

Abstract

This experiment was conducted to evaluate the inhibitory ability of Protexin® probiotic against aflatoxin B₁ (AFB₁). Total of 320 seven day old Japanese quails were divided into four experimental groups: without probiotic-without aflatoxin (control), without probiotic and with aflatoxin (aflatoxin group), with probiotic-without aflatoxin (probiotic group), with probiotic-with aflatoxin (aflatoxin-probiotic group). Each treatment was assigned to four replicates of 20 birds according to a completely randomized design. One hundred fifty milligram of Protexin per kilogram of ration was added to probiotic receiving groups. To the ration of aflatoxin receiving groups, 2.5 milligram per kilogram AFB₁ was added. The effect of various treatments on feed intake was significant ($P<0.05$). The lowest feed intake was seen in aflatoxin group. The highest feed intake belonged to probiotic group. There were no significant differences between aflatoxin-probiotic and control groups weight gain ($P>0.05$). Feed conversion ratio was not affected significantly by neither aflatoxin nor probiotic ($P>0.05$). Aflatoxin group has a high feed conversion ratio than other groups. The highest relative weight of liver, spleen and heart belonged to aflatoxin group ($P>0.05$). The highest relative weight of bursa was observed in probiotic group and from this point of view, there was no difference among observecontrol and other groups ($P>0.05$). The activity of Lactat- dehydronage (LDH), Gamma-Glutamyl Transferase (GGT), Aspartat Amino Transferase (AST), Alanin Amino transfrerase (ALT) and Alkaline Phosphatas (ALP) enzymes in aflatoxin-probiotic group was similar to control, however, aflatoxin group had higher values than other groups ($P<0.05$). The antibody titer against Newcastle vaccine in aflatoxin group was lower than the probiotic group ($P<0.05$). The highest antibody against sheep red blood cells (SRBC) belonged to probiotic, control and aflatoxin-probiotic groups respectively. Increase of skin thickness when challenged with 2,4-Dinitrochlorobenzene (DNCB), was lower significantly in aflatoxin group ($P<0.05$), and the most skin thickness increase was seen in probiotic, control and aflatoxin-probiotic groups respectively. Hematocrit percentage and toe ash were significantly different among various treatments ($P<0.05$). The highest and lowest toe ash percentage belonged to probiotic and aflatoxin group respectively. In the fresh quail meat, and in 30th day of keeping in freezer, the highest and lowest amount of Malondialdehyde (MDA) was observed in aflatoxin and probiotic groups respectively ($P<0.05$). The most *E. coli* population in ilium was seen in aflatoxin group ($P<0.05$), and adding probiotic decreased the population of this bacteria significantly ($P<0.05$). The most population of Lactic acid and total count bacteria were observed in probiotic group. It is concluded that Protexin probiotic could effectively remove AFB₁ from poultry rations.

Keywords: Aflatoxicosis, Probiotic, Performance, Immunity, Liver enzymes



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