D-29: Hematological and biochemical measures in the free-ranging and domesticated elephants *(Elephas maximus ceylonicus)*

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This paper describes norms for blood parameters in the elephants. Blood samples were collected from 37 healthy free-ranging elephants following chemical immobilization. Samples from 108 healthy domesticated elephants (male:female ratio of 1.16) were collected without subjecting to chemical immobilization. Blood was analysed using standard techniques. Measures for blood cellular parameters were as follows: 25-45% packed cell volume (PCV), 1.7-5.4 x 10^6 erythrocytes/ul, 7.4-15.8 g haemoglobin/dl, erythrocyte sedimentation rate of 64-148 mm/min, 4-26 x 10^3 leukocytes/ul, and 80-400 x 10^3 platelets/ul. The PCV was similar to other mammals but the small number of erythrocytes was due to their large size which varied from 81-160 fl, and is the largest among mammals. The mean corpuscular haemoglobin was also high (24-56 pg) but the mean corpuscular haemoglobin concentrations (23-40 g/dl) were similar to other mammals. Up to 70% of leukocytes were lymphocytes and similar proportion (25%) of heterophils (neutrophils) and monocytes were observed. Approximately 80% of monocytes had segmented nuclei. Nuclei of granulocytes were poorly segmented and neutrophils had redish cytoplasmic granules. Measures for plasma and serum parameters were, 6-13 g proteins/dl. 1.3-3.6 g albumin/dl, 0.37-2.8 g fibrinogen/dl, 0-0.94 mg bilirubin/dl. 3-19.7 mg urea nitrogen/dl, 1.0-3.8 mg creatinine/dl. Concentrations for the enzymes alkaline phosphatase, gamma-glutamyl transferase and glutamic pyruvate transaminase were 60-388, 2.2-36.5, & 4-40 U/L, respectively. Serum calcium and phosphorus levels were 5.5-12 mg/dl and 3.0-7.5 mg/dl. Serum iron ranged from 20-370 μg/dl with a total iron binding capacity of 70-370 μg iron/dl. Plasma measures for sodium, potassium, and chloride were, 100-140, 4-16, & 100-115 M.Eg/L, respectively. Chemical immobilization had no significant effect on the blood parameters.