

# EFFECT ON BIOMOLECULES DUE TO CESTODE INFECTION IN KADAKNATH HEN (*Gallus gallus domestic*)

<sup>1</sup>Avinash B. Gholap,<sup>2</sup>Hemlata. J. Wankhede,<sup>3</sup>Nutan N. Pawar, <sup>4</sup>AishwaryaSanap  
<sup>1</sup>Assistant Professor, <sup>2</sup>Director, <sup>3</sup>Teacher, <sup>4</sup>Student  
<sup>1,4</sup>Department of Zoology, P.V.P, College, Pravaranagar, Ahmednagar (M.S), India  
<sup>2,3</sup> Institute of Science, Aurangabad (M.S), India

**Abstract :-** The aim of present investigation was to determine the effect on protein, lipid and glycogen biomolecules due to infection of cestode parasite in host Kadaknath hen, the result shows that changes in biomolecules concentration due to cestode infection Glycogen content in cestode 14.2 mg/gm and Host intestine (normal) contain 48.6 mg/gm and infected intestine of host contented 37.31mg/gm. The protein content of Cestode showing 7.8 mg/gm of tissue whereas in host intestine (Normal) 16.5 mg/gm weight of tissue of an infected intestine of host intestine 12.8 mg/gm wt.of tissue While The lipid content of Cestode is showing 27.4 mg/gm of tissue whereas in host intestine (Normal) 26.5 mg/gm weight of tissue of an infected intestine of host intestine 9.3 mg/gm wt. of tissue

**IndexTerms-** Cestode parasite, Kadaknath, Biomolecules

## I. INTRODUCTION

Birds are precious and useful to humans for many reasons. The Cestode infection in birds produce excrement of varying consistency 10-12 days after ingesting infective eggs in an intermediate host. (Yamaguti, S 1940) laboriously infested birds usually show impaired general condition and are lethargic, apathetic with dull, ruffled plumage, weight loss, anemia and leg weakness. The resulting debility may cover the way of infections and other diseases. (Wankhed H J, Gholap A B, 2016). The Kadaknath is an Indian breed of poultry local to the Madhya Pradesh area where it is known as Kali- Masi. (Parmar, S. N. S, 2006) The Kadaknath is popular mainly for its adaptability and the good tasting of black meat which meat is believed to infuse vigour, The demand for Kadaknath chicken is growing day by day and spread across most of the Indian states due to their excellent medicinal values the commercial scale of Kadaknath chicken rising especially in the states Kerala, Andhra Pradesh, Telangana, and Tamilnadu. The egg is in brown color. Kadaknath chicken breed are adaptable to any kind of environment. Kadaknath Chicken meat and their eggs are sold for high price in the market. Kadaknath chicken said to be aids in curing pulmonary problems. (Biswas, J. Mohan and K. V. H. Sastry, 2010) The Kadaknath chicken eggs are used to treat headaches, post delivery problems, asthma and nephritis. Kadaknath black meat contain vitamin, protein, fat, calcium, phosphorus, iron and nicotinic acid etc International reports suggest that native breeds of livestock are becoming extinct as they cannot economically, compete with commercial breeds with much higher production in many developing countries like India, The local gene pool still provides the basis for poultry sector. It still has the favour of the local people especially in the rural sector (H.R. Kiani-Manesh 2002), Proteins are large biological molecules, they perform a vast array of functions within living organism like catalyzing metabolic reactions, DNA Replication, responding to stimuli, and transportation of molecules from one location to another. Glycogen is impotent source of energy to cestode having role in metabolism while lipid are absorb from host for metabolic activity. The parasites are taking advantages of host and absorbing most of the nourishing biomolecules materials. (Sonune M.B., 2012)

## II. MATERIALS AND METHODS

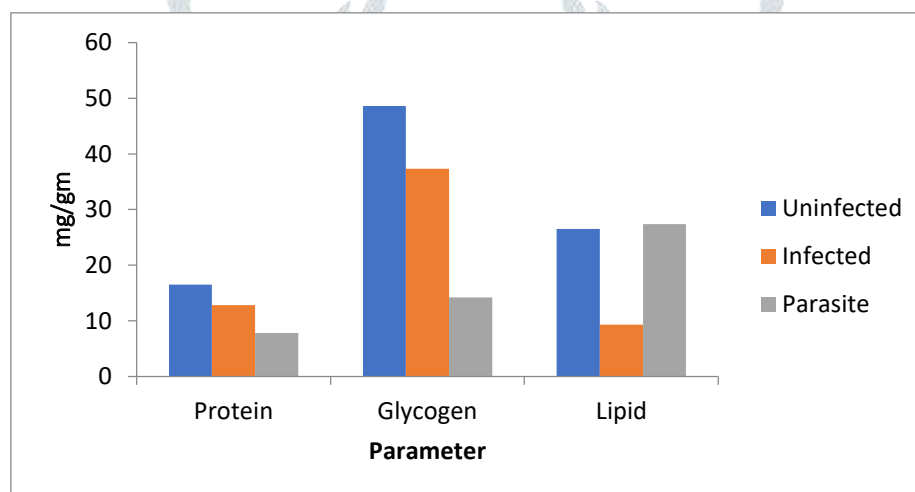
The present work done in Department of Zoology P.V.P college Pravaranagar. The kadaknath intestine sample collected at Loni area. Total 05 intestines is collected from Kadaknath hen in which 2 intestines was infected and 3 intestines uninfected all infected and uninfected sample with parasites is preserved for biochemical estimation. The sample was collected was noted. The samples were taken to the

laboratory. Each gastro-intestinal tract was spread on dissecting board and separated into its different sections. The lumen of each section was opened longitudinally and content scrapped into a Petri dish. The content of each section was then observed under a light microscope for helminths. Helminths from each section / infected/uninfected parasites were isolated, counted and preserved in labelled vials containing 4% formalin. The helminths were examined and identified microscopically, and for biochemical studies. (Barret, 1982, Jayaraman J, 1996)., after that host intestine and parasite are dry at 57°C and powder it, then 1 gm of powder dissolves in 5% TCA. The content of protein in the cestode parasites were carried out by (Lowry's *et al.*, 1951) method, the glycogen content were carried out by (Kemp *et al.*, 1954) method and lipid estimation by (Barnes and Bradstock, 1973) method.

**TABLE 1: Protein, lipid, and Glycogen Content of Normal, Infective intestine and Parasites**

Parameter	Uninfected	Infected	Parasite
Protein	16.5mg/gm	12.8 mg/gm	7.8 mg/gm
Glycogen	48.6mg/gm	37.31mg/gm	14.2mg/gm
Lipid	26.5mg/gm	9.3 mg/gm	27.4 mg/gm

**Graph 1: Graph showing Protein, lipid and Glycogen Content of Normal, Infective intestine and Parasites**



### III. RESULTS AND DISCUSSION

About 5 intestines were dissected out of 2 are that infected and 3 are non-infected. total 05 Gastrointestinal tracts of Kadaknath hen examined species of helminths comprising 10 cestodes were identified. Estimation of protein, lipid, and glycogen in Cestode parasites and intestine of Kadaknath are shown in the table. Glycogen content was very low in cestode 14.2 mg/gm as compared to their host intestine (normal) 48.6 mg/gm and infected intestine of host contained 37.31 mg/gm. The protein content of Cestode showing 7.8 mg/gm of tissue whereas in host intestine (Normal) 16.5 mg/gm weight of tissue of and infected intestine of host intestine 12.8 mg/gm wt. of tissue. While the lipid content of Cestode is high showing 27.4 mg/gm of tissue whereas in host intestine (Normal) 26.5 mg/gm weight of tissue of and infected intestine of host intestine 9.3 mg/gm wt. of tissue. From above biochemical variation/estimation concluded that the % of glycogen and lipid is high in parasite as compared to protein. These parasites are absorbing most nourishment from host (tissue). Full filling its need and causing hindrance in the proper development of tissue. The investigation revealed that birds were more infected with helminth parasites. (Asawari Fartade and Ravindra Chati, 2016)

#### IV. CONCLUSION

More attention should be attentivetowards the improvement of the poultrymanagement and care of local breed of chickens from parasitic infection which are usually free from diseases. Therefor there is the need to supplement scavenging poultry with an energy source.

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#### VI. REFERENCES

- 1) AsawariFartade and RavindraChati, 2016. Biochemical studies on cestode parasites in *Gallusgallus domesticus* in Solapur and Osmanabad district, M.S (India), *IJFBS.*; 3(4): 109-110
- 2) Barnes, H and Bradstock, Z J, 1973, Estimations of lipid in marine animal and tissue. *J. Expt. Mar. Biol. Ecol.*; 12:103-118.
- 3) Barret, 1982. Biochemistry of helminth parasitic, “McMillan publisher limited, London, 31:7-8.
- 4) Biswas, J. Mohan and K. V. H. Sastry, 2010. Effect of Vitamin E on Production Performance and Egg Quality Traits in Indian Native Kadaknath Hen, *India Asian-Aust. J. Anim. Sci.* ; 23(3) : 396 - 400
- 5) H. R. Kiani-Manesh, A. Nejati-Javaremi and D. Saneei, 2002, Estimation Of (Co) Variance Components Of Economically Important Traits In Iranian Native Fowls ,*7th World Congress on Genetics Applied to Livestock Production, Poultry and rabbit breeding Communication*, August 19-23,
- 6) Jayaraman J.1996, Laboratory manual in biochemistry, 5th (Ed) new age international ltd. Pub. New Delhi. 144-116.
- 7) Kemp, A. and A. J. M. Kits van Heijningen, 1954, a colorimetric micro-method for determination of glycogen in tissue. *Biochem. J.*; 56:646.
- 8) LowryO H, Rosenborough, N J and Farr A L, 1951, Estimation of total protein. *J. Biol. Chem*; 193: 265-275.
- 9) Parmar, S. N. S., M. S. Thakur, S. S. Tomar and P. V. A. Pillai. 2010, Evaluation of egg quality traits in indigenouse Kadaknathbreed of poultry. *Livestock Res. Rural Dev.*; 18 (9):18-25.
- 10) Sonune M. B. 2012, Analysis of gastrointestinal parasites of poultry birds around Chikhli, Buldana (M.S.) India. *Science Research Reporter*, 2 (3): 274-276.
- 11) Wankhed H J, Gholap A B 2016, Effect of Cestode Parasites on Haematological Parameters in Gallus gallus domesticus in Ahmednagar Distict,*Int. J. Life. Sci. Scienti. Res.*, 2(3):1-3
- 12) Yamaguti S.1940, Studies of helminth fauna of Japan. Part 30. Cestodes birds, ii .Japan. *J. Zool. Med. Sc. Soct.* IV, V, I.; 175-211