HEMATOLOGICAL VALUES OF THE INDIGENOUS CHICKENS

M. L. Sharmim and M. Mymenuddin
Department of Physiology, Faculty of Veterinary Science, Bangladesh Agricultural University, Mymensingh-2201, Bangladesh

ABSTRACT
Hematological study was conducted on thirty indigenous chickens of either sex (20 male and 20 female), aged between 6 to 12 months old, during the period from March to April 2003. The hematological values of Hb, TEC, TLC and PCV in these chickens were 9.48 ± 0.38 g/dl, 3.37 ± 0.10 x 10^6/μl, 19.13 ± 0.91 x 10^3/μl and 33.05 ± 0.06 % and in female 8.29 ± 0.25 g/dl, 6.48 ± 0.25 x 10^6/μl, 20.68 ± 0.14 x 10^3/μl and 37.30 ± 0.62 %, respectively. The MCV, MCH, MCHC of male breed were 9.92 ± 0.05 μl, 28.22 ± 0.29 μg/dl and 37.65 ± 0.86 %, respectively whereas in female were 12.55 ± 1.37 μl, 34.06 ± 1.39 μg/dl, 56.28 ± 1.33 %, respectively. Hematological parameters revealed significant differences between the male and female groups for TEC, Hb, PCV, MCH, MCV, MCHC, lymphocytes, erythrocytes, lymphocytes and monocytes at p < 0.05 and for basophil at p < 0.05.

Keywords: Hematology, Indigenous chicken

INTRODUCTION
The hematological values can be used to evaluate the state of health of either a single bird or an entire population and would constitute a basic requirement for an indispensable preliminary knowledge of the biological material chosen for research. Hematology permits the study of specific pathological alterations of certain blood constituents and recognition under strictly controlled experimental conditions of the existence of metabolic alteration of different origin. Many factors can influence the level of a particular blood constituent. Hematological values of chicken are influenced by age, sex, breed, climate, geographical location, season, nutritional status, life habit of species and such other physiological factors (Dakke, 1955). In this study, the physiological values of chicken may likely be different. The values need to be compared during disease diagnosis and veterinary practices. The present research was undertaken to know the normal hematological values of the indigenous chicken of Bangladesh.

MATERIALS AND METHODS
Hematological studies were performed as per method described by Cofin (1955) within two hours of blood collection from wing vein in double oxalate containing glass vials from thirty apparently healthy indigenous breed of chickens of either sex (20 male and 20 female), aged between 6 to 12 months old of Mymensingh region over a period of 2 months from March to April 2003 and the values obtained were analyzed statistically for significance differences using Student’s t-test (Snedecor and Cochran, 1986).

RESULTS AND DISCUSSION
The results of hematological values of indigenous chickens are presented in Table 1.

Table 1. Hematological parameter of indigenous male and female chickens (mean ± SE)

<table>
<thead>
<tr>
<th>Type of chickens</th>
<th>Hb (g/dl)</th>
<th>TEC (10^6/μl)</th>
<th>TLC (10^3/μl)</th>
<th>PCV (%)</th>
<th>MCV (μl)</th>
<th>MCH (μg/dl)</th>
<th>MCHC (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (n = 20)</td>
<td>9.48 ± 0.37</td>
<td>3.37 ± 0.30</td>
<td>19.13 ± 0.91</td>
<td>33.05 ± 0.06</td>
<td>9.92 ± 0.05</td>
<td>28.22 ± 0.29</td>
<td>37.65 ± 0.86</td>
</tr>
<tr>
<td>Female (n = 20)</td>
<td>8.29 ± 0.25</td>
<td>6.48 ± 0.25</td>
<td>20.68 ± 0.14</td>
<td>37.30 ± 0.62</td>
<td>12.55 ± 1.37</td>
<td>34.06 ± 1.39</td>
<td>56.28 ± 1.33</td>
</tr>
</tbody>
</table>

H: hemoglobin, E: erythrocyte, B: basophil, L: lymphocyte, M: monocyte

**Indicates significant at 1% level, *indicates significant at 5% level**

Copyright © 2004 Bangladesh Society for Veterinary Medicine.
The haemoglobin concentration (Hb), total erythrocyte count (TEC) and packed cell volume (PCV) were significantly \((p < 0.01)\) higher in male chickens than female (Table 1). Similar higher values were also reported by Qureshi (1987) in domestic fowl. Total leucocyte count (TLC) was significantly \((p < 0.01)\) higher in female chickens which are in agreement with the findings of Islam \textit{et al.} (1999) who reported a slightly higher TLC in male than the female birds. Differential leucocyte count (DLC) revealed that neutrophil and eosinophil at \(p < 0.01\) and basophil at \(p < 0.05\) were higher in male than the female birds (Table 1). The values of lymphocytes and monocytes were significantly \((p < 0.01)\) lower in the male chickens. The higher values of agranulocytes in female are not supported by the findings of other workers. The MCV and MCH values were significantly \((p < 0.01)\) higher in female than male, but MCHC value was higher in male than female. This finding coincides with the findings of Coffin (1955) and Studier (1963). Further study with large sample size is necessary to conclude the findings.

REFERENCES