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

Thesis
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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-inflamatory effect of herb mix treated group "G" and these biochemical results was confirmed by hispathological examination.

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

Contents

List of Abbreviations

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iNOS ……...	Inducible nitric oxide synthase
IκB-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-κB ……	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. typhinurium ……...	Salmonella typhinurium
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

TNFα …….	Tumor necrosis factor alpha
v/v ……..	Volume per volume
Velo ……	Velogenic
vNDV …….	Virulent Newcastle disease virus

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