STUDY ON HAEMATO - BIOCHEMICAL PROFILE OF MADGYAL SHEEP FROM MAHARASHTRA IN INDIA

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ABSTRACT

The hamatological and serum biochemical values of madgyal sheep were within the reference range of sheep with the exception of TEC values, which were slightly lower than the reference values. TEC, Hb, PCV, total protein and albumin values in male sheep (7.87 ± 0.15, 10.18 ± 0.19, 33.13 ± 0.49, 7.75 ± 0.12 and 3.65 ± 0.06 respectively) were significantly ($P<0.05$) higher than female sheep (7.64 ± 0.14, 9.79 ± 0.11, 31.76 ± 0.36, 7.50 ± 0.10 and 3.45 ± 0.04 respectively).

KEY WORDS: Madgyal sheep, haematology, serum biochemical profile

INTRODUCTION:

Sheep comprise an important component of the Indian livestock biodiversity. However, Concerns are being raised as ovine diversity of India is getting eroded day by day. Madgyal is one of the threatened breed of sheep in Maharashtra state, India. As limited information is available regarding the haematological and serum biochemical profile of Madgyal sheep, the aim of the present study was to provide the data regarding haematology and serum biochemical profile of Madgyal sheep.

MATERIALS AND METHODS

The present study was undertaken in different villages of Sangli district of Maharashtra state. The blood samples were collected from 50 (25 male and 25 female) clinically healthy adult (12 to 13 months old) pure breed Madgyal sheep (*Ovis aries*) weighing 30-35 kg, by jugular venepuncture in sterile vaccutainers. Serum samples were separated and stored at -20 ^{0}C until use. Blood samples were analysed for various haematological parameters *viz*. Total Erythrocyte Count (TEC), Hemoglobin (Hb), Packed Cell Volume (PCV), Total Leucocyte Count (TLC), Differential Leucocyte Count (DLC), Mean Corpuscular Volume (MCV), Mean Corpuscular Hemoglobin (MCH) and Mean Corpuscular Hemoglobin Concentration (MCHC), whereas serum samples were analyzed for Glucose, Aspartate Transaminase (AST), Alanine Trnsaminase (ALT), Total proteins, Albumin, Globulin, Creatinine and Blood Urea Nitrogen (BUN) were analyzed spectrophotometrically (UV-Vis Spectrophotometer-117, Systronics, Mumbai) using commercial reagent kits (Span diagnostics, Surat). The values were expressed as Mean ± SE.

Mean values and standard errors were calculated and statistical significance of differences among the haematological and serum biochemical parameters in two sexes was determined by student-t test by using Web Agricultural Statistical Package of ICAR (www.icargoa.res.in/wasp/tt22.php).

RESULTS AND DISCUSSIONS

The values of various hematological parameters in Madgyal sheep are presented in Table 1. The hematological data analyses showed most values to be within the reference intervals of sheep with the exception of TEC values, which were slightly lower than the reference values. In present study

Table 1: Values of haematological parameters in Madgyal sheep (Mean ± SE)

Parameters	Male	Female	Male + Female	Reference Values
TEC (10^6/µl)	7.87 ± 0.15 [a*]	7.64 ± 0.14 [b]	7.75 ± 0.10	8.0 – 10.0
Hb (g/dl)	10.18 ± 0.19 [a*]	9.79 ± 0.11 [b]	9.99 ± 0.11	9.0 – 15.0
PCV (%)	33.13 ± 0.49 [a*]	31.76 ± 0.36 [b]	32.44 ± 0.32	27.0 – 45.0
TLC (10^3/µl)	6.85 ± 0.09	6.68 ± 0.08	6.77 ± 0.06	4.0 – 12.0
Neutrophils	34.12 ± 0.57	33.28 ± 0.46	33.70 ± 0.37	10 – 50
Lymphocytes	56.70 ± 0.64	57.40 ± 0.57	57.05 ± 0.43	40 – 75
Monocytes	3.40 ± 0.13	3.30 ± 0.15	3.35 ± 0.10	0 – 6
Eosinophils	5.20 ± 0.25	5.32 ± 0.23	5.26 ± 0.17	0 – 10
Basophils	0.68 ± 0.11	0.60 ± 0.12	0.64 ± 0.08	0 – 3
MCV (fl)	32.27 ± 0.38	32.04 ± 0.32	32.16 ± 0.25	28 – 40
MCH (pg)	10.21 ± 0.14	10.02 ± 0.09	10.11 ± 0.09	8 – 12
MCHC (g/dl)	31.06 ± 0.36	30.97 ± 0.34	31.02 ± 0.24	31 - 34

Means having different superscript in a row differ significantly (P< 0.05)

it was also revealed that TEC, Hb and PCV values in male sheep were significantly (P<0.05) higher than female sheep. Whereas, other parameters *viz*., TLC, MCV, MCH, MCHC, Neutrophils, Monocytes and Basophils levels were non-significantly (p>0.05) higher in male sheep and lymphocytes and eosinophils levels were non-significantly (p>0.05) higher in female.

The results of serum biochemistry analyses in Madgyal sheep are represented in Table 2. All the serum biochemistry values were found to be within the reference values of sheep. Findings of present study showed that the total protein and albumin levels were significantly (P<0.05) higher in male sheep than female and rest other parameters were non-significantly (P<0.05) higher in male than female. Values on haematological and Biochemical parameters well corroborated with reference values found in literature and reported by various workers for various breeds of sheep in India as well as abroad (Jawasreh *et al*. (2010) in Awassi sheep, Aatish *et al*. (2007) in sheep in Pakistan, Tambuwal *et al*. (2002) in Red Sokoto goats in Nigeria., Daramola *et al*. (2005) in west African dwarf goat.

Table 2: Mean Values of serum biochemical parameters in Madgyal sheep (Mean ± SE)

Parameters	Male	Female	Male + Female	Reference Values
Glucose (mg/dl)	66.56 ± 0.78	65.94 ± 0.72	66.25 ± 0.53	40 – 80
Total Protein (g/dl)	7.75 ± 0.12 ^{a*}	7.50 ± 0.10 ^{b}	7.62 ± 0.08	6.0 – 7.5
Albumin (g/dl)	3.65 ± 0.06 ^{a*}	3.45 ± 0.04 ^{b}	3.55 ± 0.04	2.2 – 3.0
AST (U/l)	101.82 ± 0.82	100.49 ± 0.75	101.05 ± 0.56	48 - 128
ALT (U/l)	25.62 ± 0.68	25.43 ± 0.61	25.53 ± 0.45	14.8 – 43.8
Creatinine (mg/dl)	1.03 ± 0.02	0.98 ± 0.02	1.00 ± 0.01	1.0 – 2.0
BUN (mg/dl)	13.24 ± 0.30	12.84 ± 0.16	13.04 ± 0.17	8.0 – 20.0

Means having different superscript in a row differ significantly (P< 0.05)

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