

**A preliminary study on hematology and serum biochemistry values of captive greater mouse deer (*Tragulus napu*)**

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**Introduction and objectives**

The greater mouse deer (*T. napu*) is one of the many species in the family Tragulidae. The *Tragulus napu* belongs to the order Artiodactyla and suborder Ruminantia. It is grouped under the 'even-toed' ungulates [1]. This deer has habitat that ranges from southern India and Sri Lanka to Indochina, Peninsular Malaysia and Sumatera, Indonesia [1,3]. From the literature search, there is no extensive study on the haematology and serum biochemistry of greater mouse-deer, except for the limited parameters conducted on lesser mouse-deer [2]. Blood parameters are useful in determining the health status of animals including tragulids. Therefore, we embarked on this to establish reference values for the blood and serum biochemistry parameters of healthy captive greater mouse-deer.

**Materials and methods**

The subjects were 14 (6 males and 8 females) adult greater mouse-deer. They were captured individually with a net and immediately immobilized using Zoletil 50® (Tiletamine HCl and Zolazepam) at 25 mg/kg body weight intramuscularly. Blood samples were collected either from the jugular vein or femoral artery was withdrawn into a plain tube and EDTA tube. Two fresh blood smears from each sample were prepared for differential leucocytes count and for morphological examination. Smears were stained with Wright's stain. The cells were observed under a light microscope and analysed using a digital camera. Total erythrocyte and leucocyte counts were done by the haemocytometer method. The packed cell volume (PCV) was measured by the microhaematocrit method. Plasma protein was estimated by a refractometer. Haemoglobin concentration was determined using a spectrophotometer. The serum biochemistry parameters were analysed using the Hitachi 902® chemistry analyzer.

**Results**

**Table 1** Haematological parameters of Greater mouse-deer

Parameters	Mean ± S.E	Mean ± S.D
PCV (L/L)	0.45 ± 0.02	0.45 ± 0.08
Plasma Protein (g/L)	68.30 ± 1.54	68.30 ± 5.76
Haemoglobin (g/L)	66.54 ± 1.51	66.54 ± 5.64
RBC (x10 <sup>12</sup> /L)	33.45 ± 1.70	33.45 ± 6.34
MCV (fL)	13.84 ± 0.86	13.84 ± 3.23
MCHC (g/L)	151.18 ± 5.87	151.18 ± 21.96
TWBC (x10 <sup>9</sup> /L)	13.18 ± 0.96	13.18 ± 3.60
Band Neutrophils (x10 <sup>9</sup> /L)	0.42 ± 0.09	0.42 ± 0.32
Seg. Neutrophils (x10 <sup>9</sup> /L)	7.28 ± 0.62	7.28 ± 2.32
Lymphocytes (x10 <sup>9</sup> /L)	4.31 ± 0.50	4.31 ± 1.88
Monocytes (x10 <sup>9</sup> /L)	0.63 ± 0.08	0.63 ± 0.30
Eosinophils (x10 <sup>9</sup> /L)	0.49 ± 0.06	0.49 ± 0.23
Basophils (x10 <sup>9</sup> /L)	0.08 ± 0.03	0.08 ± 0.12

**Table 2** Serum Biochemistry parameters of Greater mouse-deer

Parameters	Mean ± S.E	Mean ± S.D
Sodium (mmol/L)	136.02 ± 2.04	136.02 ± 7.35
Potassium (mmol/L)	22.64 ± 1.86	22.64 ± 6.70
Chloride (mmol/L)	90.62 ± 1.30	90.62 ± 4.70
Calcium (mmol/L)	2.50 ± 0.05	2.50 ± 0.18
Inorg. phosphate (mmol/L)	8.57 ± 0.27	8.57 ± 0.92
Urea (BUN) (mmol/L)	11.27 ± 0.95	11.27 ± 3.28
Creatinine (µmol/L)	129.58 ± 3.89	129.58 ± 13.47
Glucose (mmol/L)	4.90 ± 0.98	4.90 ± 2.59
Cholesterol (mmol/L)	2.55 ± 0.25	2.55 ± 0.85
Total Bilirubin (µmol/L)	.24 ± 0.52	2.24 ± 1.72
ALT (GPT) (U/L)	31.43 ± 3.72	31.43 ± 13.40
ALP (U/L)	215.95 ± 53.38	215.95 ± 192.45
AST (GOT) (U/L)	141.45 ± 10.49	141.45 ± 36.34
CK (CPK) (U/L)	1853.08 ± 418.25	1853.08 ± 1448.85
GGT (U/L)	47.09 ± 11.26	47.09 ± 37.33
Amylase (U/L)	15.42 ± 2.08	15.42 ± 7.19
Total Protein (g/L)	71.95 ± 1.95	71.95 ± 6.76
Albumin (g/L)	44.12 ± 0.46	44.12 ± 1.66
Globulin (g/L)	27.88 ± 2.13	27.88 ± 7.38
A/G ratio (g/L)	1.67 ± 0.11	1.67 ± 0.38

**Discussion**

Comparatively, the means for haematological parameters of the greater mouse-deer, the means for RBC diameter and PCV were higher than those values reported in lesser mouse-deer. The total RBC count, haemoglobin concentration and MCHC were lower than those of lesser mouse-deer [2]. Comparison between female and male greater mouse-deer revealed no significant difference in all parameters except for band neutrophils, calcium level, inorganic phosphate and creatinine kinase. Band neutrophils in this study was significantly higher in males compared to females. For serum biochemistry, inorganic phosphate and CK were significantly higher in females and calcium level was significantly higher in males. Erythrocytes of the greater mouse-deer showed similarity to erythrocytes of other mammals except that the size is much smaller. Differential WBCs looked similar like other species of the same order, such as goats, sheep and cattle. The size of cells are within the range reported in mammals studied previously.

**References**

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