Cairo University
Faculty of Veterinary Medicine

Control of Enteric Bacteria in Poultry

A thesis submitted by

Amira Abu Elkheir Shehata Ibrahim

(BVSc, Cairo University, 2009)

For the degree of the (Master)

(Microbiology)

Under Supervision of

Mona I. Hassan
Professor and Head of Microbiology,
Faculty of Veterinary Medicine, Cairo University.

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Cairo University.

Heba B. Mahmoud
Senior Researcher and Head of
Bacteriology Unit,
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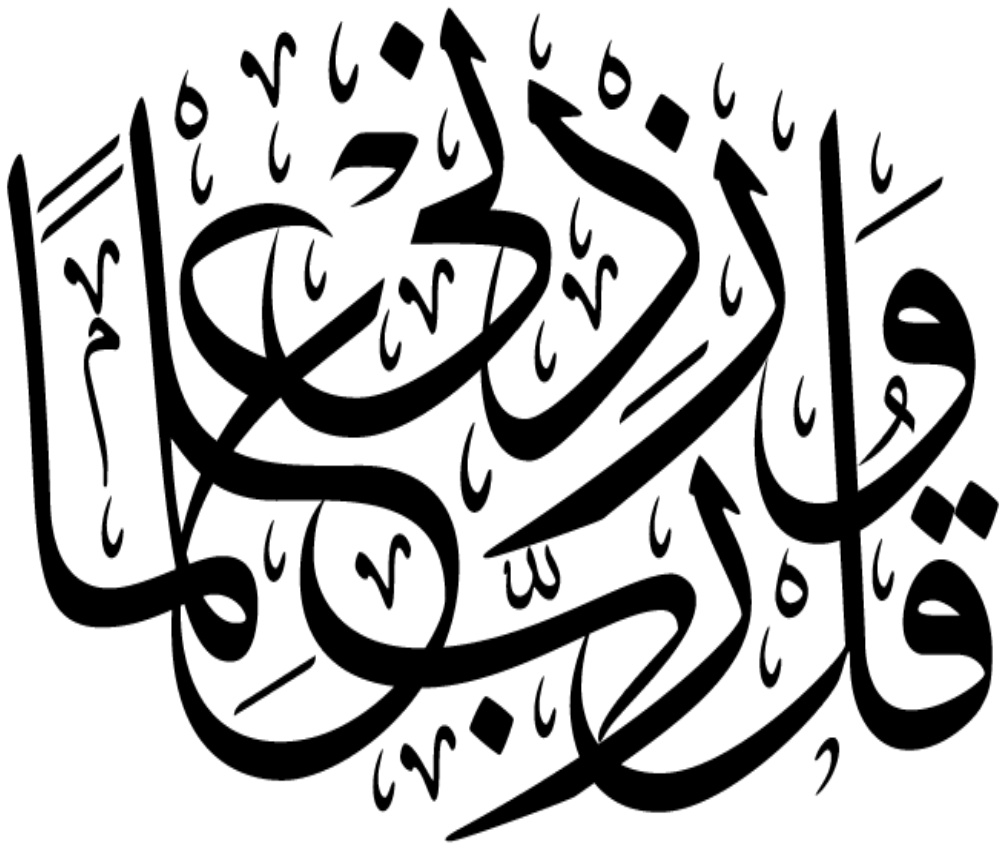
بسم الله الرحمن الرحيم



Cairo University
Faculty of Veterinary Medicine
Department of Microbiology

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ABSTRACT

Salmonellosis in poultry is an important area of study as it not only affects the poultry industry but can also occur in humans. The increasing antibiotic resistance of Salmonella led to growing interest in using natural antibacterial compounds, such as extracts of spices and herbs. In this study, multidrug resistance genes *qnrS and aac (6')-Ib-cr* positive *S.* Enteritidis and *S.* Typhimurium were isolated from chicken organs and muscle. The methanolic extracts of five spices (*Alhagi maurorum, Conyza dioscoridis, Coriander sativum, Caracuma longa* and *Cuminum cyminum*) were shown to have an inhibitory effect against Salmonella. Antibacterial activity of these plants extract was evaluated against isolated Salmonella serovars using minimum inhibitory concentrations. *Conyza dioscoridis* was the most effective extract retarding microbial growth of *Salmonella* Enteritidis, while other plant extracts showed variable antimicrobial activity.

Keywords: Samlomella, antimicrobial, plant extracts, resistance genes.

This work is dedicated to,

My Mother,

My Husband,

My Sons.

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*First of all, I would like to thank **great Allah**, who gifts me everything, who support me with all help and all hope, who enable me to achieve all my success, so that all my thanks for Allah.*

*Then, I would like to express my gratitude for the kindness of **Prof. Dr. Mona Ibrahim EL-Enbaawy**, Professor& Head of Microbiology, Faculty of Veterinary Medicine, Cairo University, for her valuable advices, support and valuable direction during the course of this study.*

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List of Abbreviations

BPW	Buffer peptone water
Cm	Centimeter
H2S	Hydrogen sulphide
(H)	Flagellar Antigen
min	Minute
(O)	Somatic Antigen
No.	Number
RVS	Rappaport-Vassiliadis soya broth
SPP	species
TSI	Triple sugar iron agar
XLD	Xylose Lysine Desoxycholate
S.S	Salmonella shigella
MIC	Minimum inhibitory concentration
CFU	Colony forming unit
ZOI	Zone of inhibition
CN	Gentamicin
S	Streptomycin
N	Neomycin
AMC	Amoxicillin
AM	Ampicilin
ENR	Enrofloxacin
CIP	Ciprofloxacin
CRO	Ceftriaxone
CAZ	Ceftazidine
DO	Doxycycline
TE	Tetracycline
C	Chloromphenicol
SXT	Sulphatrim
P.P.M	Parts- per-millions
MBC	Minimum bacterial concentration
CFU/g	colony forming units per gram
V/V	Volume /volume
MRSA	Methicillin –Resistance *Staph. aureus*
ROS	Reactive oxygen species

Chapter (1)

Introduction