). A total of 16 bacterial isolates were isolated namely Escherichia coli which was the most isolated (44%); this was followed by Hafnia alvei with a 25% occurrence, then Enterobacter sakazakii which had 19%, and lastly Klebsiella oxytoca and Tatumella pyseos, which both had an occurrence of 6%. All the isolates (100%) were susceptible to Imipenen, Nitrofuratoin and Chloramphenicol, while 31, 44, 50, 37.5, 88% were resistant to Ampicillin, Tetracycline, Sulfamethoxazole/Trimethoprim, Amoxicillin/Clavulanate and Erythromycin respectively. Polymerase Chain Reaction detection of tetA gene in Tetracycline resistant isolates revealed that only three (18.75%) of the Tetracycline resistant isolates possess TetA gene. The presence of these bacteria in meat should receive particular attention, because their presence indicates public health hazard and gives warning signals for the possible occurrence of food borne intoxication/infection.

Keywords: Gram negative bacteria, antibiotics, resistance, beef, contaminant
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