



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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التوثيق الإلكتروني والميكروفيلم

قسم

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MONA MAGHRABY



Cairo University
Faculty of Veterinary Medicine



Mineral Nutrition, Health and Performance Interrelationship in Broiler Chicken

Thesis presented

By

Basant Mohsen Sobhi Mohamed

(B.V.Sc., Cairo University, 2013; MVSc, Cairo University, 2016)

For the Degree of Ph.D.

(Nutrition and Clinical Nutrition)

Under supervision of

**Prof. Dr. Khaled Nasr El-Deen
Fahmy**

Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine
Cairo University

**Prof. Dr. Esam Yousef
Ismael**

Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine
Cairo University

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Cairo University
Faculty of Veterinary Medicine
Department of Nutrition and Clinical Nutrition

Approval sheet

This is to approve that the thesis titled (Mineral Nutrition, Health and Performance Interrelationship in broiler chicken)

Presented by

Basant Mohsen Sobhi

To Cairo University

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Has been approved by the examination committee:

1. 11. 2020

Prof. Dr. Hassan Abbas Mohamed Abdel-Rehem

Professor of Animal Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine, Assuit University

Hassan Abde

Prof. Dr. Mohamed Ahmed Tony

Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine, Cairo University

M. A. Tony

Prof. Dr. Khaled Nasr El Deen Fahmy

Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine, Cairo University (**Supervisor**)

Khaled Nasr

Prof. Dr. Esam Yousef Ismail

Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine, Cairo University (**Supervisor**)

Esam Y. Ismail

SUPERVISION SHEET

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SUPERVISION COMMITTEE

Prof. Dr. Khaled Nasr El-Deen Fahmy

Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine
Cairo University

Prof. Dr. Esam Yousef Ismail

Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine
Cairo University

Name of candidate: Basant Mohsen Sobhi Mohamed
Date of birth: 4/1/1992
Nationality: Egyptian.
Career: Assistant Lecturer
Faculty: Veterinary Medicine
Department: Nutrition and Clinical Nutrition
Degree: Ph.D.
Title of thesis: Mineral Nutrition, Health and Performance Interrelationship in Broiler Chicken
Under supervision of:
Prof. Dr. Khaled Nasr El-Deen Fahmy
Prof. Dr. Esam Yousef Ismail

ABSTRACT

Two feeding trials were conducted to evaluate the impact of a feed supplement and nano-mineral on growth performance, carcass traits, immune response, histomorphological profile, serum calcium and phosphorus and bone mineralization in broiler chickens. Experiment I was carried out using 1092 one-day-old unsexed broilers of Ross 308 strain were randomly allocated into two treatment groups, each group consisted of 546 birds divided into 6 replicates with 91 birds each. The first group fed a basal diet without yeast-based Zn, Se and Cr supplementation (control). The second group fed the basal diet supplemented (per kg diet) with 1.5 mg, 0.15 mg and 2 µg of Zn, Se, and Cr, respectively offered as yeast-based one mix, added at the rate of 50 g/ton. Experiment II was assigned using 160 One-day-old un-sexed Arbor Acres Plus broiler chickens which were randomly divided into four treatment groups of four replicates with 10 birds in each replicate. Group 1 served as control and fed diet containing 2% DCP (100% DCP); Group 2 having 1% DCP plus 0.1% NHA (50% DCP); Group 3 having 0.5% DCP plus 0.1% NHA (25% DCP); Group 4 having a 0.1% NHA only (0% DCP). Addition of yeast-based Zn, Se and Cr increased ($P < 0.05$) the growth rate, carcass weight, dressing percentage, and both breast and thigh yield, but decreased feed intake and feed conversion ratio compared to the control. The antibody titer against Avian Influenza and the relative weight of bursa, thymus and spleen were increased ($P < 0.05$) in broilers supplemented with yeast-based Zn, Se, and Cr compared to those fed the control. The intestinal villi height and crypt depth and bursa diameters were increased in broilers fed the yeast-based Zn, Se and Cr supplemented diet compared to those fed the control diet. The dietary supplementation of 0.5% DCP plus 0.1% of NHA (diet 3) or 0.1% of NHA (diet 4) decreased the excreted P ($P < 0.05$) without negative impacts on body weight gain, feed intake and feed conversion ratio compared to the control group. The serum Ca-P profile, tibial bone ash, Ca and P levels did not differ significantly ($P > 0.05$) among experimental diets. In conclusion, dietary supplementation of yeast-based Se, Cr, and Zn in combination has a positive effect on growth performance, carcass traits, immune responses and histomorphological parameters in broiler chickens. Also, we can safely conclude that dietary supplementation of 0.1% of NHA could be used instead of 100% inorganic DCP in broiler diets without negative effect on growth performance.

Key words: Broiler chicken, Organic Minerals, Nano-Minerals, Performance, Carcass traits Immunity, Phosphorus excretion.

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Dedication

To my Mother,

To my Father,

To my Brother,

To my Sisters,

To my Friends,

To my Soul KARMA

