

ABSTRACT

Blood collected from clinically healthy Lanka buffaloes in the research farms at Peradeniya and Narangolla were used to establish haematological and biochemical reference values for the breed. The haematological parameters (mean with one standard deviation) of 80 adult female buffaloes were: red blood cells $5.36 \pm 2.44 \times 10^{12}/\text{l}$, haemoglobin $11.91 \pm 3.38 \text{ g/dl}$, packed cell volume $0.31 \pm 0.08 \text{ l/l}$, mean corpuscular haemoglobin $22.76 \pm 7.08 \text{ pg}$, mean corpuscular volume $59.1 \pm 19.22 \text{ fl}$, mean corpuscular haemoglobin concentration $38.21 \pm 4.8 \text{ g/dl}$, white blood cells $11.55 \pm 8.02 \times 10^9/\text{l}$, plasma protein $7.68 \pm 1.7 \text{ g/dl}$, fibrinogen $0.67 \pm 0.52 \text{ g/dl}$, erythrocyte sedimentation rate $31.2 \pm 22.3 \text{ mm/hr}$ and icterus index 5.66 ± 4.4 units. The prominent haematological characteristic of the normal Lanka buffalo that was evident from this study include average size of erythrocytes similar to cattle, low icterus index, conspicuous erythrocyte sedimentation rate, absence of reticulocytes and predominance of lymphocytes over neutrophils. A another study carried out to examine age-related changes in the haematology of Lanka buffalo calves revealed no significant changes in the blood picture from one month to twelve months.

Serum biochemical constituents were assayed in 120 clinical healthy adult female buffaloes. The reference values (mean with one standard deviation) for the parameters examined were total protein $9.07 \pm 1.18 \text{ g/dl}$, albumin $3.16 \pm 0.45 \text{ g/dl}$ aspartate aminotransaminase (AST) $105 \pm 36 \text{ U/l}$, creatine phosphokinase $66.8 \pm 35.5 \text{ U/l}$, alkaline phosphatase (ALP) 118.6 ± 64.3 , alanine aminotransaminase (ALT) $36.2 \pm 11.8 \text{ U/l}$, gamma glutamyl transferase $18.8 \pm 16.1 \text{ U/l}$, glucose $3.2 \pm 0.8 \text{ mmol/l}$, urea $4.8 \pm 1.6 \text{ mmol/l}$, bilirubin (total) $4.9 \pm 4.4 \text{ }\mu\text{mol/l}$, bilirubin (direct) $2.05 \pm 1.7 \text{ }\mu\text{mol/l}$ and creatinine $130 \pm 27.3 \text{ mmol/l}$. The results were in general similar to those reported for swamp buffaloes in Australia. They also corresponded to the values in cattle except for as AST, ALP and ALT which were higher in the buffalo. The results of this study indicate that the ALT values in the buffalo were higher than the levels reported for other domesticated ruminants and it may reflect a species characteristic.

A total of 33 void samples of urine were examined in order to determine the characteristics of buffalo urine and to evaluate whether multistix could be used in urinalysis instead of the conventional tests. Buffalo urine collected from clinical healthy animals were clear, amber in colour and contained several types of casts including hyaline, granular and waxy casts as well as calcium carbonate, calcium oxalate, ammonium urate and uric acid crystals. Urinalysis with multistix demonstrated similar results to that obtained with conventional tests except for protein and specific gravity in which there was a discrepancy.

The results of this study has provided baseline data on a wide range of haematological parameters and biochemical constituents of the Lanka buffalo blood which could be used as reference values for interpretation of data from clinical and experimental investigations.