

Dietary Manan Oligosaccharides on Performance, Intestinal Morphology and Cecal Microflora of Broiler Chicken

Abstract

This study was conducted to investigate the effects of mannan oligosaccharides (MOS), which are commonly used as alternatives to antibiotics, on the growth performance, some blood parameters, Intestinal Morphology and Cecal Microflora in broiler chickens. In an experiment of 560 ROSS broilers sexed were weighted and randomly assigned to the seven treatment groups, each with four replicates. Birds were housed in replicate pens each containing 24 birds (male). The seven treatments were as follows: 1- basal diet (control); 2- basal diet + antibiotic, Virginiamycin (AGP1, 0.02g/kg diet); 3- basal diet + mannan oligosaccharide, (MOS, 0.5 g/kg diet); 4- basal diet + mannan oligosaccharide, (MOS, 1 g/kg diet); 5. basal diet + mannan oligosaccharide, (MOS, 1.5g/kg diet); 6- basal diet + mannan oligosaccharide, (MOS, 2g/kg diet); 7- basal diet + mannan oligosaccharide, (MOS, 2.5g/kg diet). Chicks fed on basal diets were supplemented with Manan Oligosaccharides were significantly heavier at 21 and 42 days of age than that of control chickens fed with basal diet as control. Feed consumption, of birds was affected by dietary treatments determined both at, 21-42 d and 1-42 d periods ($P = 0.1109$). feed conversion ratio of birds was Significantly affected by dietary treatments determined both at 1 to 21 d ($P < 0.01$), 21-42 d and 1-42 d periods ($P < 0.05$). Percentage weight of carcass yield, breast and leg muscles, pancreas and gizzard was not affected by dietary treatments also ($P > 0.05$). However, Percentage weight of carcass yield, liver, Intestinal ($P < 0.05$) and abdominal fat pad ($P < 0.001$) affected by dietary treatments also. There was no significant difference in serum HDL cholesterol of birds fed with Mos, However, LDL cholesterol, total cholesterol and TG levels was significantly lower in birds fed with MOS than that of control chickens fed with basal diet as control. Higher villus height (VH) ($P=0.13$) were seen in the Intestinal of birds fed diets with MOS; crypt depths was not affected by dietary treatments also ($P > 0.05$). But villus height to crypt depths ratio significantly affected by dietary treatments Mos ($P < 0.01$). The pH of ileal contents were affected by dietary treatments but pH of cecal contents were unaffected. The population of cecal *Escherichia coli* and *Clostridium perfringens* was decreased, especially by the high experimental treatments. In addition, Dietary MOS did significantly affect the cecal populations of *Lactobacillus*.

Keywords mannan oligosaccharides, broiler, *Escherichia coli*, cecal



University of zabol
Graduate school
Faculty of Natural Resource
Department of Fisheries

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Supervisor:
Dr. K. Shojaian
Dr. R. Jahnian

Advisor:
Dr. Gh. Jalelvand
Dr. H. Meranzadh

By:
M.M. Najari

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