

Abstract

This experiment was conducted to evaluate the effect of vitamin C and zinc on performance, immune system, gastrointestinal microbial population and meat quality of Japanese quail under aflatoxicosis. A total of 480 seven-day-old Japanese quails were divided into a factorial experiment in a completely randomized design with eight groups: 1) without aflatoxin, without vitamin C, without zinc 2) without aflatoxin, without zinc, with vitamin C (500 mg/kg) 3) without aflatoxin, without vitamin C, with zinc (100 mg/kg) 4) without aflatoxin, with vitamin C (500 mg/kg), with zinc (100 mg/kg) 5) Containing aflatoxin (2/5 mg/kg), without zinc, without vitamin C 6) Containing aflatoxin (2/5 mg/kg), with vitamin C (500 mg/kg), without zinc 7) with 2.5 mg/kg aflatoxin, without vitamin C, with zinc (100 mg/kg), 8) with 2.5 mg/kg aflatoxin, with vitamin C (500 mg/kg), with zinc supplementation (100 mg/kg). Feed intake of birds fed diet with aflatoxin, without zinc and vitamin C was lower than birds fed diet without aflatoxin- without supplementation ($P < 0/05$). Group fed flatoxin contaminated without any supplementation had the lowest weight gain compared with other experimental groups ($P < 0/05$). Group receiving diet without aflatoxin, with zinc and vitamin C had the lowest feed conversion ratio. Effect of treatments on the relative weight of carcasses and internal organs, microbial population of the gastrointestinal tract, antibody titer against Newcastle disease vaccine and antibody titer against sheep red blood cells and skin thickness with challenging imposed by dinitrochlorobenzene (DNCB) were not significantly different between treatments. The presence of aflatoxins in diet increased oxidation of meat, but the presence of zinc and vitamin C in the diet contaminated with aflatoxin improved meat oxidation. Water holding capacity was not statistically affected by applied treatments. According to the results of this experiment supplementation of diet by vitamin C and zinc can reduce harmful effects of aflatoxin on performance and meat oxidatin.

Keywords: Aflatoxicosis, performance, vitamin C, zinc



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