

EFFECT OF AD₃E VITAMINS INJECTION ON AGE AND WEIGHT OF WEANING AND REPRODUCTIVE ACTIVITY OF GOATS

2- EFFECT OF AD₃E VITAMINS INJECTION AND DIURNAL VARIATIONS ON PHYSIOLOGICAL RESPONSE AND REPRODUCTIVE ACTIVITY OF GOAT BUCKS EXPOSED TO DIRECT SOLAR RADIATION OF HOT SUMMER SEASON IN EGYPT

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ABSTRACT

This study aimed to investigate the effect of AD₃E vitamins injection and diurnal variations on physiological function, blood components, libido and semen characteristics in goat bucks exposed to direct solar radiation of hot summer season in Egypt. A number of 30 Damascus goat bucks were used in this research. The animals were exposed to direct solar radiation of hot summer season and divided into three equal groups. The first group was kept without treatment as control while the second and third groups were injected every 15 days with vitamin AD₃E at the rate of 2 and 4 ml, respectively. The experiment lasted 3 months (from 1st of July to the end of September, 2014). Temperatures of rectal, skin, hair surface, hair depth, ear and scrotal as physiological measurements in bucks were measured once monthly. Blood sample was collected monthly from the jugular vein of each buck to estimate total protein, albumin, calcium and inorganic phosphorus concentrations and levels of total testosterone, thyroxin (T₄) and Triiodothyronine (T₃) hormonal levels. Semen characteristics and semen storage ability after in vitro storage for 1st, 2nd, 3rd, 4th, 5th and 6th hr periods were estimated monthly.

Results showed that physiological parameters in bucks exposed to direct solar radiation were not affected significantly due to vitamins injection but affected significantly by diurnal variations of the day. The highest values were during evening while the lowest values were during morning. Blood hormones and components concentrations increased progressively with increased the level of vitamins injection and also affected significantly by diurnal variations of the day. The highest testosterone hormonal level was during morning while the lowest level was during evening. T₄ and T₃ levels and blood components concentrations in bucks were significantly higher during morning time than during both afternoon and evening times without any significant difference between the later two times.

Injected bucks with AD₃E vitamins improved significantly number of ejaculates, libido, semen volume, motility percentage and semen storage ability values and depressed dead sperm, abnormality and acrosomal damage percentages. Time of the day affected significantly on number of ejaculates, libido, semen volume and semen storage ability values in bucks goats. Semen storage ability at morning or at afternoon had best values while semen collected at evening had lowest values.

KEYWORDS: Vitamins, Goats, Hormones, Semen Characteristics, Blood Components, Diurnal Time