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Polymorphism of 16srrna gene and its association with pathogenicity and antimicrobial resistance of free ranged chicken

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Scavenging local chicken, *Gallus domesticus* are predominant among other poultry in African villages, owing to their relatively low input requirement in their rearing. Few researches focused on the carrier rate of pathogens based on housing system of poultry, and a few studies highlight the genetic basis for these differences.

Objective: This study intends to investigate the molecular and genetic differences that exists between *E. coli* isolated from local scavenging chicken based on their different housing systems. 400 oral-pharyngeal and cloacae swabs were collected from 200 scavenging local chicken. Isolation of *Escherichia coli*. Procedures used were as described in the Bacterial Analytical Manual (BAM 2007). Extraction of DNA based on manufacturer's protocol. 16SrRNA sequencing the 16S rRNA genes in the *Escherichia coli* isolates were detected by PCR and sequenced. Sequenced genes of *E. coli* from the two different housing systems produced distinct haplotypes, no two samples shared same haplotype. The phylogenetic tree revealed that pathogens from the two housing systems are genetically, distinct as they are found on different clades of the tree. The sequence alignment shows that samples from the two different systems have different nucleotide sequence arrangements, an indication of genetic dissimilarity. The intensive system showed more resistance than the extensively kept ones; this may be because the former receive more vaccines while the latter scavenge mainly for food

Conclusion: Thus, the 16SrRNA gene can also be used as a molecular marker to indicate the antimicrobial resistance and pathogenicity of chicken. More research should focus on scavenging local chicken

Biography

Emmanuel Odartei Armah is a Principal Research Technologist with the Water Research Institute, CSIR-Ghana. He holds a Master of Science in Molecular Biology and Biotechnology. His research interests include Antimicrobial resistance, Fish Health and Fish Genetics, Population Genetics in Schistosomiasis. He has a total of 12 publications. He intends to establish a Center for Antimicrobial Resistance Surveillance which would be solely responsible for conducting routine surveillance of antimicrobial resistance of relevant in human, environment and veterinary (One Health).

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