

Antimicrobial profiles, pathogenic potential, and phylogenetic analysis of *Escherichia coli* isolated from slaughterhouses in Benin-City, Nigeria

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An important transmission route for foodborne pathogens is the contact of processed meat with contaminated surfaces. In our study, *E. coli* isolates from slaughterhouses in Benin City, Nigeria were characterized for biocide and antimicrobial susceptibility, biofilm formation capability, curli fimbriae and cellulose expression. In addition, whole genome sequencing (WGS) was performed to analyse the genetic diversity of the *E. coli* strains and to unravel the resistome and virulome of each isolate. Biocide susceptibility from our study population did not portray resistance to disinfectants since MIC and MBC values were well below in-use concentrations. 61% of the isolates formed biofilms while 31% produced curli fimbriae and/or cellulose. WGS analysis revealed a diverse phylogenetic architecture of the *E. coli* population. Among others, we identified enteropathogenic *E. coli* as well as isolates belonging to major sequence types of extraintestinal pathogenic lineages. Extended-spectrum β -lactamase (ESBL-) producing *E. coli* (n=2) were positive for blaCTX-M-15. Isolates carried plasmids responsible for biofilm formation and virulence promotion. Overall, data from our study revealed that meat processing environments can be a reservoir of ESBL-producing and colistin resistant *E. coli*, which could be culpable in the dissemination of pathogenic clones of environmental and public health concern.

Keywords

Biocides, Antibiotics, resistome, biofilms, environmental health

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Professional Status of the Speaker

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Yes, I am a Junior Scientist.

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