University of Zabol
Graduate school
Faculty of Agriculture
Department of Animal Science

The Thesis Submitted for the Degree of M.Sc
In the Field of Puoltry Production and Management

Title:

Effect of using Ovate (*Plantago psyllium*) in the diet on performance, immune system and intestine of broiler chickens

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2015

Summary

In this experiment, the effect of dietary *Plantago ovata* (PO) on performance, carcass criteria, intestinal morphology, immunity, and intestinal bacterial population of broiler chickens was evaluated. A total of 250 one-day old male broiler chicks (Ross 308) were randomly assigned to five treatments containing 0, 5, 10, 15, or 20 g/kg of PO with five replicate pens and 10 birds in each replicate. Dietary PO increased body weight gain and decreased feed conversion ratio in the finisher period, improving the performance index ($P < 0.05$). Dietary treatments had no effects on carcass criteria but breast meat percentage showed an increasing trend with incremental levels of PO in the diet ($P = 0.069$). The length of small intestine, especially jejunum section, as well as the villus height, villus width, villus area, and goblet cell numbers were significantly increased with supplemental PO ($P < 0.05$). Humoral and cellular immunity parameters, and oxidation stability of meat were improved due to use of dietary PO ($P < 0.05$). Dietary PO decreased the CFU of *Escherichia coli*, whereas, the *Lactobacilli* population was increased ($P = 0.001$). Broken-line regression revealed that dietary PO at the rate of 10 g/kg may results in the best performance in broiler chickens. This study showed that PO at the level of 10 g/kg could be considered as a beneficial feed additive in broiler diet.

Keywords Broiler chick, villus area, oxidation stability; antibody titer, intestinal microbiota