Sex Related Haematological Values of

*Gallus domesticus*

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Haematological investigations made on *Gallus domesticus* in the month of April, revealed interesting results. The TEC, Hb, PCV, MCH and MCHC values showed higher mean values in male birds while values of TLC, clotting time, ESR and MCV were found higher in the female birds.

Haematological estimations on birds and mammals of human interest have become a routine practice all over the world. However, despite this fact clinical haematological values on birds of commercial importance are only of spasmodically reported, that too with some specific purpose. Basic haematological studies in birds related sex, size and season are quite scant. This paper describes sex related haematological values of *Gallus domesticus*, following their introduction in the Kumaun hills.

MATERIALS AND METHODS

Adult specimens of *Gallus domesticus*, commonly known as ‘white leghorn’ were obtained from local Agricultural Research Unit (ARU) poultry farm. The birds were, brought to the laboratory in large, spaceous ventilated cages, with sufficient space for their free movement. The birds under laboratory conditions were shifted to another larger cages and fed with suitable commercial poultry feed at regular intervals. The birds were given 2-3 days acclimation period, before taking blood for these studies. Each bird was weighed to nearest gram before taking the blood.

For all kinds of haematological investigations made here, the blood was collected from left brachial vein using a microsyringe with 24 or 25 gauge needle. Estimations of various blood parameters, viz. total erythrocyte count (TEC), haemoglobin (Hb), total leucocyte count (TLC), packed cell volume (PCV), mean haemoglobin concentration (MCH),
mean corpuscular haemoglobin concentration (MCHC), mean cell volume (MCV), clotting time and erythrocyte sedimentation rate (ESR).

![Graphs showing MCH, MCHC, MCV values for male and female Gallus domesticus.](image)

**Fig. 1:** Histogram showing sex related variations in RBC, Hb and PCV values of *Gallus domesticus.*

**Fig. 2:** Histogram showing sex related variations in WBC and clotting time values of *Gallus domesticus.*

**Fig. 3:** Histogram showing sex related variations in MCH, MCHC and MCV values of *Gallus domesticus.*

**RESULTS**

All the data obtained for various blood parameters have been shown in Figs. 1—3. The mean values for TEC were noted 3.17 ± 0.39 in male and 2.72 ± 0.37 × 10⁶/Cmm in female birds, respectively. The TEC in male was found to be 14.19% higher than in the female birds. The average values of Hb concentration were noted to be 14.92 ± 0.84 gms/100 ml in blood in male and 12.30 ± 1.26 gms/100 ml in female, being 17.56% higher in male. The mean PCV values were 39.65 ± 4.53% in the male and 34.66 ± 3.12% in the female, respectively. The value was 12.58% higher in males than in females (Fig 1). The average total leucocyte counts (TLC) were 21.79 ± 4.82 × 10³ and 26.36 ± 6.35 × 10³ in male and female birds, respectively. The value was 20.9% lower in the male than in the female. Mean values of ESR were noted to be 1.10 ± 0.37 mm/hour and 1.32 ± 0.48 mm/2 hours.
mm/hour in male and female *Gallus domesticus*, respectively. The value was 20.0% lower in male, than the female birds (Fig. 2). The mean values of clotting time were 63.08 ± 19.51 second in male and 73.56 ± 28.59 second in female. Male had 16.59% lower value than the female. The average MCH and MCHC values in male and female bird were found to be, 47.62 ± 5.41 pg and 45.52 ± 4.86 pg (MCH) and 37.98 ± 3.72 pg and 36.59 ± 3.31 pg respectively. The MCH and MCHC value were 4.40% and 6.29% higher in males. The MCV value on the contrary was found to be little higher in female bird being 125.85 ± 13.74 and 128.26 ± 10.51 µm³ respectively in male and female birds (Fig. 3).

**DISCUSSION**

The higher values of RBC, Hb and PCV in males than in the female birds has been also reported by previous authors in few other birds, like Chickens\(^1\)\(^-\)\(^8\), Doves and Pigeons\(^9\), *Coturnix coturnix japonica*,\(^9\)\(^-\)\(^13\) *Passer domesticus*\(^12\), *Ploceus bengalensis*\(^14\), *Calandrella brachydactyla dukhunensis*\(^16\) and Ducks\(^17\). In the present study the TEC values in male and female birds were found less than the TEC values reported in some smaller sized birds like *Passer domesticus*\(^12\), *Columba*\(^20\) and *Calandrella brachydactyla dukhunensis*\(^16\).

The present observations regarding higher mean TLC value in the female *Gallus domesticus* than its male (Fig 2) finds support from the observations of some earlier workers, too, on different birds like Chickens\(^9\), *Coturnix coturnix japonica*\(^9\)\(^-\)\(^13\), Pekin duck\(^11\), *Ploceus bengalensis*\(^14\) *Calandrella brachydactyla dukhunensis*\(^16\).

Higher mean values of clotting time in the female white leghorn than its male (Fig. 2) was equally conspicuous. Almost similar values of clotting time have been reported in male and female *Calandrella brachydactyla dukhunensis*\(^16\). Higher mean value of ESR in female *Gallus domesticus* than its male finds support from the observations on *Passer domesticus*\(^11\) and *Ploceus bengalensis*\(^14\). Similarly MCH, MCHC and MCV values, which have been hardly reported earlier find some support from the selected works of few authors\(^12\)\(^-\)\(^14\)\(^-\)\(^16\).

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