EFFECT OF PREHATCHING ADMINISTRATION OF SOME GROWTH PROMOTORS AND IMMUNE MODULATORS ON POSTHATCH DIGESTIVE TRACT AND LYMPHOID ORGANS DEVELOPMENT AND PERFORMANCE OF BROILERS

By

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B. Sc. Vet, Albaath University, 1995, Syria

A thesis submitted in partial fulfillment
Of
the requirements for the degree of

MASTER OF SCIENCE
in
Agricultural Sciences
(Poultry Physiology)

Department of Poultry Production
Faculty of Agriculture
Ain Shams University

2017

Approval Sheet

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ABSTRACT

Mohamed Bakour Falah: Effect of Prehatching Administration of Some Growth Promotors and Immune Modulators on Post hatch Digestive Tract and Lymphoid Organs Development and Performance of Broilers, Department of Poultry Production, Faculty of Agriculture, Ain Shams University, 2017.

Two hundred and seventy broiler breeder eggs with an average weight of 68.61 g were obtained from a commercial broiler breeder flock (Hubbard) at 48 Week of Age (WOA). About 30 eggs were culled after candling as infertile or early embryonic mortality. At the embryonic day 17 (E17), the remained eggs were divided into six main groups, each of 40 eggs. The first group served as control (C), while the second (positive) and third (negative) control *in ovo* injected with saline solution in air cell (Sr) and in the amniotic fluid (Sm), respectively. Eggs of the 4^{th} and 5^{th} groups were subjected to *in ovo* injection with *Lactobacillus bacteria* at concentration of 9.8×10^9 cfu (0.1ml /egg) into air cell (Br) and the amniotic fluid (Bm), respectively. The 6^{th} was orally inoculated (O) with the same dose of bacteria immediately posthatching. The hatchability and embryonic mortality percentages, post-hatch performance; some blood and histomorphometric measurements of intestinal parts and immune lymphoid organs were investigated.

Hatchability percentage was not affected by treatments, however, a marked decline in the saline-injected group was observed. Injection LB in air cell (Br) had significantly positive affected on live body weights, the body weight gain and feed conversion ratio at 15 DOA. At 35 DOA carcass yield of Br, liver of Br and O and abdominal fat of Br and Bm had significantly increased in response to *in ovo* injection with lactobacillus bacteria. Also *in ovo* injection significantly increased plasma levels of LDL and albumin, while cholesterol and HDL were significantly reduced. ALT and AST were significantly reduced by *in ovo* injection and oral inoculation with *Lactobacillus bacteria*. A significant increase of

digestive enzymes activity of trypsin and chymotrypsin was record in the air cell-injected (Br) compared to other treatments.

Immuneglobulins was increased in the orally inoculated chicks (O) compared to the other groups. A significant increase in IgG in all in ovo injection and oral inoculation treatments compared to the control groups while IgM of the Bm and O groups compared to other treatments. The relative weight of spleen was markedly increased *in ovo* injected groups with bacteria compared to the control groups at 35 DOA.

In ovo injection with bacteria did not affect thyroxine (T4) level, while the level of the T3 hormone was significant increased for chicks in the Br and O groups compared to other groups. Plasma IGF-I was significantly increased in all compared to control groups treatments.

Histological examination of tissues showed an improvement in villi height of treated than control groups. Also, lymphoid organs histology showed an improvement in their architecture compared to control group.

Total bacteria count was significantly increased in the O group compared to C group. While total lactic acid bacteria was significantly decreased in the C group compared to other groups. But for total *Coliform bacteria* and total *fecal Coliform bacteria* was significantly increased in the C groups compared to other groups.

Key words:

in ovo injection, inoculation, oral, *Lactobacillus*, broiler breeder, lymphoid organ, hormones, embryonic.

ACKNOWLEDGEMENTS

I would like to express my deepest thanks and gratitude to my major **Prof. Dr. Ibrahim El-Wardany El-sayed Hassan**, Professor of Poultry Physiology, Department of Poultry Production, Faculty of Agriculture, Ain Shams University, for his keen supervision and continued guidance and encouragement and his invaluable advices during the experimental work and writing of this thesis.

Also I would like to express my deepest thanks and gratitude to **Prof. Dr. Alaa El-din Abd El-Salam Hemid** Professor of Poultry Nutrition, Faculty of Agriculture, Ain Shams University, for his support advice during this work, Providing all necessary facilities for the completion of this work, guidance and encouragement.

I would like also, to express my special thanks and deep gratefulness to **Dr. Mohamed Ibrahim Abdullah Shourrap**, Associate professor of Poultry Physiology, Faculty of Agriculture, Ain Shams University, for all of his sincere effort, encouragement, guidance and patience during the experimental work, valuable advices and continuous help in the statistical analysis of data and writing of this thesis.

I would like to express my gratitude and appreciation to **Prof. Dr. Sayed Shalash** Professor of Poultry Nutrition Animal Production Research Institute, for providing the facilities of this work, his keen interest and encouragement.

I will remain very grateful to **Dr. Shimaa Abdel Raouf Amin Ali,** Lecturer of Microbiology, Department of Microbiology, Faculty of Agriculture, Ain Shams University, for providing the facilities during the experimental work and writing of this thesis.

Of course, I can't forget to thank all the staff members of Department of Poultry Production, Faculty of Agriculture, Ain Shams University, for sincere help and kind encouragement during this study.

Also appreciation is extended to workers of the Department of Poultry Physiology, Faculty of Agriculture, Ain Shams University for their great help during this work.

Finally, I thank my parents, my wife and all members of my family for continuous support, help and encouragement. To my family and my wife, this would have been impossible without you.

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