International Journal of Food, Agriculture and Veterinary Sciences ISSN: 2277-209X (Online)
An Open Access, Online International Journal Available at http://www.cibtech.org/jfav.htm
2014 Vol. 4 (3) September-December, pp. 149-150/Kumar and Krupakaran
Research Article

SERUM BIOCHEMICAL ANALYSIS IN GIRIRAJA FOWL

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ABSTRACT
Six male and six female healthy Giriraja fowls were selected and 5 mL of blood samples were collected from each of the birds and serum was separated and stored at -20^{O}C until further use. Biochemical estimation of different constituents in the serum samples of cock and hen of Giriraja fowl was carried out. Glucose, total protein, urea, and creatinine levels were found to be higher in cock serum samples than in the hen samples. Total cholesterol, calcium, phosphorus, ALP, AST, ALT, and Triglycerides were higher in hen samples than the cock samples. Albumin and sodium levels were found to be same in both the samples.

Keywords: *Giriraja Fowl, Biochemical Analysis, Serum*

INTRODUCTION
Poultry farmers in the country have always looked forward to having an improved breed of chicken, which can be grown both for meat and eggs. Giriraja birds can be reared for their eggs and meat. The birds have a high egg production potential along with better growth compared to local varieties and are suited for mixed and backyard farming.

They can be raised as free roaming birds and can be fed with locally available materials. Being good scavengers, they feed on a variety of insects and green foliage.

They can also be fed on farm and kitchen wastes. The birds are resistant to major infections except Ranikhet. These special features of the Giriraja fowl make them an important research component. Blood components may be influenced by physiological factors, such as age and species, and by pathological factors.

The determination of blood component values using laboratory exams is an important procedure to aid the diagnosis of several diseases and dysfunctions, as they provide reliable results, and may also give inputs for research studies on nutrition, physiology, and pathology.

Hence, establishment of reference values for the desi fowls in our own climate becomes mandatory. The present study was carried out to analyse biochemical constituents of the serum samples collected from the male and female birds of Giriraja fowl.

MATERIALS AND METHODS
A total of twelve healthy birds, six males and six females were selected in an organized farm near Orathanadu, Thanjavur.
Five mL of blood from each bird was collected with the help of a sterilized syringe and needle in centrifuge tube. It was centrifuged at 10,000 rpm for 15 minutes at 4°C . The supernatants thus collected were stored at -20 ˚C till further use.
Biochemical assays were carried out for Glucose, Total Protein, Albumin, Urea, Creatinine, Total Cholesterol, Triglycerides, ALT, AST, ALP, Calcium and Phosphorous. These parameters were investigated with Span Diagnostic kits as per the standard biochemical procedures (Kaneko *et al*, 1997).

RESULTS AND DISCUSSION

The serum samples were subjected to different biochemical analysis and the results were tabulated as follows:

Parameter	Cock	Hen
Glucose mg/dL	160 ± 4.12	140 ± 2.16
Total Protein mg/dL	6.42 ± 0.16	6.06 ± 0.23
Albumin mg/dL	2.81 ± 0.11	2.96 ± 0.14
Total cholesterol mg/dL	120 ± 4.82	140 ± 2.21
Urea mg/dL	15 ± 0.42	10 ± 0.31
Creatnine mg/dL	1.20 ± 0.07	0.86 ± 0.03
Calcium mg/dL	7.6 ± 0.15	9.4 ± 0.08
Potassium mg/dL	3.4 ± 0.23	4.1 ± 0.13
ALP (IU)	18 ± 0.81	28 ± 0.94
ALT (IU)	36 ± 0.13	48 ± 0.22
AST (IU)	22 ± 0.16	31 ± 0.28
Sodium mg/dL	146 ± 2.26	148 ± 3.14

In the present study, it was revealed that Glucose ,total protein, urea, and creatinine levels were found to be higher in cock (serum samples)than in the hen samples. Total cholesterol, calcium, phosphorus, ALP, AST, ALT, and Triglycerides were higher in hen samples than the cock samples. Albumin and sodium levels were found to be same in both the samples. Silva *et al.,* (2007) already reported 173 IU/L AST, 18 IU/L ALT, 9.54 mg/dL calcium, 6.23 mg/dL phosphorus, 0.49 mg/dL creatinine, 130 mg/dL Triglycerides, 140 mg/dL total cholesterol, 2.96 g/dL Total proteins and 1.72 g/dL Albumin, in 21 days of age of HYBRO-PG broilers. Hassan *et al.,* (2010) reported that the level of AST and ALT were 86 IU/L and 12 IU/L respectively in 8 weeks age of female Japanese quails and it was substantiated by Hillyard *et al.,* (1956) and Lorentz *et al.,* (1983) as the estrogen secretion at the onset of egg production in laying hens was drastically increased liver metabolism. In the present study, similar results were obtained in female birds than in the males. The increased levels of cholesterol and triglycerides in the female birds reflect the female hormonal status. The increased calcium and phosphorus level in the serum of hen samples reflects the egg laying activity of the birds. The variations between our results and the earlier reports may be due to differences in species, age, sex, season, feeding habits and geographical location of the birds.

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