International Journal of Food, Agriculture and Veterinary Sciences ISSN: 2277-209X (Online)
An Online International Journal Available at http://www.cibtech.org/jfav.htm
2013 Vol. 3 (1) January-April, pp. 12-14/Prakash
Research Article

SERUM BIOCHEMICAL AND HAEMATOLOGICAL ANALYSIS OF RAJAPALAYAM BREED OF DOG IN TAMIL NADU

***R Prakash Krupakaran**
Department of Veterinary Physiology and Biochemistry, Veterinary College and Research Institute
Orathanadu, Tanjore-District, Tamil Nadu-614625
**Author for Correspondence*

ABSTRACT
Serum biochemical and haematological profile of Rajapalayam breed of dogs was analyzed in male and female healthy dogs. No effect of sex was observed on glucose, urea and creatinine. Male dogs showed somewhat higher values of AST and ALP in comparison to the female dogs.

Key Words*: Biochemical Values, Rajapalayam Breed, Dog*

INTRODUCTION
Serum biochemical constituents have clinical importance in assessing an animal's growth, health, nutritional status and also for diagnosis and prognosis of diseases (Kalita and Mahapatra, 1998). Rajapalayam breed of dogs are one of the most famous native breeds of Tamil Nadu and are very well-known for their guarding and hunting abilities. The value of blood picture of the animals varies from region to region (Pandiya *et al*., 1977). Most of the time, the European standards for the dogs are followed, due to paucity in the information available in the literature on serum biochemical values for our native breeds of dogs, being maintained in our country for quite a long time. The present paper aims to provide the normal biochemical values of Rajapalayam breed of dogs

MATERIALS AND METHODS
A total of 12 dogs (6 males and 6 females) were selected for this study. The animals were maintained in a private farm near Rajapalayam of Tamil Nadu, the home tract of this breed.

Collection and Handling of Blood Samples
Each 10 ml of blood samples were collected by puncturing the cephalic vein with least stress to the animals and observing all aseptic precautions, directly into a sterile vacutainer. Blood samples were centrifuged at 3000 rpm for 15 minutes and the serum was separated and preserved at -20^{O}C in deep freezer till the analysis. For haematological studies, blood was collected in a vacutainer containing EDTA. The haematological analysis was carried out by adopting standard clinico-pathological procedures. The biochemical analysis was carried out following standard protocols provided along with the diagnostic kits supplied by Span diagnostics, India. The mean and standard error of each parameter were calculated as per standard procedure. The data were subjected to student-t test (Snedecor and Cochran, 1967).

RESULTS AND DISCUSSION
Results
The hematological and biochemical values of the Rajapalayam breed of dogs are provided in table 1 and table 2 respectively.

Table 1: Hematological values of Rajapalayam breed of dogs

Parameter	Male	Female
Hb (g/dl)	13.5± 0.10	12.8± 0.23
PCV (%)	37.32 ± 2.03	35.11 ± 0.86
TEC (x 10^6 /mm^3)	7.8 ±0.12	7.2 ±0.12
TLC (x 10^3 /mm^3)	7.04 ± 0.24	6.80 ± 0.45

Table 2: Biochemical values of Rajapalayam breed of dogs

Parameter	Male	Female
Total Proteins (g/dl)	7.61± 0.20	7.24± 0.18
Albumin (g/dl)	3.57±0.16	3.25± 0.05
Globulin(g/dl)	4.04 ± 0.10	3.99± 0.14
A:G Ratio	0.88± 0.10	0.82± 0.12
Glucose (mg/dl)	68.11 ± 2.51	62.11 ± 1.831
Blood Urea Nitrogen (mg/dl)	22.99 ±1.13	21.11 ± 0.51
Creatinine	0.82±0.17	0.80 ± 0.51
Cholesterol	112.74 ±1.00	105±2.98
Alanine Transaminase (IU/l)	28.25 ±2.80	26.11±3.11
Aspartate Transaminase (IU/l)	27.56 ±0.19	28.12±0.38
Alkaline Phosphatase (IU/l)	31.89±0.75	32.20±0.56
Lactate Dehydrogenase (IU/l)	56.23 ±0.86	55.19±0.33
Creatine Kinase (Iu/l)	46.44 ±0.87	44.76±0.45

Discussion

The different normal constituents of blood varied with breed, time of sampling, effect of storage, age, type of feed, season, managemental practices and methodology employed for estimation (Swenson, 1970). The haematological profile was consistent with the findings of Kaneko (1989).

The normal mean values of glucose, creatinine and urea are more or less close to the reference reported by Hinchcliff *et al.*, (1993). The minor differences in the values could be attributed to the breed difference and to the different dietary conditions, physical condition and also to metabolic status. There is no significant difference between male and female dogs. No effect of sex was observed on glucose, urea and creatinine. The slight difference between male and female dogs could be due to the metabolic status of the animals.

The mean values of plasma AST, ALT, ALP, CK and LDH were within the reference ranges documented by Burr *et al.*, (1997). Male dogs showed somewhat higher values of AST and ALP in comparison to the female dogs. The female sex hormones have a depressing effect on the activity of transaminases.

REFERENCES

Bickhardt K, Gudziac D, Ganfer J and Henze P (1999). Dependence of hematological and chemical blood parameters on the age of healthy lambs. *Deutsche-Tieraztliche-Wochenschrift* **106**(10) 445-451.

Burr JR, Reinchart GA, Senson RA, Swaim SF, Vaughan DM and Vradley DM (1997). Serum biochemical values in sled dogs before and after competing in long distance races. *Journal of the American Veterinary Medical Association* **211**(2) 175-179.

Hinchcliff KW, Olson J, Crusberg C, Kenyon J, Long R, Royle W, Weber W and Burr J (1993). Serum biochemical changes in dogs competing in a long distance sled race. *Journal of the American Veterinary Medical Association* **202**(1) 401-405.

Kalita DJ and Mahapatra M (1998). Serum onstituents and serum enzyme activities of Black Bengal. *Indian Journal of Animal Research* **32**(1) 38-40.

Kaneko SJ (1989). *Clincical Biochemistry of Domestic Animals*. 9th Edition, (Academic Press, California).

Snedecor GW and Cochran WG (1967). *Statistical Methods*. The Lowa state University Press, (Lowa, USA).

Swenson MJ (1970). In: *Duke's Physiology of Domestic Animals*. 8th Edition, (Cornell Press, USA).