

**PHYSIOLOGICAL RESPONSES AND PRODUCTIVE
EFFICIENCY OF BARKI EWES AS AFFECTED BY
ZEOLITE SUPPLEMENTATION UNDER SALINE
CONDITIONS IN SINAI**

By

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B.Sc. Agric. Coop. Sci., Higher Institute for Agric. Coop., 2011

M.Sc. Agric. Sci. (Agriculture and Desert Areas affected by Salinity),

Fac. Agric., Ain Shams Univ., 2016

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ABSTRACT

Effat Morad Madany Mohameden. Physiological Responses and Productive Efficiency of Barki ewes as affected by Zeolite supplementation under saline conditions in Sinai. Ph.D. Thesis, Department of Agriculture and desert areas affected by salinity,, Faculty of Agriculture, Ain Shams University, 2020.

Sixty Barki ewes (2.0-3.0 years old and 30.5 ± 1.3 kg average body weight) were used to evaluate the effects of zeolite supplementation on productive and reproductive performance of Barki ewes under desert conditions. Animals were randomly assigned into three equal groups (20 ewes / group). The 1st group (G1) drank fresh tap water (274 ppm TDS) and fed the basal diet (control group). The 2nd group (G2) drank saline well water (5980 ppm TDS) and fed the basal diet. While, the 3rd group (G3) drank saline well water (5980 ppm TDS) and fed the basal diet supplemented with 60 g zeolite /kg diet (6 %). Rations were adjusted monthly to cover their nutritional requirements during their physiological status. Fresh and saline water was available all the day time.

Results indicated that, ewes fed ration supplemented with zeolite (G3) improved conception and lambing rates. Number of weaned lambs increased in the ewes of G3 than that in G2 (18 vs.14 lamb), respectively. Milk yield negatively affected by 12.1% in the ewes drank saline well water (G2) (561 vs. 638 ml/h/d, $P<0.05$), as compared to control group. Meanwhile, animal treated with zeolite had slightly improved milk yield by 1.4 % (647 vs. 638 ml/h/d). Lambs body weights and average daily gain were significantly higher in the ewes of G3 and G1 as compared to their partners in G2. T_3 hormone concentration was higher ($P<0.05$) in the ewes of G3 by 43.56 and 20.83 % as compared to the ewes in G2 and G1 groups, respectively. However, ewes in G2 recorded insignificantly decrease in T_4 hormone concentration by 9.48 and 21.64 % as compared to the ewes in G3 and G1, respectively. Total proteins and immunoglobulins (IgG, IgA and IgM) were increased in zeolite group

than saline group. It could be concluded that, supplementation of zeolite at a level of 6 % to the diets of Barki ewes could be an attempt to reduce the negative effect of drinking saline water without any adverse effects on Barki ewes productivity as well as metabolic hormones profile under arid conditions of Egypt.

Key words: *Barki ewes, zeolite, reproductive and productive performance, saline well water.*

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