DOI: 10.22055/IVJ.2019.154392.2084
DOR: 20.1001.1.17356873.1400.17.2.5.8

Gene expression of antioxidant enzymes fed wild pistachio (*Pistachio atlantica*), purslane (*portulaca oleracea*) extract and vitamin E under in broiler chickens under heat stress condition

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Received:20.11.2018 Accepted:01.10.2019

Abstract

This study was conducted to assess the gene expression of antioxidant enzymes (superoxide dismutase and catalase) in broiler chickens under heat stress. For this purpose, 200 Ross 308 broiler chicks in a completely randomized design with 5 treatments, 4 replicates and 10 chicks were used in each replicate. The treatments included: 1- control diet (base diet without any additives), 2- basal diet plus 200 mg / kg vitamin E, 3- basal diet plus 100 mg / kg of wild pistachio extract, 4- basal diet with 100 mg / kg of Common Purslane extract, 5- basal diet plus 100 mg / kg of wild pistachio extract and 100 mg / kg of Common Purslane extract. After 42 days, at the end of testing two chickens each replicate were slaughtered and their livers were excised quickly and transported with liquid nitrogen to the laboratory. The expression of the enzymes catalase and superoxide dismutase were evaluated by Real-time qPCR. In this way as beta-actin gene as housekeeping gene is used to normalize the data. The results indicate that the expression of antioxidant enzymes superoxide dismutase and catalase, included the highest level in the 5 treatments. Moreover, the expression of these genes showed a significant increase compared to the control in other treatments (treatments 2, 3 and 4). Therefore, the results indicated that the combination of extracts of wild pistachio and purslane can be together to be great impact on gene expression of antioxidant enzyme than the other groups under heat stress condition.

Key words: Gene expression, Antioxidant enzymes, Broiler, Heat stress

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