

STUDY OF SOME BLOOD NORMAL PARAMETERS OF SHEEP IN BASRAH

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(Received 12 January 2015, Accepted 24 February 2015)

Keywords: sheep, Anaemia, Basrah

ABSTRACT

This study was conducted in Basrah at period from September- 2012 throughout August- 2013. Blood samples were collected from 480 sheep in different ages and both genders. Haematological parameters were estimated and the result revealed that; the sheep included in this study have lower haematological parameters than the standard ones. Young animals in this study suffering from macrocytic normochromic anaemia.

INTRODUCTION

The purpose of investigating blood composition is to have a way to distinguish normal states from stressed animals. Such studies also contribute to the differentiation of adaptation problems and acclimatization problems. A blood status within the normal range mean there is at least no pathological conditions; fluctuations within the normal range indicate that physiological regulatory mechanisms are functioning(1). When, under climatic influence, blood composition does not change enough to give a clear sign of stress reaction, this can indicate either that the animal is easily able to adapt or that the stress from the climate was not as great as expected (2)

Blood is an important and reliable medium for assessing the health status of individual animals (3). Both the physiological and pathological condition of animals can be assessed by the evaluation of haematological and biochemical parameters of the blood (4 and 5). Factors such as nutrition, age, sex, breed and climate were known to affect biochemical and haematological parameters of clinically healthy sheep (6 and 7). Variations have been observed in these indices between temperate and tropical animals (6). These variations had been thought to be due to the effect of nutrition, climate and sub clinical disease(7 and 8).

MATERIALS AND METHODS

Four hundred and eight(480) blood samples were obtained from sheep with different ages and genders at period from September 2012 through August 2013. Three ml of blood were collected from the jugular vein in anticoagulant tubes for haematologic examination. Red blood cells (RBCs) count and packed cell volume (PCV) was estimated according to (4). Hemoglobin estimation was done using spectrophotometer and Drabkin's solution according to (9). The main corpuscular volume (MCV) ,main corpuscular hemoglobin (MCH) and main corpuscular hemoglobinconcentration (MCHC) were calculated according to equations described by (7) .

RESULTS

The mean of RBCs count,Hb, PCV, MCV, MCH and MCHC in sheep samples were 4873.96 ± 56.78 , 9.88 ± 0.065 , 33.55 ± 0.19 , 72.98 ± 1.24 , 21.82 ± 0.536 , 29.49 ± 0.15 respectively (table 1)

Table 1 : Some haematological parameters in sheep.

(Total number is 480 sheep)

Parameters	Mean± SE
RBCs x 10^3 cell/ mm^2	4873.96 ± 56.78
Hb mg / 100ml	9.88 ± 0.065
PCV in pictogram	33.55 ± 0.19
MCV	72.98 ± 1.24
MCH	21.82 ± 0.536
MCHC	29.49 ± 0.15

The RBCs counts were significantly higher in adults 4978.377 ± 69.81 than in young 4637.98 ± 65.69 ($P < 0.05$). On other hand the MCV were significantly higher in young 74.51 ± 1.44 than in adults 70.71 ± 0.98 , while there were no significant differences between adults and young in other parameters (table2).

Table 2 :Some heamatological parameters in relation to age .

	RBCs 10 ³ cell/ mm ²	Hb mg/100ml	PCV Pico gram	MCV	MCH	MCHC
Adults (299)	4978.377 ± 69.81	9.98± 0.077	33.8 ± 0.24	70.71 ± 0.98	21.05 ± 0.3	29.57 ± 0.19
Young (181)	4637.98 ± 65.69	9.72± 0.12	33.1 ± 0.33	74.51 ± 1.44	21.95 ± 0.43	29.36 ± 0.27
P value	< 0.05	> 0.05	> 0.05	< 0.05	> 0.05	> 0.05

There was no significant differences between males and females in all parameters (table 3).

Table 3 : Some haematological parameters in relation to gender .

	RBCs 10 ³ cell/ mm ²	Hb mg / 100ml	PCV Picogram	MCV	MCH	MCHC
Female (308)	4840.3 ±60.2	9.48 ± 0.69	33.44 ± 0.21	73.16 ± 1.4	21.94 ± 0.62	29.45 ± 0.168
Male (172)	5101.19 ± 190.5	9.98 ± 0.2	33.88 ± 0.58	72.0± 2.33	21.12 ± 0.71	29.71 ± 0.4
P value	> 0.05	> 0.05	> 0.05	> 0.05	> 0.05	> 0.05

MCV and MCH was significantly higher in winter (73.5 ± 1.18 and 29.72 ± 0.215 respectively) than in summer (22.77 ± 0.88 and 20.53 ± 0.3 respectively) (P > 0.05) while there was no significant differences in other parameters .

Table 4 : Some haematological parameters in relation to seasons .

	RBCs 10 ³ cell/ mm ²	Hb mg / 100ml	PCV Picogram	MCV	MCH	MCHC
Winter Sep. – March	4793.9 ± 76.15	9.94 ± 0.08	33.5 ± 0.25	73.5 ± 1.18	22.77 ± 0.88	29.72 ± 0.215
Summer Apr. – Aug.	4955.27 ± 84.1	9.80 ± 0.10	33.63 ± 0.3	70.07 ± 1.05	20.53 ± 0.3	29.17 ± 0.22
P value	> 0.05	> 0.05	> 0.05	< 0.05	< 0.05	> 0.05

DISCUSSION

This study can be considered as the first study to determine the RBCs indices in Basrah because the high number of animals which included in the study. All RBCs values was below the standard normal values in reference, this may be due to the nature of nutrition and husbandry of animals in our country(8). The RBCs counts were significantly higher in adults than in young,on other hand the MCV were significantly higher in young than in adults. While there was no significant differencesbetween adults and young in other parameters this results dis agreement with (9).

That mean the young animals suffering from macrocytic normochromic anaemia compared with adults this result was in agreement with (9).

MCV and MCH was significantly higher in winter than in summer while there was no significant differences in other parameters . This result was in agreement with (10).

دراسة بعض معايير الدم الطبيعية في الاغنام في البصرة

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الخلاصة

أجريت هذه الدراسة في البصرة للفترة من أيلول 2012 إلى آب 2013 . جمعت نماذج الدم من 480 رأس من الضأن من مختلف الاعمار ولكلا الجنسين وتم قياس معايير كريات الدم الحمر . أظهرت النتائج ان معايير كريات الدم الحمر في حيوانات الدراسة كانت اقل من المعيار العالمي القياسي وان الحيوانات الصغيرة العمر كانت تعاني من فقر الدم كبير الخلية وطبيعي الصباغ .

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