

Hematological and Biochemical values of Red panda (*Ailurus fulgens fulgens*) at Padmaja Naidu Himalayan Zoological Park, Darjeeling

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Abstract

Red panda is a unique carnivore that has adapted to the herbivore mode of life and have been re-categorized as a Vulnerable species by the IUCN (Wang *et.al.* 2014). In India too, the red panda is included under the Schedule – I of the Indian Wildlife (Protection) Act 1972. The paper presents the normal hematological and serum chemistry values for the Red panda (*Ailurus fulgens fulgens*).

Introduction

Red panda is the sole member of the family Ailuridae. Considered rare, *Ailurus fulgens* now is protected throughout most of its Himalayan range. In response to population decline, a successful global conservation breeding programme exists for promoting the species population in captivity. Much has been researched on the red panda biology and disease aspects to provide a baseline data for *ex-situ* management of the

Table 1. Blood Collection Schedule

Sample No.	Sex	Age	Date of collection
C	M	8.5	20.11.2004
B	M	8.3	16.05.2010
D	M	2.6	09.03.2012
A	M	2.6	09.03.2012
E	M	9	09.06.2012

species. In addition to this evaluating the hematological and serum chemistry status of the individuals is essential for effective medical management. This is the first study of its kind in India due to limited number of individuals available or sampled in comparison to the other regions holding *A. fulgens*.

Methods and Materials

10 ml of blood was collected from 5 animals (5:0) using 5 ml BD vacutainer on various times. The blood was collected during the morning hours from 9:00 a.m. to 10:30 a.m. Table 1. through

chemical restraint. Haemoglobin (Hb) concentration of the blood was determined by acid haematin method using Sahli's haemoglobinometer. Red Blood Cells (R.B.C), White Blood Cells (W.B.C) using Neubauer counting chamber (Haematocytometer), Differential Leucocyte Count (DLC) using Leishman's stain, Packed cell Volume (PCV) or hematocrit value was obtained using Wintrobe's tube. The biochemical test results were obtained using semi Auto

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Table 2 (Biochemical values)

Parameters	A (Male) 2.6 Years	B (Male) 8.3 Years	C (Male) 8.5 Years	D (Male) 2.6 Years	E (Male) 9 Years	MEAN VALUE (n/05)± Standard deviation (S.D.)
Glucose (Random)(mg/dl)	74	101	178.7	149	130	40.773251
Urea (mg/dl)	28	45.9	58.2	25	55.6	15.3797919
Creatinine (mg/dl)	0.3	0.8	0.9	0.9	0.6	0.25495098
SGPT (U/L)	25	68	110	97.3	58.7	33.4879829
SGOT (U/L)	27	189	65	58	75	62.0177394
Total Protein (gm/dl)	6.8	8	6.4	7.2	7.3	0.59833101
Cholesterol (mg/dl)	166	83	168.4	53	234	72.6854318
Calcium (mg/dl)	9	7.8	9.5	7	8.3	0.98336158
Phosphorus (mg/dl)	3.7	7.3	6.5	3.54	6.9	1.8195384
Magnesium (mg/dl)	2.1	2	2.9	5.7	2.5	1.52905199
Albumin (mg/dl)	4.3	6	3.6	4.8	5.6	0.968504
Sodium (mEq/L)	130	128.5	122.2	129	135	4.56815061
Potassium (mEq/L)	2.9	4.1	3.5	3.3	3.8	0.46043458
Alk-Phosphate (U/L)	179	40	189	148	170	60.7264358
Triglyceride (mg/dl)	57.9	40	58	35.9	52	10.2656222

Table 3. (Hematological values)

Parameters	A (Male) 2.6 Years	B (Male) 8.3 Years	C (Male) 8.5 Years	D (Male) 9 Years	E (Male) 10.4 Years	MEAN VALUE (n/05)± Standard deviation (S.D.)
Hb (gm/dl)	12.7	12.7	12.4	12.1	11	0.70498227
RBC (million/cumm)	6.1	9.2	5.36	6.8	5.7	1.53235766
PCV (%)	7550	6200	8500	10550	9500	1687.23146
WBC (Thousand/cumm)	40	40	40	41	45	2.16794834
DLC (%)						
1. Neutrophil	81	74	47	72	32	20.7773916
2. Lymphocyte	19	26	49	28	62	17.9916647
3. Monocyte	0	0	2	0	2	1.09544512
4. Eosinophil	0	0	2	0	2	1.09544512
5. Basophil	0	0	0	0	0	0
ESR Westergren's Method mm in 1st hour	2	1	25	2	1	10.5214068

Analyser (BTS 320) and BA- 88A Mindray (semi auto chemistry analyzer) from blood serum by centrifuging whole blood at 2000-3000 r.p.m. Table 2. Erythrocyte Sedimentation Rate (E.S.R) was obtained by Westergren's Method.

Results

Baseline serum chemistry and hematological values for *A. fulgens* with normal health status and for all age is categorized in Table 2.

Conclusion

The value and the range of values obtained during the study have been based on the age factor ranging from 2.6-10.4 years. The values can be used as a ready reference to give a better understanding of the hematological and biochemical value of the red panda.

Reference

Fowler, M. (1999). *Zoo and Wild Animal Medicine*. 5th Edition. Saunders (Pub).

Wang, X., A. Choudhury, P. Yonzon and C. Wozencraft & Than Zaw (2008). *Ailurus fulgens*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>.

