EFFECTS OF THE GENOTYPE AND THE SEASONS ON PHYSIOLOGICAL PARAMETERS RELATED WITH ADAPTABILITY IN SHEEP IN MEDITERRANEAN CLIMATE CONDITIONS

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Abstract. Climatic conditions, the weather temperature is directly related with the performance of the animals. In general, the negative effects of the high temperature are more significant than the effects of low temperatures. In this study, seasonal variations of body temperature, heart rate, respiratory rate, serum T3 and T4 levels were investigated on Karya, Kivircik and Karacabey Merino sheep in Mediterranean climate conditions. The aim of the study was to describe the stress in animals due to high temperatures all through the year with regard to some physiological and hormonal parameters. In general, heart rates in the spring, the summer, the autumn and in the winter seasons were found as 108.53, 100.10, 101.10 and 107.30 units/min.; the respiratory rates were found as 60.15, 78.99, 56.40 and 46.97 breaths/min.; the body temperatures were recorded as 39.67, 39.49, 39.36 and 39.60 ºC, and the serum T3 levels were found as 1.35, 1.20, 0.95 and 1.54 ng/ml; and the serum T4 levels as 73.90, 61.29, 50.67 and 63.49 ng/ml, respectively. Seasons were found effective on respiratory rates, on body temperatures and on serum T3 and T4 levels. The Genotype trait created differences only on serum T3 and T4 levels. When the so- called seasonal changes in some parameters like respiratory rate were taken into account, it could be said that animals were affected by the high level of ambient temperature in the summer season. Karacabey Merinos displayed reactions to seasonal climatic changes similar to Karya and Kivircik reactions with regard to the physiological parameters and thyroid hormone levels that were dealt with in this study and that are the indicators of the adaptation to the seasonal environmental conditions.

Key words: Sheep, Genotype, Physiological Parameters, T3, T4