HAEMATOLOGICAL PROFILE OF PURNATHADI STRAIN OF NAGPURI BUFFALO

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ABSTRACT

The present study was carried out to investigate haematological profile of lactating and nonlactating Purnathadi buffalo in different season. A total 144 blood samples were collected from six lactating and six nonlactating females of Purnathadi buffalo every month for one year. The total leukocyte count (TLC) and lymphocytes (L) were significantly higher in summer, while, Total Erythrocyte Count (TEC), Haemoglobin (Hb), Packed Cell Volume (PCV), Eosinophils (M) and Monocytes (M), values were significantly lower in summer than winter and rainy season.

KEY WORDS : Haematological values, Purnathadi buffaloes, seasonal effect, lactating , nonlactating.

INTRODUCTION

Purnathadi a strain of Nagpuri buffalo ,prominent milch breed, withstands the hot summer of this region (45 – 47^{0}C) without any adverse effect on milk production. The hematological study of the blood of animal is potentially valuable diagnostic tool in the health care of animals and effective application of this tool requires reference values of healthy animals. There has been no study on the physiology of Purnathadi buffalo, hence present study was undertaken to determine the hematological profile of Purnathadi buffalo.

MATERIALS AND METHODS

A total 144 blood samples were collected from six lactating and six nonlactating females of Purnathadi buffalo every month for one year from the Purnathadi buffalo research farm of Post Graduate Institute of Veterinary and Animal Science, Akola. 5 ml blood was collected in sterilized vial containing EDTA (2mg/ml) from jugular vein aseptically for hematological study following standard methods in routine. The statistical analysis of the experimental data was carried out by using standard statistical procedures laid down by Snedecor and Cochran, (1989).

RESULTS AND DISCUSSION

Haematological parameters estimated in lactating and nonlactating Purnathadi buffaloes are presented in Table 1. All the values for lactating and nonlactating Purnathadi buffaloes obtained were within the range as reported in normal, healthy Indian Murrah buffaloes and there was no significant difference between lactating and nonlactating Purnathadi buffaloes for all haematological parameters (Patil *et al*., 1992). Similar results were reported by Hagawane *et al.* (2009). Whereas Paul *et al.* (2011) reported significantly higher PCV in lactating as compared to nonlactating Surti buffaloes, while TEC and Hb values were slightly higher but vary significantly among the groups.

The haematological parameters like total erythrocyte count (TEC), haemoglobin (Hb) and packed cell volume (PCV) were significantly lower in summer season than in winter and rainy season. The lower haemoglobin concentration and PCV in summer may be due to increased erythrocyte destruction, low peripheral circulation and reduction in oxygen transport (due to reduced cellular metabolism). The total leukocyte count and lymphocytes were found significantly higher in summer season than in winter and rainy reason. Similar results were noted by Lubana Jabbar (2004). Summer stress on buffalo induces lymphocytosis causing the leukocytosis. Eosinophils and

monocytes were observed to be significantly lower in summer than in winter and rainy season whereas neutrophils had no significant effect of season.

Table 1. Season wise and lactating and non lactating Hematological values in Purnathadi buffaloes

Parameters	Rainy N=48	Winter N=48	Summer N=48	Lactating N=72	Nonlactating N=72
Hb (gm/dl)	9.65^{b}±0.23	9.44^{b}±0.23	8.82^{a}±0.26	9.10±0.19	9.55±0.21
PCV (%)	35.81^{c}±1.29	31.23^{b}±1.03	25.60^{a}±0.46	30.35±0.97	31.52±0.90
TEC (10^6/µl)	6.08^{c}±0.23	5.26^{b}±0.12	4.78^{a}±0.14	5.21±0.15	5.57±0.15
TLC (10^3/µl)	11.15^{a}±0.57	13.50^{b}±0.65	13.27^{b}±0.69	12.91±0.49	12.32±0.57
MCH (Pg)	16.74±0.67	17.15±0.78	19.02±0.73	18.16±0.49	17.01±0.73
MCV (fg)	62.47±3.14	60.03±1.76	55.56±1.73	60.03±1.77	58.55±2.06
MCHC (g/dl)	28.27±1.00	29.31±1.51	34.85±1.14	31.40±0.88	30.11±1.26
Eosinophills (%)	2.50^{b}±0.29	0.79^{a}±0.123	0.29^{a}±0.09	1.10±0.18	1.30±0.19
Monocytes (%)	3.98^{b}±0.31	1.79^{a}±0.14	1.40^{a}±0.13	2.27±0.21	2.53±0.23
Lymphocytes (%)	61.52^{a}±1.67	68.33^{b}±1.50	68.08^{b}±1.72	64.46±1.34	67.77±1.38
Neutrophills (%)	31.60±1.53	29.08±1.52	30.29±1.75	31.73±1.26	28.67±1.33

Mean having same superscript in each row does not differ significantly.

The season has non significant effect on haematological indices. However, the values obtained for haematological indices were comparable with the normal values found in other breeds of buffalo (Feldman *et al*., 2000) while Kumar and Pachauri (2000) found significantly higher haematological indices during summer season in crossbred cows.

The results of the present study have shown significant seasonal variation in haematological parameters which may be used for precise interpretation of laboratory and experimental results.

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