IMPACT OF FEEDING AND CLIMATIC STRESS ON SKIN AND COAT IN BALADI AND SHAMI GOATS UNDER EGYPTIAN DESERT CONDITIONS

BY

DOAA GALAL EMAM ESSA
B. Sc. Agric. Sc. (Animal Production), Minufiya University, 2004

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This thesis for Ph. D. degree has been approved by:

Dr. Gamal Ashour Hassan ..............................................................
   Prof. of Animal Physiology, Faculty of Agriculture, Cairo University

Dr. Essam El-Din Tharwat ............................................................
   Prof. Emeritus of Animal Physiology, Faculty of Agriculture, Ain Shams University

Dr. Mohamed Reda Anous ..........................................................
   Prof. Emeritus of Animal Husbandry, Faculty of Agriculture, Ain Shams University

Dr. Essmat Bakry Abdalla ............................................................
   Prof. Emeritus of Animal Physiology, Faculty of Agriculture, Ain Shams University

Date of Examination: 13 / 2 / 2016
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DOAA GALAL EMAM ESSA
B. Sc. Agric. Sc. (Animal Production), Menoufia University, 2004

Under the supervision of:

Dr. Essmat Bakry Abdalla
Prof. Emeritus of Animal Physiology, Department of Animal Production, Faculty of Agriculture, Ain Shams University (Principal Supervisor)

Dr. Mohamed Reda Anous
Prof. Emeritus of Animal Husbandry, Department of Animal Production, Faculty of Agriculture, Ain Shams University

Dr. Samia Abd El-mageed Hekal
Associate Researcher Prof. of Histology, Department of Wool Production and Technology, Animal and Poultry Production Division, Desert Research Center
ABSTRACT

The effect of environmental stresses (i.e. feeding levels and climatic changes) on hair coat and skin characteristics (Fibre diameter; FD, Fibre length; FL, S/P ratio and follicles dimensions: external and internal diameter and wall thickness) of Egyptian Baladi (B) and Shami (Sh) goat breeds were studied. A total number of 24 non-pregnant does (12 B and 12 Sh), with an age ranging from 3 and 5 years, were divided into two groups of equal number (6 does in each) and offered two feeding levels (50% and 100% of their maintenance requirements; MEn) during hot and cold seasons. The climatic conditions (ambient temperature, AT and relative humidity, RH) were recorded simultaneously twice a week in both seasons.

For body coat characteristics, the FD was found to be 57.13 and 37.79 mµ in cold and hot seasons, respectively. While, it was 50.76 and 46.68 mµ at 50% and 100% of MEn, respectively. The fibre length, FL was found to be 5.28 and 6.77 cm in cold and hot seasons, respectively. While, it was 6.52 and 5.46 cm at 50% and 100% of MEn, respectively. Histological investigation showed that the S/P ratio was found to be 6.81 and 7.12 in cold and hot seasons, respectively. While, it was 6.69 and 7.24 at 50% and 100% of MEn, respectively. The primary follicles dimensions were found to be 163.33, 84.96, 78.63 and 58.90 mµ at 50% of MEn and 184.33, 106.15, 78.68 and 73.59 at 100% MEn for external diameter, internal diameter, wall thickness and fibre diameter, respectively. Secondary follicles dimensions were affected by season, breed and level of feeding.

Season has a significant (P<0.05) effect on Tri-iodothyronine (T3) which, was scored 2.13 and 1.68 ng/ml at cold and hot season, respectively.
The averages for T3 were 2.03 and 1.81 ng/ml for ShG and BG goats, respectively. The average of cortisol level was 6.02 and 2.67 µg/dl for Shami and Baladi goats, respectively at feeding level of 50% of MEn. While, it was 2.59 and 3.69 µg/dl for Shami and Baladi goats, respectively at feeding level 100% of MEn. The breed has a significant effect (P<0.05) on Aldosterone (Ald) level. The average of Aldosterone level was 743.75 and 554.94 pg/ml for Shami and Baladi goats, respectively. Season has significant (p<0.05) effect on Anti-Diuretic hormone (ADH) levels. The average values were 52.74 and 86.64 pg/ml for cold and hot seasons, respectively.

This study revealed that, Baladi goats showed more ability to resist environmental stresses than Shami goats. As well, both breeds had higher ability to resist feed restriction in hot season than cold season. **Keywords:** goats; hair coat; hair follicles; skin; histology; Season; feeding level; blood parameters.
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