بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / سلوي محمود عقل

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات:
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Cairo University
Faculty of Veterinary Medicine
Dept. of Biochemistry and Chemistry of Nutrition

"Effect of probiotics on some growth related genes in broilers"

A Thesis presented by

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For

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(Biochemistry and Chemistry of Nutrition)

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ABSTRACT:

The study aimed to evaluate two newly introduced two probiotics, that widely used lately in Egyptian farms: Biosol (lipotropic factor containing probiotics) and/or Zemos. Their effects on growth performance, blood parameters, carcass traits, and some growth and immunity-related genes transcription in broiler chickens, were investigated to figure out the best regimen for their use in improving growth performance. 400 one-day-old Cobb broiler chicks were furnished by a commercial hatchery and randomly distributed into four equal groups of 100 birds each. Group 1 was used as a control group. Each day, Group 2 received 120 g/10,000 chick a daily intake of Probiotic 1(Biosol) in drinking water. Group 3 supplemented a three day interval of probiotic 2 (Zemos) at a dose of 0.25mL/L of drinking water. Group 4 received a combination of 2 probiotics (Biosol + Zemos), with the same weekly dose of each probiotic given alternately. All chickens were fed and hydrated ad libitum during the trial, and exposed to light for 24 hours. Chicks fed diets enriched with Biosol and (Biosol + Zemos) gained more weight and had lower feed conversion rates, according to our findings. Total protein levels increased while cholesterol and triglyceride levels decreased. We can sum that treating broilers with probiotics, particularly Biosol, can improve their growth performance as well as the biochemical features of their blood and transcript levels of the genes under study.

Keywords:

Probiotic; Broilers; Performance; mTOR; Smyd; TLR-4; NBN

Dedication

This thesis is Dedicated to

My Allah Gift , Lovely Family Members,

Especially Those Who Left Us,

Their Love Will Remain In My Heart Forever

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Nessma Hassan

CONTENT

LIST OF ABBREVIATIONS

4E - BP	4E – Binding Protein
AdoMet/ SAM	S.Adenosyl Methionine
AGP	Antimicrobial Growth Promoter
AMPK	Adenosine Monophosphate – Activated Protein Kinase
AP - 1	Activator Protein 1
BW	Body weight
CTBP	C.Terminal Binding Protein
CXCL	Chemokines
DAMP	Damage Associated Molecular Pattern
DC	Dentritic Cell
DEPTOR	DEP domain Containing Mtor Interacting Protein
EIF4E - BP1	Elongation Factor 4E. Binding protein 1
ELF	Elongation Factor
ERK	Extracellular Signal – Regulated Protein Kinase
EU	European Union
FCR	Feed Conversion Rate
FKBP	FK 506 Binding Protein
FRAP	FKBP- Rapamyain Associated Protein
GIT	Gastrointestinal Tact
GPCR	G - Protein Coupled Receptors
HMTase	Histone Methyltransferase
IFN	Interferon

IFRF3	Interferon Regulatory Factor 3
IGF - 1	Insulin-Like Growth Factor 1
IL	Interleukin
IRAK	IL – 1R Associated Protein Kinases
IRS1	Insulin receptor substrate 1
MAF1	Repressor of RNA polymerase III
MAP	Mitogen-Activated Protein Kinase
MEK	Mitogen-activated protein **kinase**
MLST8	Mammalian Lethal With Sec 13 Protein 8
MRF	Muscle Regulatory Factors
MSIN1	Mammalian Stress Activated Map Kinase Interacting Protein 1
MSTN	Myostatin
mTOR	Mammalian Target of Rapamycin
MyoD	Myogenic Differentiation Antigen
MyoG	Myogenin
NBN	Nibrion
NE	Necrotic Enteritis
NF - KB	Nuclear Factor Kappa B
NK	Natural Killer
PAMP	Pathogen Associated Molecular Pattern
PDK1	Prosphoinositide Dependent Protein Kinase 1
PRAS40	Proline Rich Akt Substrate
PXLXP	Proline – Rich Motif
RAPTOR	Regulatory Associated Protein of Mtor

REDD	Regulated in development and DNA Damage Response Protein 1
RHEB	Ras Homolog Enriched in Brain
RICTOR	Rapamyain – Insensitive Companion of Mtor
S6K1	Ribosomal protein S6 kinase 1
SCFA	Short Chain Fatty acid
TLR	Toll Receptor
TPR	Tetratri coPeptide Repeat
TRAF6	TNF Receptor Associated Factor 6
TSC	Tuberous Sclerosis Complex

INTRODUCTION

Feed additives are compounds added to the feed to improve the nutrients' efficacy and their effects on poultry performance **Ashour *et al.* (2020)**.

The wide range of beneficial effects of feed additives and nutritional supplements such as boosting growth and production, immunological strengthening, and health protection, are progressively becoming increasingly important in the chicken industry, as well as in healthcare systems **Abd El-Hack *et al.* (2020)**. Antibiotics, prebiotics, probiotics, synbiotics, oligosaccharides, organic acids and enzymes are among the feed additives used in poultry feed **Bin-Jumah *et al.* (2020)**.

Antibiotics have been applied as growth enhancers in animal feed over the past 50 years in European Union member states. Antimicrobial growth promoters (AGPs) were banned in the European Union (EU) in January 2006 **Vahdatpour and Babazadeh (2016)** to prevent the development of resistance and remove drug residues from food. Drug residues can induce allergic reactions, antibiotic resistance, cancer, and a variety of other health problems **Hamid *et. al.* (2019)**.

Necrotic enteritis (NE) is one of several diseases that have been spread as a result of the antibiotics use ban. NE is one of the most costly diseases in the poultry sector caused by *Clostridium perfringens*, causing high losses among affected broilers, bodyweight loss, and increased therapy costs.

It's critical to look for antibiotic alternatives to increase broiler performance and gut health. **El-Sheikh *et al.* (2019)**.