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**"Molecular identification of virulence genes of pathogenic
Escherichia coli isolated from broiler Chicken"**

Thesis presented

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LIST OF ABBREVIATIONS

AMR	: The antimicrobial resistance
APEC	: Avian pathogenic <i>E. coli</i>
APPCR	: Arbitrarily primed Polymerase Chain Reaction
ATB	: Antibiotic
CFU	: Colony forming unit
CLDT	: Cyto-lethal distending toxin
CLSI	: Clinical and Laboratory Standards Institute
CLT	: Chick lethal toxin
CRA	: Congo red agar
CRD	: Chronic respiratory disease
ECE	: Embryo chicken egg
EHEC	: Enterohemorrhagic <i>E. coli</i>
EIEC	: Enteroinvasive <i>E. coli</i>
ELISA	: Enzyme-Linked Immunosorbent Assay
EMB	: Eosine methylene blue agar
EPEC	: Enteropathogenic <i>E. coli</i>
EPS	: Extracellular polymeric substances
ERIC	: Repetitive intergenic consensus
ESBL	: Encoding broad-spectrum <i>B</i> -lactamase
ETEC	: Enterotoxigenic <i>E. coli</i>
ExPEC	: Extraintestinal pathogenic <i>Escherichia coli</i>
GIT	: Gastrointestinal tract

IBV	: Infectious bronchitis virus
IMViC	: Indole test; Methyl red test; Voges-Proskauer test; Citrate test
IROMPs	: Iron regulated outer membrane proteins
IroN	: Iron acquisition systems
Iss	: Increased serum survival
KDa	: Kilodalton
LPS	: lipopolysaccharide
MBC	: Minimum Bactericidal Concentration
MDR	: Multi drug resistance
MIC	: Minimum inhibitory concentration
NDV	: Newcastle disease virus
NMEC	: Neonatal meningitis <i>E. coli</i>
PAIs	: pathogenicity islands
PCR	: Polymerase Chain Reaction
PFGE	: pulsed-field gel electrophoresis
PU	: palindromic unit
QAC	: Quaternary ammonium compounds
QREC	: Quinolone-Resistant Escherichia coli
RAPD	: Random Amplification of Polymorphic DNA
RDC	: respiratory disease complex
REP	: repetitive extragenic palindrome
SHS	: Swollen head syndrome
SPF	: Specific pathogen free

SPS	: Salpingoperitonitis
TBE	: Tris borate EDTA
TRTV	: Turkey rhinotracheitis virus
<i>Tsh</i>	: Temperature-sensitive haemagglutinin
TSI	: Triple Sugar Iron
UPEC	: Urinary pathogenic <i>E. coli</i>
UTI	: Urinary tract infection
VTEC	: Verotoxigenic <i>E. coli</i>

VI. SUMMARY AND CONCLUSION

APEC is a worldwide and major cause of economic losses in the poultry industry due to morbidity, mortality and lost production, putting at risk one of the world's cheapest sources of high-quality protein.

Our results revealed that over all isolation incidences according to morphology and biochemical characteristics was 38 suspected *E. coli* isolates out of 120 examined samples with a percentage 31.7%.

Serotyping is the basic method for typing of *E. coli* strains. In the present study the results showed that 11 serotypes from a total 38 *E. coli* isolates that have been serotyped. Among the typeable isolates, O78 (8 isolates), followed by O91:H21 (6 isolates), O1:H7 & O128: H2 (5isolates), O2: H6 (4isolates), O146:H21 (3isolates), O55:H7 & O26 & H11. (2isolates), O127:H6, O159& O17:H18.(1 isolate of each).

The results for antibiotic sensitivity showed that most of the isolates were multidrug resistant as they resist at least two antibiotics.

E. coli strains were highly tolerant to disinfectants, with a higher distribution of disinfectant resistance genes, Incorrect and excessive use of disinfectants has imposed selective pressure on strains, resulting in the high level of resistance to disinfectants and the wide distribution of resistant genes. The *E. coli* isolates in our study revealed association between phenotypic biocide tolerance and antibiotic resistance, So Bacteria that are co resistant to disinfectants and antibiotics would pose a significant health risk.

The use of the embryo lethality assay by poultry diagnostic laboratories will enable them to identify pathogenic *E. coli* by a relatively simple and inexpensive test and eliminate the use of the chicken model.

In conclusion, biofilm formation can be seen as an indication of virulence and drug resistance of pathogenic bacteria isolates and biofilm formation has strong correlation with these virulence properties.

Before making any therapeutic decision, antibiotic/disinfectant susceptibility testing is carried out, so as to use the effective antibiotic/disinfectant