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**Effect of vitamin antioxidants and dried peppermint (*mentha piperita*) on performance and immune response of broiler under induced ascites syndrom**

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**Abstract**

This experiment was performed to determine the effect of vitamin antioxidants and peppermint leaf powder supplementation on the growth performance, carcass characteristics, blood parameters and humoral and cellular immune responses in broiler chickens under acites induction conditions. A total of 480 broiler chicks in a completely randomized design with 6 treatments including 1- positive control group (without induction of ascites without antioxidant supplementation) 2- negative control group (induction of ascites without adding antioxidant) 3- vitamin C group (induction of associated ascites) 400 mg / kg diet) 4- Vitamin E group (induction of ascites with 200 mg / kg diet) 5 and 6. 1 and 2 percent levels of peppermint powder respectively with induction of ascites were performed in 4 replicates, respectively. For induction of ascites, from day 8, water containing 1200 mg / L sodium (3 g per liter of salt) was given to the chicks. The results showed that the mean feed intake of birds in different treatments was not significantly different. However, the recipient group had 2% peppermint, body weight, average weight gain and production index less than other treatments ( $P < 0.05$ ), and its nutritional conversion coefficient was higher than other treatments. Characteristics of carcasses were not affected by experimental treatments, but the weight and gastrointestinal size were highest in the treatment containing 2 percent peppermint ( $P < 0.05$ ). As a result of induction, the ratio of right ventricle to total ventricle tended to be significant ( $P = 0.08$ ) and improved its antioxidant combinations. Blood parameters and thyroid hormones were not affected by induced ascites and antioxidant treatments. Ascites induced decreased hemorrhagic (SRBC) and cellular (PHA) immunity ( $P < 0.05$ ) and antioxidant treatments, especially vitamin C, led to their improvement. Overall, the results showed that under acites induction conditions, the use of antioxidant compounds, especially vitamin C, has a positive effect on the performance and immune response of broiler chicks.

**Key Word:** Ascites, Antioxidants, Broilers, Peppermint