

## SDS-PAGE ANALYSIS OF SERUM PROTEINS IN GIRIRAJA FOWL

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### ABSTRACT

In the present investigation, six male and six female healthy Giriraja fowls were selected, blood samples were collected from each bird and serum was separated and stored at -20°C until further use. The serum samples were subjected to SDS- PAGE analysis (10 percent gel, discontinuous method) under non-reducing conditions. On Sodium dodecyl sulphate polyacrylamide gel electrophoresis, five major bands (240, 92, 66, 35, and 25 kDa) and 4 fainter bands (116, 85, 45, and 10 kDa) were observed in hen serum sample. In cock serum samples except the prominent band at 35 kDa, all others bands were observed.

**Keywords:** Giriraja Fowl, SDS-PAGE, Serum Proteins

### INTRODUCTION

Rural Family Poultry (RFP) represent an appropriate system for supplying the fast growing human population with high quality protein and providing additional income to resource-poor small farmers, especially women. 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. In order to differentiate and identify the specific breed, the serum proteins are often used among the several biochemical constituents.

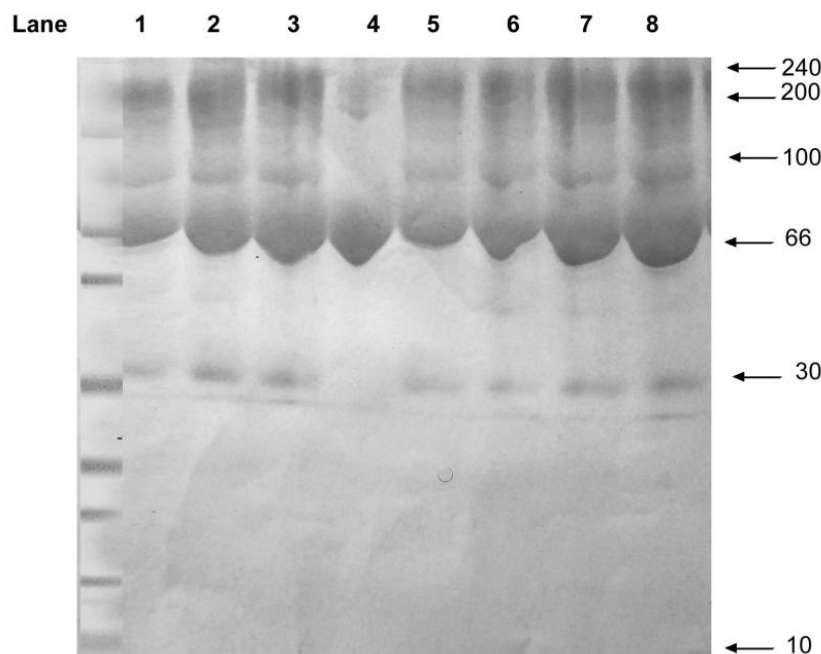
The pattern and intensity of different polypeptides differ greatly during several physiological and pathological processes. The present study was carried out in both the male and female Giriraja birds to characterize the nature of serum proteins through Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE).

### MATERIALS AND METHODS

A total of twelve healthy birds, six males and six females were selected in an organized farm near Orathanadu, Thanjavur. 5 mL of blood from each bird was collected with the help of a sterilized syringe and needle and collected directly 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. The protein content of the sample was estimated by biuret method with slight modification. A standard curve was built using Bovine Serum Albumin (BSA) as standard. The photometric estimation was carried out with the help of ELICO SL 207 mini spectrophotometer. Sodium dodecyl sulphate- polyacrylamide gel electrophoresis (SDS-PAGE) was carried out by following the method of Laemmli (1970) with some modifications.

### RESULTS AND DISCUSSION

In the present study, it was observed that the total protein concentration was 6.42 g/mL in serum of Giriraja fowl. Each gel well was loaded with 1 µL of serum sample from male and female birds. SDS-PAGE (10 %) under non reducing conditions was carried out 100V for 8 hours. The electro- phoretogram was calibrated using the protein marker (low molecular weight Genei, Bangalore) in the range of 3.5 to 205 kDa.



**Figure 1: SDS-PAGE analysis of Serum Samples**  
**Lane 1-Protein markers (Low molecular weight)**  
**Lane 2-4 Cock sample**  
**Lane 5-8 Hensample**

In hen serum samples, 5 major bands (240, 92, 66, 35, and 25 kDa) and 4 fainter bands (116, 85, 45, and 10 kDa) were observed. In cock serum samples except the prominent band at 35 kDa, all others bands were observed. The 66 kDa prominent band may be serum albumin band. The separation of bands was sharper and discrete. Similar results were already reported by Rasaputra *et al.*, (2012) in serum proteins of chickens and by Saleem *et al.*, (2013) in SDS-PAGE of local and pure breeds of Asiatic chickens. Rai *et al.*, (2003) reported 112 kDa, 64, 56, 28, and 25 kDa as serum protein fractions in the control group of Yolk sac infection with *staphylococcus aureus* on immune status of boilers. The variation in the present study, may due to the breed, age, sex, and season.

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