

## **Performance and Physiological Responses of Broiler Chickens to Diets Supplemented with Propolis in Breeding, to in Ovo Propolis Feeding or to Propolis Supplementation of Diets for Their Chicks**

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**Abstract :** To examine the effects of an ethanol liquid extract obtained from raw bee propolis (PE) on fattening performance and physiology such as vaccine-antibody relationship, microbial profile, immune status and some blood parameters of broiler chickens were used a total of 600 broiler (Ross 308) chicks, obtained from eggs of 288, 38-weeks-old broiler breeding. There were 6 groups: CC (Parent-Control and Offspring-Control), CP (Parent-Control and Offspring-propolis extract), Cip (Parent-Control and Offspring-in-ovo propolis extract), Cis (Parent-Control and Chickens-in-ovo saline), PeC (Parent-propolis extract and Offspring-Control), PeP (Parent-Propolis extract and Offspring-Propolis extract). Each group was consisted of 10 replications with 10 broiler offspring, and the experiment was lasted for 6 weeks with ethanol-extracted propolis concentration is 400 ppm/kg diet. While the highest feed consumptions at 0-21 days and 0-42 days were found in PeC, the best feed conversion ratio at 0-42 days was found in CP group. The live weight gains were found not to be different among the groups. The highest alanine aminotransferase activities were found in CC and CP and aspartate aminotransferase activities in PeP and PeC groups. The highest triglyceride and total antioxidant levels were found highest in CC and the highest total oxidant level in Cip group. IgA level in hatched eggs and IgM value after slaughtering were highest in Cip group. The best immune response was obtained for 21st day Newcastle Disease vaccine in CC and Cis groups and for 28th day Infectious Bursal Disease vaccine in CP group. The highest total aerobic microorganism and the lowest total fungi count were found in PeP group. In conclusion, it was determined that in-ovo propolis ethanol extract (Cip) increased the maternal antibody levels, that had not consistent effects on blood biochemical parameters except for triglyceride, that led to decrease in E. coli counts and that it can provide strong immune response against Infectious Bursal Disease.

**Keywords :** bee propolis, in-ovo feeding, immune parameters, poultry, maternal antibody, microorganisms

**Conference Title :** ICPPAH 2016 : International Conference on Poultry Production and Animal Husbandry

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** July 21-22, 2016