

Abstract

This experiment was conducted to investigate the effects of probiotics and zinc supplementation to diet on performance, immunity response and blood biochemical conditions in Japanese quail. Experiment was performed from 7 to 35 days of old by a total of 288 seven-day-old quail chicks that randomly allocated to 6 treatments with 4 replicates (20 birds per replicate) as a completely randomized design in a factorial arrangement (2×3). Different levels of zinc including 15, 25 and 50 mg/kg and different levels of probiotic including 0 and 150 mg/kg were added in the diet. Effect of various treatments on feed intake was not significant ($P>0/05$). Adding levels of 25 mg/kg Zn and 150 mg/kg probiotic alone could improve the performance through weight gain and feed conversion ratio ($P<0/05$). The Interaction between probiotic and zinc were also effective on the performance of birds through weight gain and improved feed conversion ratio ($P<0/05$). The highest weight gain and the best feed conversion ratio were observed for treatment received levels of 25 mg/kg zinc and 150 mg/kg probiotic in the diet. Different levels of Zinc, Probiotics and their interactions resulted in an increase in the antibody titer against the red blood cells of the sheep ($P<0/01$) and also reduced the level of cholesterol, triglycerides and elevated amounts of albumin, total protein and serum uric acid ($P<0/05$). The use of various zinc levels as well as the interaction between of probiotic and zinc increased the weight of the breasts, thighs and intestines ($P<0/05$). The use of probiotics also increased the weight of the breasts, thighs and intestines ($P<0/05$). The use of probiotics and also the interaction between probiotic and zinc have led to an increase in the amount of bone ash in the toe, tibia and decreased bone density ($P<0/05$). Therefore, according to these results, use of levels of 25 mg/kg zinc and 150 mg/kg probiotic can improve the performance, strengthen the immune system and enhance the quality of Japanese quail bones during rearing period.

Key work: Bone ash, Immunity, Performance, Probiotics, Quail, Zinc



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