
ID der Kurzfassung : **492**

# Molecular Surveillance of Extended-Spectrum Beta-Lactamase- and Carbapenemase-Producing Escherichia coli from one health interface in Ado-Ekiti, Southwestern Nigeria

## Inhalt

Carbapenem-resistant and ESBL-producing Escherichia coli at the human-animal-environment interface represent an escalating One Health threat. This study characterised ESBL- and carbapenemase-producing E. coli from five One Health source compartments in Ado-Ekiti, Nigeria. Five hundred samples (n=100 per group) were processed; MALDI-TOF MS confirmed identifications; EUCAST 2021 susceptibility testing was performed; ESBL production was confirmed by DDST and Brilliance ESBL/CRE agar; PCR targeted five ESBL and five carbapenemase genes. Ten isolates (five MDR/CRE, five non-MDR controls) underwent Illumina WGS with SPAdes assembly, ECTyper serotyping, PubMLST MLST, AMRFinderPlus, and ABRicate/VFDB profiling. Of 69 confirmed livestock E. coli, 32 (46.4%) were ESBL producers; blaCTX-M predominated (75.0%). Carbapenemase genes were detected exclusively in cattle: OXA-48 (27.5%), VIM (12.5%), and IMP (7.5%). WGS revealed four sequence types —ST10 shared between cattle and pig non-MDR controls, ST196 in cattle MDR, ST226 in environment MDR, and ST348 in an environment control harbouring five AMR genes despite a non-MDR phenotype. The clinical isolate carried the highest AMR burden (18 genes including blaCTX-M-15 and blaOXA-1). These findings provide the first One Health genomic AMR dataset from Southwestern Nigeria, demonstrating that phenotypic surveillance underestimates true resistance burden and highlighting the urgency of WGS-based AMR surveillance.

## Keywords

Escherichia coli; ESBL; carbapenemase; One Health; antimicrobial resistance; whole-genome sequencing

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## Professional Status of the Speaker

PhD Student

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Yes, I am a Junior Scientist.

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