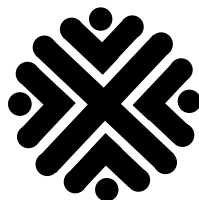


Abstract

This experiment was conducted to evaluate the inhibitory ability of Roselle (*Hibiscus Sabdariffa*) against aflatoxin B₁ (AFB₁). A total of 192 one-day-old broiler chicks were divided into four experimental groups: without Roselle-without aflatoxin B₁ (Control), without Roselle and with aflatoxin B₁ (AFB₁ group), with Roselle-without aflatoxin B₁ (ROS group), with Roselle-with aflatoxin (AFB₁-ROS group). Ten gram of Roselle per kilogram of diet was added to Roselle receiving groups and AFB₁-treatments received 2.5 milligram of AFB₁ per kilogram of diet. The effect of various treatments on feed intake was significant ($P < 0.05$) in which the lowest and highest feed intake were seen in AFB₁ and ROS groups, respectively. Body weight gain did not differ between AFB₁-ROS and control groups ($P > 0.05$). Feed conversion ratio was not significantly affected by neither aflatoxin nor Roselle administrations ($P > 0.05$). However, AFB₁ group had a higher feed conversion ratio than other groups ($P < 0.05$). The lowest relative weight of heart was observed in the AFB₁ group but the highest and lowest relative weight of bursa of Fabricius belonged to ROS and AFB₁ groups, respectively ($P > 0.05$). The highest and lowest relative weight of liver were observed in AFB₁ and ROS groups, respectively. The activities of lactate-dehydrogenase (LDH), gamma-glutamyl transferase (GGT), aspartate amino transferase (AST), alanine amino transferase (ALT) and alkaline phosphatase (ALP) enzymes in AFB₁ group were higher than other groups ($P < 0.05$). The antibody titer against Newcastle virus disease was lower in AFB₁ group than the ROS group ($P < 0.05$). The highest antibody titer against sheep red blood cells (SRBC) belonged to ROS group and followed by AFB₁-ROS groups and control. There was no significant effect of different treatments on hematocrit percent ($P > 0.05$). Increase in skin thickness of challenged birds with 2, 4-dinitrochlorobenzene (DNCB) was lower in AFB₁ group than other groups ($P < 0.05$) but the most skin thickness was seen in ROS group. The ash contents of toe and shank were significantly different among treatments ($P < 0.05$) in which the highest ash contents of toe and shank belonged to ROS group. The highest and lowest amount of malondialdehyde (MDA) in fresh and frozen meat samples was observed in AFB₁ and ROS groups, respectively ($P < 0.05$). The *E. coli* population in ileum contents was increased in AFB₁ group ($P < 0.05$) while their colonies decreased by the use of Roselle in the diet ($P < 0.05$). In contrast, the use of Roselle in the diet increased the lactic acid bacteria in the ileum contents ($P < 0.05$).

Keywords: Broiler chicken, Aflatoxicosis, *Hibiscus Sabdariffa*, Performance, Immunity, Liver enzymes



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**Effect of *Hibiscus sabdariffa*
on performance, immune response,
and biochemical parameters in broiler
chickens fed normal or aflatoxin
contaminated diets**

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