



University of Zabol

Faculty of Agriculture
Department of Animal Science

The Thesis Submitted for the Degree of
Master of Science in Poultry Nutrition

Title:

The effect of *Alhaji camelorum* in diet on performance, egg quality, antioxidant status and liver enzyme activity during the laying period of Japanese quail

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Abstract

This experiment was performed to evaluate the effect of using camel thorn (*Alhagi camelorum*) in diet on performance, egg quality, antioxidant status and liver enzymes activity during the laying period of Japanese quail. For this purpose, 250 40-days old Japanese quail were divided in five experimental groups containing zero, one, two, three and four levels of camel thorn with five replicates. Birds receiving four percent camel thorn had higher feed intake in all experimental weeks except the second and fifth weeks than birds in the control group ($P < 0.05$). The mean weight of quail eggs were not significantly affected by different levels of camel thorn ($P > 0.05$), but it was significant on the corrected weight of the eggs ($P < 0.05$). Birds receiving four percent camel thorn had higher egg production rates than those birds in control group on fourth and fifth weeks of experiment ($P < 0.05$). Birds receiving four percent camel thorn had the greatest egg mass on fourth week of the experiment ($P < 0.0001$). Egg weight, yolk weight and haugh unit were affected by experimental treatments ($P < 0.05$), but had no significant effect on the relative weight of the internal organs ($P > 0.05$). Experimental treatments had significant effect on liver enzymes activity (alanine aminotransferase, aspartate aminotransferase, lactate dehydrogenase and alkaline phosphatase), and plasma antioxidants (superoxide dismutase, glutathione peroxidase) ($P < 0.0001$), but had no significant effect on lipid peroxidation in the egg yolk ($P > 0.05$). This study showed that use of camel thorn in the diet of laying Japanese quail improves performance, egg quality traits, liver peroxidation, antioxidant status and liver enzyme activity.

Keywords: Alanine amino transferase, Egg mass, Superoxide dismutase, Haugh unit.