

ABSTRACT

THE SEASONAL CHANGE OF SOME PHYSIOLOGICAL STRESS PARAMETERS IN SHEEP

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This study related with stress conducted in order to determine the changes in the physiological characteristics and thyroid hormone (T3 and T4) levels of sheep throughout the year. For this purpose, 22 yearling Karya genotype were used, 14 of which were female and 8 of which were male. Throughout the year, pulse per minute, respiratory rate per minute, and rectal temperature were measured every morning and afternoon between the 10th-15th days of each month. In order to detect the levels of T3 and T4 hormones in the serum, blood samples were taken from the animals 4 times per year during the afternoon samplings, in the middle of each season. The climatic data of pens were recorded for 12 months using an automatic temperature and humidity measuring instrument.

Mean pulse rates were 120.9, 133.8, 127.8, 132.0, 108.4, 115.7, 115.8, 101.8, 83.2, 93.6, 97.7, and 82.3 beats/minute, mean respiratory rates were 51.2, 50.1, 54.2, 42.5, 42.3, 50.2, 60.8, 60.7, 66.9, 78.2, 68.3, and 50.0 breaths/minute, and mean rectal temperatures were 39.40, 39.64, 39.47, 39.55, 39.57, 39.53, 39.39, 39.18, 39.23, 39.34, 39.24, and 38.91 °C for October, November, December, January, February, March, April, May, June, July, August, and September, respectively. Mean serum T3 levels in Autumn, Winter, Spring, and Summer were 2.39, 5.06, 2.27, and 2.09 ng/ml; while mean serum T4 levels were 132.85, 161.55, 189.75, and 204.97 ng/ml.

The results that were obtained demonstrated that physiological characteristics and thyroid hormone levels of Karya sheep varied according to seasonal ambient temperature. While the respiratory rate increased during the warm months of summer, the pulse rate decreased contrary to expectations. Seasonal changes of T3 and T4 levels were in line with the expectations.

Key words: Sheep, stress, physiological parameters, T3 and T4 hormones.

