

**NILAI HEMATOLOGI RUSA SAMBAR (*Cervus unicolor*)
YANG DITANGKARKAN**

**HAEMATOLOGICAL VALUES FOR CAPTIVE SAMBAR DEER
(*Cervus unicolor*)**

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INTRODUCTION

Nine tame young (10-14 months of age) housed sambar, consisted of 5 stags and 4 hinds, were blood sampled in May 1992 (late autumn) and September 1992 (early spring) using physical restraint without sedation. In May 1992, four semi-domesticated adult sambar stags in hard antler, managed at pasture, were sedated using a mixture of xylazine hydrochloride (Rompun, Bayer, NZ) and fentanyl citrate-azaperone (Fentaz, Ethnor Pty.Ltd. North Ryde, Australia), at a ratio of 3:1, administered by a tranquillizer dart (Paxarms Ltd, Timaru, NZ) and were blood sampled. All samples were analyzed for standard haematological analysis (Hill et al. 1992).

STATISTICAL ANALYSIS

Means and ranges of data are presented based on sex and method of restraint for sample collection (unsedated v. sedated). No statistical analysis of data were conducted because of the small number of samples.

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RESULTS

Mean haemoglobin (Hb), packed cell volume (PCV) and plasma protein concentrations in unsedated hinds (housed) were slightly higher than in unsedated stags (housed), but there was no apparent difference between time of collection (Table 1). Mean white blood cell (WBC) counts of hinds and stags were similar and mean monocyte, eosinophil and basophil counts were consistently low. Data for other measurements were similar for both sexes at both sampling periods.

Table 1. Haematological values from unsedated young housed sambar in New Zealand (stags n=5; hinds n=4).

	Stag		Hind	
	Mean	Range	Mean	Range
RBC _x 10 ¹² /l)	9.2	8.5-9.9	9.9	9.8-10
Hb	12.6	11.6-13.9	13.5	11.8-14.3
PCV	0.4	0.3-0.4	0.4	0.4-0.5
MCHC	31.7	31.2-32.2	31.1	30.8-32.0
MCH	13.8	13.6-14.0	14.4	14.1-14.6
MCV	43	42-44	45.5	44-47
Plasma protein	83	78-88	87.4	80-96
WBC (x 10 ⁹ /l)	4.6	4.3-4.9	4.5	3.5-5.6
Neutrophil (x 10 ⁹ /l)	1.5	1.1-1.8	0.9	0.4-1.9
Neutrophil (%)	31.8	24.0-41.0	20.8	8.0-42.0
Lymphocyte (x 10 ⁹ /l)	3.0	2.5-3.3	3.5	2.3-5.0
Lymphocyte (%)	66	58.0-72.0	73.0	50.0-92.0
Monocyte (x10 ⁹ /l)	0.01	0-0.04	0.03	0-0.09
Monocyte (%)	0.25	0-1.0	0.6	0-2.0
Eosinophil (x 10 ⁹ /l)	0.08	0-0.2	0.04	0-0.1
Eosinophil (%)	1.75	0-4.0	1	0-3.0
Basophil (x 10 ⁹ /l)	0.01	0-0.4	0.03	0-0.1
Basophil(%)	0.25	0-1.0	0.6	0-3.0

The Hb and WBC concentrations from sedated adult sambar stags (paddock-raised) were marginally lower than those of housed stags (Table 2). The eosinophil counts in the paddock-raised deer were five-fold greater than for housed deer.

Haematological data presented here do not differ greatly from data of Slee and Presidente (1981) from wild shot sambar. It is notable that the Hb concentration and associated parameters of sambar are similar to those of rusa (Audige 1992) and red deer (Wilson and Pauli 1986). White blood cell counts of sambar in this study are similar to counts reported elsewhere in this species

(Chapman 1977; Slee and Presidente 1981). The mean eosinophil count in paddock-raised stags was five times that of deer indoors. This may have been due to internal parasite burdens, although monitoring showed faecal larval and egg counts from random samples of the herd over a three-year period to be consistently

Table 2. Haematological values from semi-domesticated adult sambar stags sedated using a mixture of xylazine-fentanyl citrate-azaperone in New Zealand (n=4).

	Mean	Range
Hb g/dl	12.0	10.3-12.6
PCV l/l	0.39	0.33-0.41
MCHC g/dl	31.1	30.8-31.4
WBC $\times 10^9/l$	3.2	1.2-4.4
Neutrophil (seg) $\times 10^9/l$	2.3	0.96-3.52
Neutrophil (%)	70.5	48-80
Lymphocyte $\times 10^9/l$	0.65	0.23-1.31
Lymphocyte (%)	21.3	11-41
Monocyte $\times 10^9/l$	0	0
Eosinophil $\times 10^9/l$	0.30	0.12-0.56
Eosinophil (%)	7.3	1-14
Basophil $\times 10^9/l$	0.035	0-0.06
Basophil (%)	1.0	0-2
Plasma protein g/l	85.0	80-88

zero (Semiadi 1993). The red blood cell (RBC) counts, Hb and PCV were slightly higher in hinds in this study. A similar difference was observed in chital (Chapple 1989), but in rusa RBC counts were higher in stags (Audige 1992). Many of these apparent differences are probably influenced by a wide range of factors which affect the dynamics of blood cell physiology. The sedative drugs used for restraint of semi-domesticated stags may have reduced Hb concentration when compared with sampling by physical restraint alone, as has been shown in other deer species (Cross et al. 1992). However, this affect appears to have been minimal when compared with the non-sedated deer.

The need for a more complete set of reference values will grow as the number of farmed sambar increases. It will be necessary to assess these values in a range of environments since values recorded in a non-tropical environment may be different from those recorded in their native tropical environment.

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