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EFFECT OF DOSAGE OF DIFFERENT LEVELS OF NIACIN IN SOME TRAITAS BLOOD OF AWASSI EWES

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Abstract

The experiment was conducted in the animal field of the Livestock Department at the college of Agriculture/ University of Diyala for 4 months using 12 local ewes. The ewes were divided into 3 groups of each group containing 4 ewes. Niacin was given in With 0, 0.5 and 1 g / ewe / day, which was 3-4 years old, Blood was drawn in the center and end of the experiment to measure each of the blood-biochemical traits of glucose, total protein, cholesterol, triglycerides, uric acid, blood parameters represented by red blood cells (RBC), white blood cells (WBC), concentration of Hemoglobin (Hb), Packed Cell Value (PCV), Mean cell value (MCV), Men cell hemoglobin (MCH) and Men cell hemoglobin concentration (MCHC).

The statistical analysis showed no significant effect of niacin in the studied traits for the first period found a significant effect in the second period between treatments uric acid Increased treatment of niacin was 0.5 g Compared to control (4.11, 3.92) mg/ 100ml. Also found was significant effect in (MCH) compared to control for the second period.

Key words : niacin, ewe Awassi, blood.

Introduction

Niacin is called vitamin B3 because it was the third vitamin B in the order of discovery, and the Norwegian scientist (Elvehjem Conrad) was the first to name Niacin, the term derived from the word nicotine and the word vitamin (Insel *et al.,* 2011), Jacobson (2007) noted that the liver can synthesize niacin from essential amino acid tryptophan by 1 mg niacin for 60 mg tryptophan in many interactions. This process is present in all mammals and microorganisms (Frandson, 2009). Flachowsky (1993) Shaw that niacin in ruminants is synthesize by microflora in the rumen and that its source is through the enzymatic transitions of tryptophan and quinolinic acid, Frandson (2009) found that decreased of niacin negatively affects the formation of adenosine triphosphate (ATP) and therefore all functions of the body will decrease and get problems in the digestive system and weak muscles of the body. Parker *et al*., (2006) noted that the high dose of niacin may increase hyperglycemia, resulting in diabetes. At the same time, the use of niacin in decrease cholesterol has led to birth defects of pregnant laboratory animals, these birth defects of different mammals including human.

Di Costanzo *et al*., (1997) that glucose concentration in blood plasma was indicated significantly in cows receiving 36 g niacin/cow/day with an average of 66.4 mg/dL with a control range of 64.3 mg/dL. Riddell *et al*., (1981) also showed that niacin treatment gave an increase in the concentration of total proteins in the blood, and that this increase may be due to the role of niacin in increasing rumen fermentation due to the increase in microbial protein building. The aim of the experiment is to know the effect of niacin in different doses and in two period different in the studied blood traits.

Materials and Methods

This experiment was study the effect of niacin on traits the blood of Awassi ewes. In this study used 12 ewe of primary weight 46.5 kg were each treatment consisting of 4 ewes randomly distributed in three

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treatments:

First treatment: control treatment
Second treatment: Niacin dosage 0.5 g
Third treatment: Niacin dosage 1 g

Niacin dosage daily by put the medical capsule in the mouth of ewes where the second and third treatment was given in niacin in 0.5 and 1 g/kg/day, respectively, after the weight of the capsules with a sensitive balance of four decimal places, Ewes were fed in the experiment on a mixture (barley 50% wheat 14% bran 35% salt 1%) by 1 kg per ewe. The blood samples Pulled of the jugular vein of ewes were withdrawn every 60 days (the first period 60 days from the beginning of the experiment, the second period 120 days from the beginning of the experiment) by a sterile medical syringe. The blood was placed in clean, sterile plastic test tubes (no anticoagulant), for the purpose of measuring glucose, total protein, cholesterol, triglycerides and uric acid.

The concentration of total protein, glucose, cholesterol, triglycerides and uric acid in serum were measured by using several Kits equipped by SYRBIO. Accredited test according to the steps indicated by the company supplied in the guide the attachment is Special to the test (Kits). Blood In the test tubes containing the diamine tetra acidic acid ethylene, the volume of the blood cells was calculated using centrifugal hair tubes and according to the method indicated by (Archer, 1965).

Red blood cells was calculated using the Hemocytometer (Varley *et al.,* 1980). White blood cells were counted using the Hemocytometer (Varley *et al.,* 1980). Hemoglobin was assessed in the blood by Sahli method (Zayed and Altoni, 1996). Mean cell value (MCV), Men cell hemoglobin (MCH) and Men cell hemoglobin concentration (MCHC) Calculated the following equations (Al-Hakam, 1984, Darraji *et al.,* 2008):

$$MCV = \frac{PCV}{RBC}$$

$$MCH = \frac{Hb}{RBC}$$

$$MCHC = \frac{Hb}{PCV}$$

The data were statistically analyzed using the General Linear Model (GLM) within SAS (2003) for the following mathematical model: $Yil = \mu + Ci + eil$

The differences between the averages were compared with Duncan (1955) polynomial test.

Results and Discussion

Table 1 shows no significant effect of Niacin in the biochemical traits blood for the first period of the experiment. The second period showed a significant effect ($P \leq 0.05$) between the treatments uric acid The niacin treatment exceeded (0.5g) on the niacin1g treatment and the control (4.11,4.09,3.92) mg/100ml respectively. This result is agree with (Tuncer *et al.,*1992) and (Kucukersan *et al.,*1996), The reason is that niacin increases the process of gluconeogenesis as well as an increase in the process of glucogenolysis and increase in the secretion of growth hormone, hormone glucagons and corticosterone in the plasma and accelerates protein metabolism and urea secretion (Thornton and Schultz,1980).

Table 1: Shows effect niacin in traits blood the biochemical of Awassi ewes.

Significant	1g Niacin	0.5g Niacin	Control	Treatment / Traits
Period first				
N.S	31.40	33.31	35.0	Glucose mg/100ml
N.S	73.75	64.83	77.83	Cholesterol mg/100ml
N.S	2.03	2.88	2.70	Total protein g/100ml
N.S	98.06	97.46	102.38	Triglyceridesmg/100ml
N.S	4.05	4.06	4.07	Ureic acid mg/100ml
Period second				
N.S	40.21	31.48	28.38	Glucose mg/100ml
N.S	58.91	50.66	47.66	Cholesterol mg/100ml
N.S	3.59	3.47	3.54	Total protein g/100ml
N.S	94.17	92.98	91.79	Triglyceridesmg/100ml
*	4.09 ab	4.11 a	3.92 b	Ureic acid mg/100ml

Table 2 shows no significant differences in the effect of niacin levels in traits the blood studied for the first period. The second period showed a significant effect in Men cell hemoglobin (MCH), where exceeded niacin (1g) treatment on the other treatments (29.02, 17.52, 12.65) pg respectively, The reason for this effect niacin on the kinetic activity of ewes was a function of the secretion of naphraenin from the adrenal gland, which resulted in increased contractions of the spleen and increased production of red blood cells, hemoglobin and high hematocrit. These results were consistent with (Bartlett *et al.,* 1983; EL-Barody, *et al*., 2001).

Table 2: Shows effect niacin in traits blood of Awassi ewes.

Significant	1g Niacin	0.5g Niacin	Control	Treatment / Traits
Period first				
N.S	4.20	4.45	4.50	WBC10^3 /ml
N.S	5.95	5.92	5.60	RBC10^3 /ml
N.S	45.47	43.10	46.47	MCV fl
N.S	12.65	14.55	12.97	MCH pg
N.S	3.15	3.35	2.82	MCHC g/dl
N.S	27.0	25.5	26.0	PCV %
N.S	8.65	8.55	7.25	Hb g/100ml
Period second				
N.S	3.65	4.05	4.20	WBC10^3 /ml
N.S	5.65	5.97	5.95	RBC10^3 /ml
N.S	46.87	42.10	45.47	MCV fl
*	29.02 a	17.52 b	12.65 c	MCH pg
N.S	3.03	2.90	3.15	MCHC g/dl
N.S	25.7	25.0	27.0	PCV %
N.S	7.85	7.95	8.65	Hb g/100ml

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