

**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

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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 4th and 5th 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 6th 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.

Immunoglobulins 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.

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