

HAEMATOLOGICAL STUDY IN WHITE PEKIN AND INDIGENOUS DUCKS OF TAMIL NADU

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Abstract: The study was designed to evaluate the effect of breed and sex on Haematological Parameters in White Pekin and Indigenous ducks of Tamil Nadu at Post Graduate Research Institute in Animal Sciences (PGRIAS), Kattupakkam. A total of eighty numbers of ducks comprising 20 male and 20 female each in White Pekin and Indigenous ducks of Tamil Nadu were reared under standard managemental conditions. Once in every 4 weeks, blood was collected from these ducks individually from 20th week onwards for the duration of two months. Haemoglobin (Hb) concentration, Packed Cell Volume (PCV), Total Erythrocyte Count (TEC) and Total Leucocyte Count (TLC) were estimated and their Mean Corpuscular Volume (MCV), Mean Corpuscular Haemoglobin (MCH) and Mean Corpuscular Haemoglobin Concentration (MCHC) were calculated. The results revealed that Indigenous ducks of Tamil Nadu had significantly ($P < 0.01$) higher Hb, PCV and TEC than White Pekin ducks while Total Leucocyte Count (TLC) and Mean Corpuscular Haemoglobin (MCH) were significantly ($P < 0.01$) higher in White Pekin ducks. Sex had no significant effect on White Pekin and Indigenous ducks of Tamil Nadu. Hence, it was concluded that breed had greater influence on many of the Haematological Parameters between White Pekin and Indigenous ducks of Tamil Nadu.

Keywords: Ducks, Breed, Sex, Haematological profile.

INTRODUCTION

The present study was designed to evaluate the effect of breed and sex on Haematological Parameters in White Pekin and Indigenous ducks of Tamil Nadu. Blood parameters are indices of internal environment of living body. The blood indices are the indications of haemoglobinocellular status as well as health of duck and it helps to determine different haematological disorders in the system. However, very limited research work has been done on haematological profile in ducks and scanty information is available on these parameters in ducks, in India. Hence, to arrive at some baseline values with regards to haematological profile, the present work was carried out.

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MATERIALS AND METHODS

Biological experiment was carried out with total eighty numbers of ducks comprising 20 male and 20 female each in White Pekin and Indigenous ducks of Tamil Nadu as treatment 1 and 2 respectively. Ducks were reared under standard managerial conditions and provided with *ad-libitum* duck layer mash feed. Once in every 4 weeks, blood was collected from these ducks from 20th week onwards for the period of two months. 1 ml of blood was collected in EDTA vacutainer tube from each group of 20 White Pekin ducks and 20 Indigenous ducks of Tamil Nadu and later used to estimate the Haemoglobin concentration as per the Sahli's acid hematin method (Sahli, 1909) and Packed Cell Volume (PCV) by Microhaematocrit method (Mcinroy, 1953).

Total Erythrocyte Count (TEC) and Total Leucocyte Count (TLC) were estimated by using Nambiar's diluting fluid (Bancroft and marylin, 2008). Mean Corpuscular Volume (MCV), Mean Corpuscular Haemoglobin (MCH) and Mean Corpuscular Haemoglobin Concentration (MCHC) was calculated from above PCV, Haemoglobin and TEC value obtained. The experimental data was analysed statistically using factorial design (Snedecor and Cochran, 1994).

RESULTS AND DISCUSSION

Whole blood of White Pekin and Indigenous ducks was analyzed for haematological constituents and the values are presented in the Table 1(a,b). The haematological parameters were found to be influenced by breed. Indigenous ducks had significantly ($P < 0.01$) higher Haemoglobin concentration (Hb), Packed Cell Volume (PCV) and Total Erythrocyte Count (TEC) than the White Pekin ducks. Similar observations were made by Swathi and Sudhamayee (2005) in Desi and Crossbred (Khaki Campbell x Non-descript), Ismoyowati (2012) in Muscovy and Local ducks and Orawan and Aengwanich (2007) in different breeds of chicken. Reduced Total Erythrocyte Count (TEC) in White Pekin ducks could be attributed to increased circulating estrogens which are known to suppress the erythropoiesis by diminishing response of stem cells to erythropoietin. And also the rearing management and environment could be the cause for these variations.

Table 1 (a)
Mean (\pm SE) Haematological values in White Pekin and Indigenous Ducks of
Tamil Nadu (n=40)

Parameters	White Pekin Ducks	Indigenous Ducks	t value
Hb (g/dl)	9.71 \pm 0.15	10.39 \pm 0.14	3.23**
PCV (per cent)	44.20 \pm 0.47	50.00 \pm 0.69	7.04**
TEC ($\times 10^6/\text{mm}^3$)	2.20 \pm 0.04	2.62 \pm 0.03	7.69**
TLC ($\times 10^3/\text{mm}^3$)	12.57 \pm 0.23	10.92 \pm 0.21	5.36**

** - Highly Significant (P<0.01)

Table 1 (b)
Mean (\pm SE) Effect of Sex on Differential Count in White Pekin and Indigenous Ducks
of Tamil Nadu (n=20)

Parameters	White Pekin Ducks			Indigenous Ducks		
	Male	Female	t value	Male	Female	t value
Lymphocyte (%)	30.50 \pm 0.47	30.45 \pm 0.45	0.08 ^{NS}	30.40 \pm 0.38	31.30 \pm 0.53	1.38 ^{NS}
Heterophil (%)	59.70 \pm 0.42	59.60 \pm 0.44	0.16 ^{NS}	58.85 \pm 0.39	58.20 \pm 0.53	0.98 ^{NS}
Eosinophil (%)	1.24 \pm 0.11	1.29 \pm 0.11	0.39 ^{NS}	1.22 \pm 0.10	1.29 \pm 0.11	0.47 ^{NS}
Monocyte (%)	8.75 \pm 0.34	8.85 \pm 0.33	0.21 ^{NS}	9.65 \pm 0.27	9.40 \pm 0.34	0.57 ^{NS}
Heterophil /Lymphocyte (H/L)ratio(%)	1.97 \pm 0.04	1.97 \pm 0.04	0.01 ^{NS}	1.94 \pm 0.03	1.87 \pm 0.04	1.29 ^{NS}

NS-Not Significant

Total Leucocyte Count (TLC) was significantly (P<0.01) higher in White Pekin ducks than the Indigenous ducks. Lower Total Leucocyte Count (TLC) could be due to stress associated rise in corticosterone and also due to estrogen induced thymus involution. Mean Corpuscular Haemoglobin (MCH) was significantly higher in White Pekin ducks than the Indigenous ducks.

CONCLUSION

In this present study it was concluded that breed had significant influence on haematological profile between White Pekin and Indigenous ducks. But there was no significant influence found by sex.

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