



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

Faculty of Applied Sciences

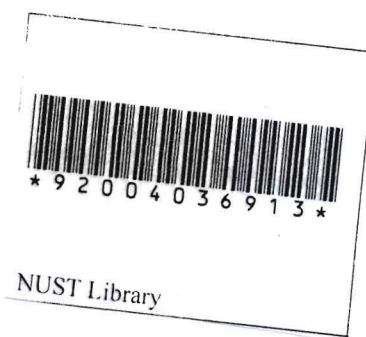
Department of Applied Biology and Biochemistry

**CHARACTERISATION OF AVIAN PATHOGENIC *ESCHERICHIA COLI* IN  
BROILERS BRED IN AND AROUND HARARE, USING ANTIMICROBIAL  
RESISTANCE AND MULTIPLEX POLYMERASE CHAIN REACTION**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR A MASTER OF SCIENCE DEGREE IN APPLIED MICROBIOLOGY AND  
BIOTECHNOLOGY**

## ABSTRACT

Colibacillosis is a disease in poultry caused by avian pathogenic *Escherichia coli* (APEC) strains which lead to great economic losses in the poultry industry. These *E.coli* strains are resistant to some veterinary antibiotics and they also contain various virulence genes which grant the bacteria the ability to spread and cause diseases in poultry hosts. The disc diffusion method and the Multiplex PCR technique were used to characterise 40 *E.coli* strains isolated from the livers, hearts, lungs and yolk sacs of chickens suspected to suffer from colibacillosis. Many isolates exhibited resistance to more than one antibiotic. All the isolates showed high resistance to bacitracin (100%), tetracycline (100%), cloxacillin (100%) and ampicillin (92.5%). All the isolates were sensitive to ciprofloxacin (100%) and gentamicin (95%), and were moderately sensitive to chloramphenicol and neomycin. Multiplex polymerase chain reactions screened 11 different virulence genes in the *E. coli* isolates. Eight virulence profiles were produced.