

Abstract

Ascites is a metabolic disorder that occurs in broilers and is controlled by some factors such as genetics, environment, and management. In this study, the histopathological effect of dietary salt in the lungs and the protective effect of *Withania coagulance* fruit were examined. To perform this experiment, 160 of broiler chickens were used in a factorial design in the form of 4 treatment groups and 4 repeat and 10 birds in each repeat. Experimental groups included the first group (control), the second group (2% of *W. coagulance* fruit powder in the diet), the third group (2% of salt in drinking water) and the fourth group (2% of salt with 2% of *W. coagulance* fruit powder). Measured traits include body weight, liver and lung weight, right ventricular weight (RV), total weight of two ventricles with the septum (TV), right ventricular weight to body weight ratio (RV/BW), the rate of right ventricular weight to total weight of the two ventricles with septum (RV/TV), and the ratio of right ventricular weight to lung weight (RV/L) and hematocrit percentage. Histopathological tissue samples were also taken from the lungs and liver of birds; after preparing the microscopic incisions with hematoxylin and eosin, the stain was examined using light microscopy. In the end, the results and data were analyzed using SPSS statistical software. The results of this study showed that adding salt causes ascites and increases lung lesions. The use of *W. coagulance* fruit powder reduced bleeding and edema in broilers, but did not affect the hyperemia and pneumonia. In the case of liver lesions, the addition of *W. coagulance* fruit powder to their diet reduced hyperemia and improved birds. In the case of bleeding, fat change, necrosis, and liver hepatitis, the birds were healthy in all treatments. The addition of 2% salt to the drinking water of broilers, increased the ascites index (RV/TV) and the hematocrit percentage, but the use of *W. coagulance* fruit powder reduced this index and prevented the birds from contracting ascites. According to the results of this study, *W. coagulance* fruit can reduce the symptoms of ascites syndrome and can be used to improve the condition of ascites in broilers.

Keywords: Broiler chicken, *Withania coagulance*, Ascites Syndrome, Histopathology, Salt



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**Study of histopathology effects of *Withania coagulance* fruit
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chicken diet**

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