

AGE AND SEX RELATED HEAMATOLOGICAL AND BIOCHEMICAL STUDIES IN ASEEL BIRD

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Abstract: A total of 32 birds were taken and divided into 4 groups @ 8 birds in each group. Group A and B contain adult birds, age ranging from 12-16 month of male and female respectively. Group C and D contain grower birds, age ranging from 4-6 month of male and female respectively. Result indicated that the mean clotting time is highest in adult female and lowest in grower male. The ESR values of adult male were found to be lowest and those grower male were highest. Haemoglobin was found to highest in male adult and lowest in grower females. PCV was highest in adult male and lowest in grower females. TEC values were highest in adult male and lowest in grower female. TLC values were highest in adult females and lowest in grower female. The MCH index was highest for grower female and lowest in grower males. The MCHC value was highest in adult female and lowest in grower female. The blood glucose was lowest in grower females and highest in adult males. Total protein values was highest in adult female and lowest in grower male and albumin value was lowest in grower males and highest in adult males and globulin level was lowest in grower males and highest in adult females.

Keywords: Assel, Heamtology, Biochemical, Age, Sex.

Introduction

Aseel is the popular game birds of tribal people. The breed is distributed in Bastar, Dantewada and Kanker Districts of Chhattisgarh, Bhadrachalam, Guntur, Dist of A.P. Jeypore, Koraput district of Orissa State. These birds mostly utilized for frightening and slaughtering in different occasions. As blood parameters are indices of internal environment of living body, clinical haematology can be a valuable tool in differential diagnosis and monitoring the course of disease. Age is found to play a significant role in affecting the haematological parameters and sex may also affect them. The haematological picture and chemistry of blood alter during different stages of growth and development (Schaffer 1981). Age before laying i.e. 4-6 month of age, after start laying i.e. 12-16 month of age as well as sex of poultry are the main different stages of poultry and hence the present study is aims to rule out normal haematological and biochemical values of these birds.

Material and methods

Aseel flock maintained at the poultry house of College of Veterinary Science and Animal Husbandry, Anjora, Durg (C.G.) under standard managerial condition in intensive system. For the study 4 group of birds are chosen at random. Group A and B contain adult birds, age ranging from 12-16 month of male and female respectively. Group C and D contain grower birds, age ranging from 4-6 month of male and female respectively. Each group of 8 birds, total 32 bird's blood samples were studied so far. Haemoglobin concentration in the blood was estimated by Sahlis acid hematin method and packed cell volume (PCV) was determined by wintrobe haematocrit tube method as well as microhaematocrit tube method. The total erythrocyte count (TEC) and total leucocyte count (TLC) were determined by the method of Natt and Herric. Clotting time was determined by capillary tube method. The erythrocyte sedimentation rate (ESR) was determined by Westergren and Wintrobe graduated tube. Different leucocyte count was performed after staining the slide with Leishmans stain. The erythrocyte indices such as mean corpuscular volume (MCV) and mean corpuscular hemoglobin concentration were (MCHC) calculated from the values of PCV, TEC and haemoglobin concentration. For biochemical parameters, blood sugar was determined from deproteinized blood by copper reduction method as described by Nelson and Somogyi. Total protein was estimated from blood plasma by biuret method using modified biuret reagent of total protein estimation kit from Dr. Reddy laboratory. Albumin was estimated from blood plasma by Bromocresol Green macro method using the albumin reagent of Dr. Reddy laboratory.

Result and Discussion

The average values and their standard errors of hematological parameters (Table no. 1) and blood biochemical parameters (Table no. 2) were for adult male female and grower male female.

Haematological parameters

A perusal of table revealed that the mean clotting time is highest in adult female and lowest in grower male. This may due to higher fibrinogen or free calcium ionic concentration in youngs and as age advanced these contents are reduced. In guinea fowl clotting time, reported by Kundu, *et al.*, (1993) was highest in 3 month male and lowest in day old chick. These findings are similar with regard to increase of clotting time, as the age advances. The ESR values of adult male were found to be lowest and those grower male were highest. These values show an agreement with finding of guinea fowl by Kundu *et al.*, (1993). The ESR

value in ducks of Chara and Chembali reported by Mahant and Jalaluddin (1999) are 2.52 ± 0.13 for Chara adult male, 2.40 ± 0.16 for Chara adult female 2.12 ± 0.12 for Chembali adult male 2.44 ± 0.15 and for adult Chemblai female. Hence, compared to duck, Assel bird's shows lower ESR. Haemoglobin was found to highest in male adult and lowest in grower females. It may be due to the stimulatory effects of androgen secretion on the haemoglobin content. These findings are in conformity with Kundu *et al.*, (1993), and Mahanta & Jalaluddin (1999) for ducks. However, haemoglobin percentage was found to be lower in Aseel birds as compared to ducks and guinea fowl. PVC was highest in adult male and lowest in grower females. The values in adult male are higher than adult female. PVC values in grower males and females are found to be nearly the same. Higher PVC values of grower females than that of adult females supports the view of Nirmalan (1973) that female sex hormone inhibits erythropoiesis. TEC values were highest in adult male and lowest in grower female. Again the value of TEC shows the sex difference and age difference. Values are higher in males than female and higher in adult than grower. These values are higher than the values found in guinea fowl by Kundu *et al.*, (1993) and values in ducks reported by Mahanta and Jallaluddin (1999). TLC values were highest in adult females and lowest in grower female. The values in grower males are higher than grower females and in adult females were higher than the adult males. The values are higher than the values reported in guinea fowl (Kundu *et al.*, 1993) and lower than ducks (Mahanta and Jalalluddin 1999).

Blood biochemical parameters

In blood biochemical parameters, glucose was lowest in grower females and highest in adult males. The values suggest that glucose level increase as age advances. Total protein values was highest in adult female and lowest in grower male and albumin value was lowest in grower males and highest in adult males and globulin level was lowest in grower males and highest in adult females. All the levels of protein, albumin and globulin were nearest to values reported for RIR chickens by Paul and Sangeetha (2000).

Conclusion

This study provides the basic physiological status of blood of purebred indigenous fowl Aseel. These data will be useful for the applied aspects of heamatological studies.

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Table 1: Haematological parameters of Aseel bird.

Parameters	Growers		Adults	
	Male	Female	Male	Female
Clotting time (sec)	23.75±3.25	55±10.39	229.8±8.4	247.2±16.2
ESR -1 hrs (mm)	1.8±0.18	1.67±0.19	1.5±0.08	1.3±0.18
ESR – 2 hrs (mm)	4.2±0.33	3.8±0.18	2.43±0.19	2.7±0.39
Hemoglobin (%)	10.24±0.28	9.8±0.37	11.34±0.34	11.2±0.19
PCV (%)	35±0.93	34±0.85	38.6±0.9	32.8±2.1
TEC million/cumm	2.99±0.07	2.58±0.19	3.37±0.26	3.23±0.44
TLC thousand/cumm	32.67±4.1	21.65±1.36	32.6±1.19	36.91±4.69
MCV (fl)	119.05±1.83	134.75±12.28	117.17±6.6	103.83±13.39
MCH (pg)	34.25±0.76	37.98±3.87	34.46±2.09	37.17±5.13
MCHC (gm/dl)	29.26±0.22	28.82±0.43	29.37±0.28	34.77±2.02

Table 2: Biochemical parameters of Aseel bird.

Parameters	Growers		Adults	
	Male	Female	Male	Female
Glucose (mg/100ml)	96.25±7.78	95±5.56	154.67±17.91	149.33±13.60
Total Protein (mg/100ml)	4.76±0.18	5.17±0.44	5.51±0.36	5.57±0.34
Albumin (mg/100ml)	1.56±0.12	1.62±0.19	2.07±0.17	1.86±0.2
Globulin (mg/100ml)	3.15±0.18	3.65±0.44	3.48±0.36	3.75±0.34