



Suez Canal University
Faculty of Veterinary Medicine
Department of Biochemistry



Some Biochemical Studies on Antiviral Effect of some Medicinal Plants in Chicken

Thesis
Presented By

Dina Kamal Arafa

(B.V.Sc. 2006) Suez Canal University

(M.V.Sc. 2011) - Suez Canal University

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**The degree of PhD in Veterinary Medical Sciences
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Under supervision of

Prof. Dr. AbdelRehim A. ElGhannam

Professor of Biochemistry,
Faculty of Veterinary Medicine,
Suez Canal University, Ismailia.

Prof. Dr. Abeir A. Shalaby

Professor of Biochemistry,
Faculty of Veterinary Medicine,
Suez Canal University, Ismailia.

Prof. Dr. Dalia Mansour Hamed

Professor of Avian and Rabbit diseases,
Faculty of veterinary Medicine,
Suez Canal University, Ismailia.

Prof. Dr. Abdullah A. Selim

Chief Researcher of Poultry
Diseases and Technical Manager
at Reference Lab for Quality
Control on Poultry Production.

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Author Dina Kamal Arafa

Title Some Biochemical Studies on Antiviral Effect of some Medicinal Plants in Chicken.

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Supervision committee **-Prof. Dr. Abdelreheem A. El Ghannam**
Professor of Biochemistry,
Faculty of Veterinary Medicine, Suez Canal University.
-Prof. Dr. Abeir A. Shalaby
Professor of Biochemistry,
Faculty of veterinary Medicine, Suez Canal University.
-Prof. Dr. Dalia M. Hamed
Prof. of Avian and Rabbit Diseases,
Faculty of Veterinary Medicine, Suez Canal University.
-Chief Researcher Abdullah A. Selim
Chief researcher of Poultry Diseases and
Technical Manager at Reference Laboratory of
Veterinary Quality Control on Poultry Production.

English Abstract

Cinnamaldehyde and Carvacrol are two essential oils of medical importance. They have been used as antibacterial in chicken but few studies have been done in their antiviral activity. *In vitro* and *in ovo* studies were performed to evaluate their cytotoxicity and antiviral activity on MDCK cell line and in SPF eggs, respectively. The cytotoxicity assay showed the higher toxicity of Carvacrol and their herb mix 1:1 when compared to Cinnamaldehyde alone. The three *in ovo* treatment of using each herb alone and their binary combination showed no antiviral activity. The *in vivo* study was done in SPF male chicks, 40 chicks were divided into 4 groups: control negative "E", control positive group "I", Vaccinated group "F", Vaccinated+herb mix treated group "G" (groups I, F, G was exposed to vNDV infection at day 28 converted to I, F', G') infected. HI results and NO, showed non significant results. vNDV infection cause significant increase in antioxidant enzymes, total antioxidant capacity, liver enzyme AST and creatinine. Herb mix results was significant increase in GSH at day 28 with non significant decrease in MDA. The significant increase of B1 band in polyacramide gel protein electrophoresis indicated the anti-inflammatory effect of herb mix treated group "G" and these biochemical results was confirmed by hispathological examination.

Keywords : Cinnamaldehyde – Carvacrol-Essential oils- Antivirus- Newcastle disease.

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List of Abbreviations

iNOS	Inducible nitric oxide synthase
I κ B- α	Nuclear factor kappa inhibitor alpha.
LPS	Lipopolysaccharide
M	Matrix
MAPK	Mitogen activated protein kinase
MDCK	Madin-Darby canine kidney
mg	Milligram
MgCl ₂	Magnesium chloride
MIC	Minimum inhibitory concentration
ml	Milliliter
mm	Millimeter
mm ³	Cube millimeter
mmol	Millimole
MTT	3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl-tetrazolium bromide
ND	Newcastle disease
NDV	Newcastle disease virus
NEDA	Naphthyl ethylenediamine
NF- κ B	Nuclear factor kappa-light-chain-enhancer of activated B cells.
nm	Nanometer
nmol	Nanomol
NP	Nucleoprotein
OIE	Office of international epizotes
Ovo-Tf	Ovotransferin
P	Phosphoprotein
PI	Post infection
PM	Postmortum
pmol	Picomol
ppm	Part per million
RNI	Reactive nitrogen intermediate
ROS	Reactive oxygen species
S. typhimurium	Salmonella typhimurium
SAA	Serum Amyloid A
SDS-PAGE	sodium dodecyl sulfate polyacrylamide gel electrophoresis
SPF	Specific pathogen free
TBA	Thiobarbituric acid
TC	Thymol and Cinnamaldehyde
TLRs	Toll like receptors

List of Abbreviations

TNF α	Tumor necrosis factor alpha
v/v	Volume per volume
Velo	Velogenic
vNDV	Virulent Newcastle disease virus

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