

Effect of Cestode Parasites on Haematological Parameters in *Gallus gallus domesticus* in Ahmednagar Distict

H. J. Wankhede², Avinash B. Gholap^{1*}

²Director, Institute of Science, Aurangabad, India

¹Professor, P.V.P, College, Pravaranagar, Savitribai phule Pune University, Pune, India

*Address for Correspondence: Dr. Avinash B. Gholap, Professor, Department of Zoology, P.V.P, College Pravaranagar, Savitribai Phule Pune University, India

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ABSTRACT- The aim of the study was to determine the values of selected haematological indices in *Gallus gallus domesticus*, which is naturally infected with cestode parasites. In spite of the fact that the haematological value of birds (*Gallus gallus domesticus*) are of clinical significant rate than commercial importance. The total erythrocytes and leukocyte count, haemoglobin and mean corpuscular volume were determined. There is a decrease in RBC count i.e (Normal host- $3.98 \times 10^6/\mu\text{l}$ to infected host- $2.96 \times 10^6/\mu\text{l}$) and Hb concentration (Normal host- 10.1 g/dl to infected host- 8.5g/dl). While the total WBC count was increased up to (Normal host- $86.9 \times 10^3/\mu\text{l}$ to infected host- $98.2 \times 10^3/\mu\text{l}$) while PCV, MCH, MCV is a decrease in the infected as compare to the normal *Gallus gallus domesticus*. The study deepens and organizes the knowledge within the possibilities of using and interpreting levels of haematological indicators for monitoring health.

Key-Words: Cestode parasite, *Gallus gallus domesticus*, Haematological parameters

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INTRODUCTION

Birds are valuable and useful to humans for many reasons. The Cestode infection in birds produce droppings of varying consistency 10-12 days after ingesting infective eggs or an intermediate host. Heavily infested birds usually show impaired general condition and are listless, apathetic with dull, ruffled plumage, loss of their weight, anemia and leg weakness. The resulting debility may pave the way of infections and other diseases. Avian cestode faunas in India have been poorly studied. Only 15 species of tapeworms have been reported from avian hosts in Western Maharashtra. The avian cestodes were found for particular genera such as *Davainea*, and *Cotugnia*. We initiated a study of the avian cestode fauna of this region with the goal of developing an inventory of species diversity of these poorly known organisms in a region that has received little attention from Parasitologist.

The present article summarized the overall results of these collections and documents new information for host-parasitic distribution of this poorly known avian cestode fauna [1,2].

The majority of cestodes are long, segmented and tape like, hence called tapeworms. They are flattened dorsoventrally. Sizes vary from a few millimeters to several meters. Adult worms are found in the intestinal canal of man and animal. "Head" is provided with suckers (slit-like or cup-like) and sometimes with hook, which serve as organs of attachment. There are three regions in an adult worm: (i) a "head" (scolex), (ii) a "neck" and (iii) a strobila (a body or trunk) consisting of a series of segments (proglottides). The sexes are not separate, i.e., each individual worm is a hermaphrodite. [3] Body cavity is absent. Alimentary canal is entirely absent. Excretory and nervous systems are present. The reproductive system is highly developed and completely in each segment. Hematological studies are important in diagnosing the structural and functional status of the body. Hematology is the study of blood, and its different components. [4] The vertebrates are inevitable subjected to various kinds of stresses that may lead to down regulation of immunity. Hence, to start the development of infection and diseases may occur various workers studied hematological investigation in some animals due to parasitic infection

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(i.e.) on pigeon [5], on Great tit [6], on local duck [7] of Assam, of normal and infected *Capra hircus*. [8] By nematode infection and on normal and infected *Columba livid* parasitized by helminthes infection.



Fig. 1: Cestode parasites



Fig. 2: Cestode parasites attaced to intestine of host

MATERIALS AND METHODS

The present research work was conducted in Department of Zoology, P.V.P, College, Pravaranagar in the month of Jan to June-2015, The host examination is about Thirty hosts (*Gallus gallus domesticus*) were examined and blood was collected through the brachial wing vein and examined for parasitanemia. Then the hosts (*Gallus gallus domesticus*) were dissected and the intestines were examined for cestode infection. Out of which twelve were found heavily infected and eighteen were normal. The cestode parasites are stored in 4% formalin for further study.

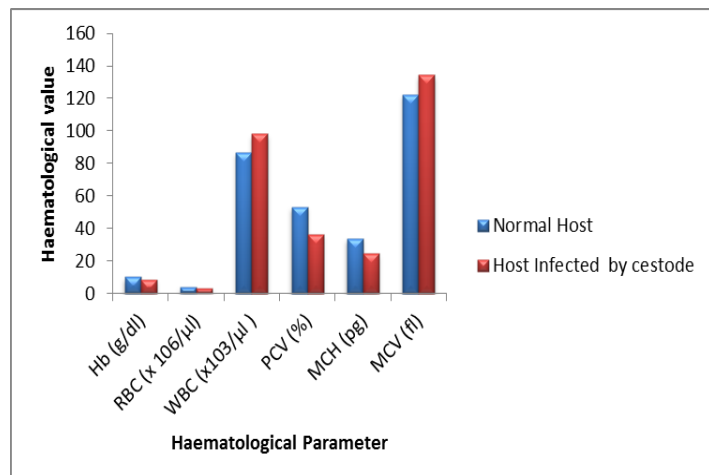
Blood sample Collection

The blood collected were kept in a bottle containing anticoagulant Solution Ethylene diamine Tetra Acetic Acid i.e. EDTA. Determination of hematological parameters under 5 part cell counter instrument the parameter are Red blood cell count (RBC) packed cell volume (PCV), hemoglobin (Hb) concentration, white blood cell (WBC) count, mean corpuscular volume (MCV) and (MCH) main corpuscular hemoglobin were estimated [9].

RESULT AND DISCUSSION

Table 1: Showing haematological status *Gallus gallus domesticus* for normal and infected host due to cestode parasites

No.	Parameters	Normal Host	Host Infected by cestode
1	Hb (g/dl)	10.1	08.5
2	RBC (x 10 ⁶ /μl)	3.98	2.96
3	WBC (x10 ³ /μl)	86.9	98.2
4	PCV (%)	53.3	36.3
5	MCH (pg)	33.8	24.6
6	MCV (fl)	122.5	134.5



Graphical representation of haematological value of normal and infected host *Gallus gallus domesticus* with cestodes parasite

The result of this study indicate that cestode parasite affect the blood parameter of *Gallus gallus domesticus* a significant reduction in the level of RBC count i.e (Normal host- 3.98x10⁶/μl to infected host-2.96x10⁶/μl) and Hb concentration (Normal host- 10.1 g/dl to infected host-8.5 g/dl). While the total Wbc count was increased up to (Normal host- 86.9x10³/μl to infected host-98.2x10³/μl) while PCV (Normal host- 53.3% to infected host-36.3%), MCH (Normal host- 33.8 pg to infected host-24.6 pg) is a

decrease and MCV (Normal host- 122.5 fl to infected host-134.5 fl) is a increases in the infected as compare to the normal *Gallus gallus domesticus*. The implications in the reduction of the parameter lead to anemia, which may be functionally defined as a decreased oxygen carrying capacity of the blood. A very interesting feature that accounts for infected birds show restlessness and different types to helminthes produce different types of changes in haematological parameters in birds.^[10], which is quite comparable to those in mammals including man.^[11] The similar finding also recorded of blood parameters from *Capra hircus* infected with nematode infection^[12]. With the infected birds, the clinical disease is associated with fever, depression, anorexia, loss of body weight, dyspnea, hepatomegaly, splenomegaly, haemorrhage, haemolytic anaemia, haemoglobinuria, leukocytosis, lymphocytosis, hypoalbuminaemia, nephritis, fatty liver, edema of the lungs, hydropericardium and occlusion of capillaries of the brain.

CONCLUSIONS

The present study revealed that helminthes were found chickens in Ahmednagar Dist, Which is naturally infected with cesode parasites, In spite of the fact that the hematological value of birds (*Gallus gallus domesticus*) are of clinical significant rates than commercial importance. Change in the hematological parameter that development of infection and diseases in bird, and affect to the human being?

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