

STUDIES ON POPULATION DYNAMICS OF HELMINTH PARASITES IN *GALLUS GALUUS DOMESTICUS* FROM SOLAPUR AND OSMANABAD DIST (M.S.) INDIA**Asawari Fartade¹, Ravindra Chati²****Department of Zoology, Shri Shivaji Mahavidyalaya, Barshi. Maharashtra, India.****ABSTRACT**

The present investigation deals with the seasonal variation of helminth parasites in *Gallus gallus domesticus* from Solapur and Osmanabad Dist. M.S. (India) during Aug 2015 to July 2016. Helminth parasites were recovered from *Gallus Gallus domesticus*. This report summarizes the percentage of incidence, intensity, density and index of infection. The high infection occurs in summer season especially in the month of March to May; while low infection occurs in winter season followed by rainy season. The present study indicates the seasonal infection of helminth in *gallus domesticus*.

Key words: Helminth parasite, *Gallus gallus domesticus*, Population dynamics, Solapur and Osmanabad.

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INTRODUCTION

Birds are important components of ecosystem. They are important from ecological, medicinal, nutritional and economical point of view. Man uses many birds as delicious and nutritious food. Similarly birds also produce. Some important products like meat, egg and beautiful feathers. The common internal parasitic infection occurs in domestic fowl include Cestode, trematod and nematode. These worms infectious may causes considerable damage and great economic loss due to malnutrition, decreased feed conservation ratio, weight loss and death in young ones.

Diseased birds can also be hazardous to the human health; there may be possibilities of damage to the human body due to intake of diseased birds. In India, huge loss of birds due to diseasedis being faced formers due to management related problems, birds carry heavy infection of varied types of parasite, i.e. helminth, and protozoan, viruses and arthropods etc. intestinal parasitic helminthes have a serious impact on birds' health, productivity quality and quantity of meat.

The prevalence and intensity of parasitic helminth may be influenced by several factors, such as climatic conditions (temperature and humidity) may alter the population dynamics of the parasites resulting in dramatic changes in the prevalence and intensity of helminth infections. Many insects that may acts as vectors for helminthes are also favored by high temperatures and to some extent humidity.

Hence considering the economic importance of the disease caused by parasitic helminthes in chickens which interns affect on total production causing high economic loss to the farmers as well as nation too. Keeping in view the severity of the parasitic helminthes as systematic work has been undertaken to determine the overall and seasonal prevalence of the parasitic helminthes a systematic work has been undertaken to determine the overall and seasonal prevalence of the parasitic helminth and identify the common helminth parasites in gavran chicken from Solapur and Osmanabad dist of Maharashtra.



Fig. 1 Cestode parasite found in *gallus gallus domesticus*.

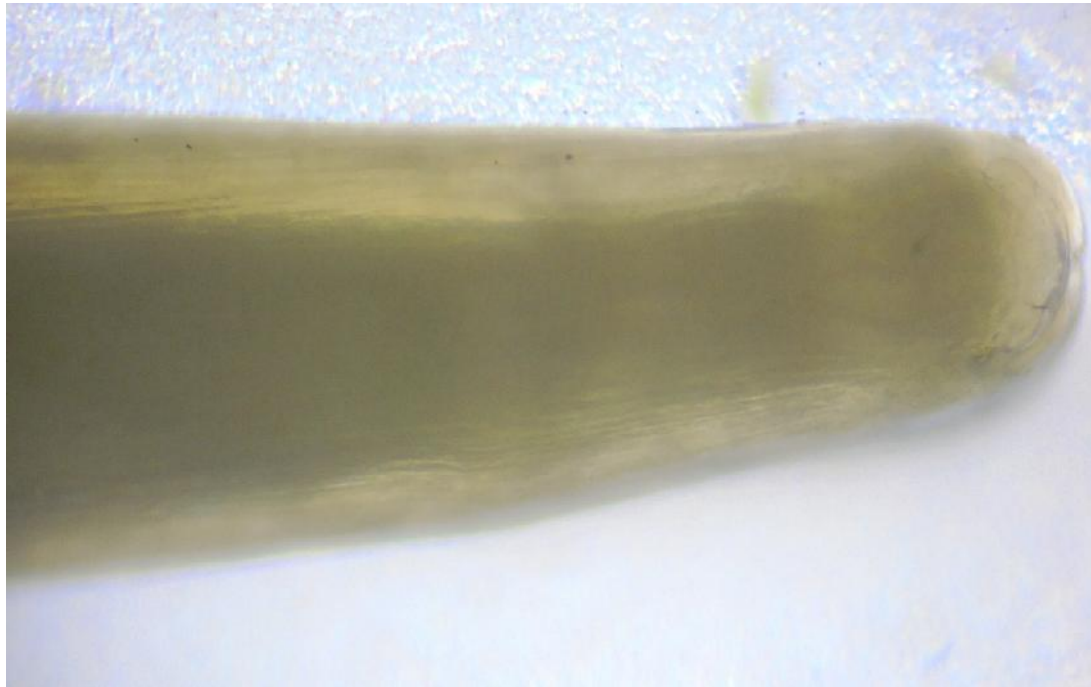


Fig. 2 Nematode parasite found in *Gallus gallus domesticus*.

MATERIAL AND METHOD

Birds (*Gallus gallus domesticus*) are collected from slaughter house and chicken shops of different places of Solapur and Osmanabad dist. The helminth parasites were collected preserved, processed to a permanent slide and identification under a compound microscope. While drawings are made with aid of camera Lucida. The identification was made with the help of "Systema Helmithum" Vol II Helminth of vertebrates by Yamaguti (1961).

Population dynamics of helminth parasites were determined by following formula.

- Infected hosts

• Incidence of Infection = $\frac{\text{-----}}{\text{Total hosts examined}} \times 100$
- Number of parasites collected in a sample

• Intensity of Infection = $\frac{\text{-----}}{\text{Number of infected hosts}}$
- Number of parasites collected in a sample

• Density of Infection = $\frac{\text{-----}}{\text{Total hosts examined}}$
- No. of hosts infected x No. of parasite collected

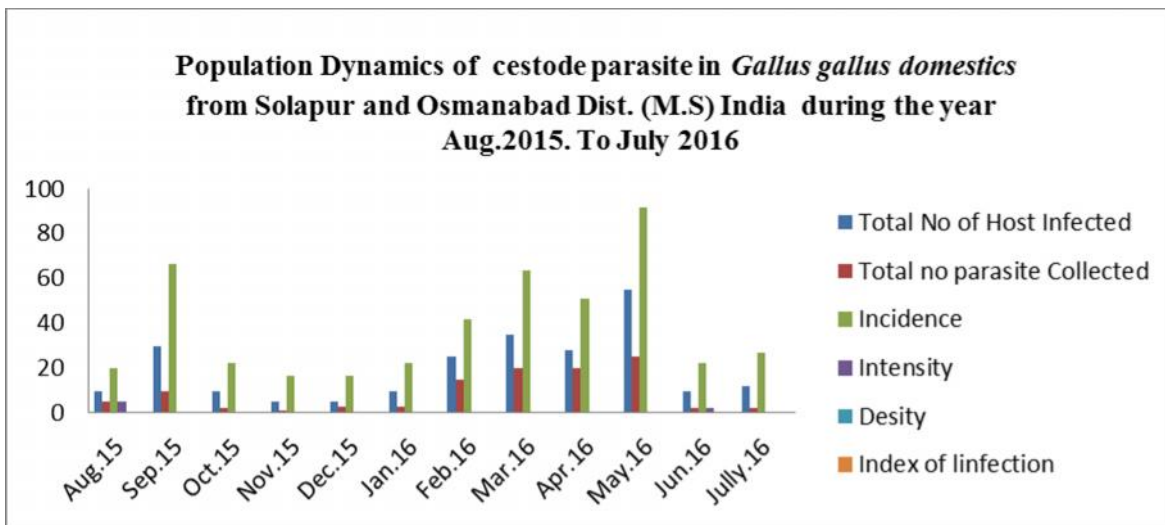
• Index of Infection = $\frac{\text{-----}}{(\text{Total hosts examined})^2}$

OBSERVATION TABLE

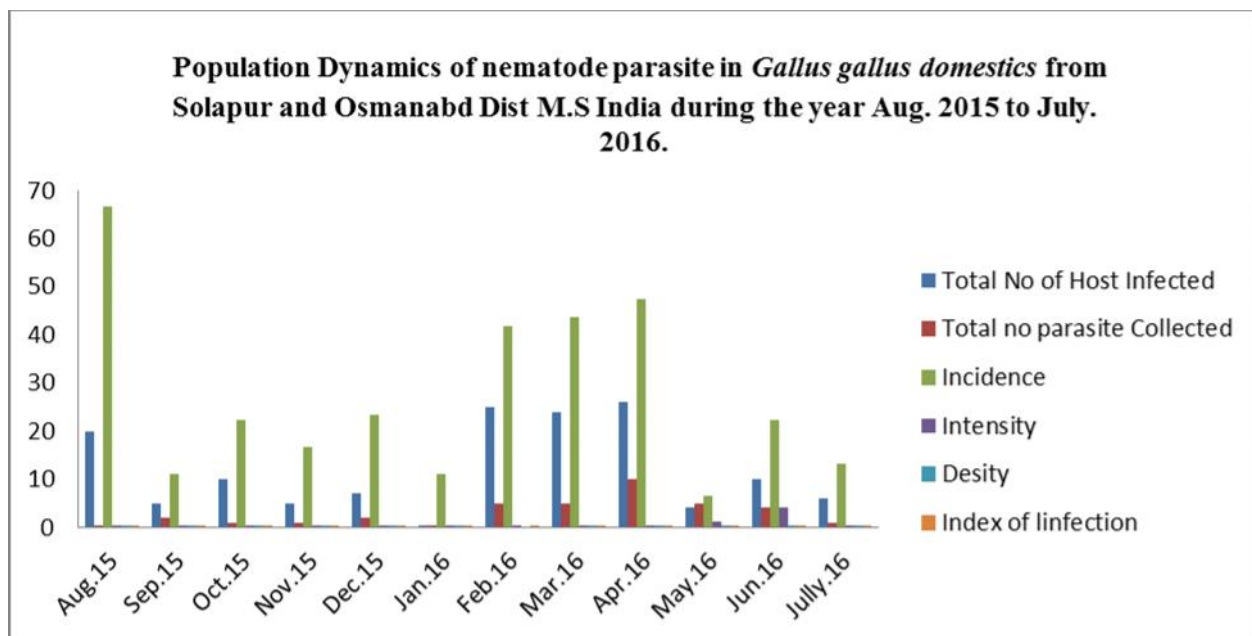
Table No.1 Population Dynamics of Helminth Parasite in *Gallus gallus domesticus* from Solapur and Osmanabad Dist. (M.S.) India During the year Aug 2015 to July 2016

Month	Name of Parasite	No Of Host examine	No of host Infected	Total No of Host Infected	Total no parasite Collected	Incidence	Intensity	Density	Index of infection	Habitat /locality
Aug.15	Cestode	50	30	10	5	20	5	0.1	0.02	Solapur
	Trematode			0	0	0	0	0	0	
	Nematode			20	0.5	66.66	0.25	0.1	0.04	
Sept.15	Cestode	45	35	30	10	66.66	0.33	0.22	0.148	Barshi
	Trematode			0	0	0	0	0	0	
	Nematode			5	2	11.11	0.4	0.44	0.004	
Oct.15	Cestode	45	20	10	2	22.22	0.2	0.04	0.009	Vairag
	Trematode			0	0	0	0	0	0	
	Nematode			10	1	22.22	0.1	0.02	0.0004	
Nov.15	Cestode	35	10	5	1	16.66	0.2	0.03	0.005	Yermala
	Trematode			0	0	0	0	0	0	
	Nematode			5	1	16.66	0.2	0.02	0.005	
Des.15	Cestode	30	12	5	3	16.66	0.6	0.1	0.016	Kalam
	Trematode			0	0	0	0	0	0	
	Nematode			7	2	23.33	0.28	0.06	0.015	
Jan. 16	Cestode	45	15	10	3	22.22	0.3	0.06	0.014	Ujani
	Trematode			0	0	0	0	0	0	
	Nematode			0.5	0.1	11.11	0.2	0.02	0.002	
Feb.16	Cestode	60	50	25	15	41.66	0.6	0.25	0.104	Solapur
	Trematode			0	0	0	0	0	0	
	Nematode			25	5	41.66	0.2	0	0.034	
Mar.16	Cestode	55	50	35	20	63.63	0.57	0.36	0.23	Barshi
	Trematode			0	0	0	0	0	0	
	Nematode			24	5	43.63	0.2	0.09	0.039	
Apri.16	Cestode	55	52	28	20	50.9	0.71	0.36	0.185	Vairag
	Trematode			0	0	0	0	0	0	
	Nematode			26	10	47.27	0.38	0.18	0.085	
16-May	Cestode	60	59	55	25	91.66	0.25	0.41	0.381	Ujani
	Trematode			0	0	0	0	0	0	
	Nematode			4	5	6.6	1.25	0.08	0.005	
Jun. 16	Cestode	45	20	10	2	22.22	2	0.04	0.009	Barshi
	Trematode			0	0	0	0	0	0	
	Nematode			10	4	22.22	4	0.08	0.019	
16-Jul	Cestode	45	18	12	2	26.66	0.16	0.04	0.011	Solapur
	Trematode			0	0	0	0	0	0	
	Nematode			6	1	13.33	0.16	0.02	0.002	

Graph. No.I Population Dynamics of cestode Parasite in *Gallus gallus domesticus* from solapur & Osmanabad Dist (M.S.) India. During the year Aug 2015 to July 2016



Graph 2: Population Dynamics of nematode parasite in *Gallus gallus domesticus* from Solapur and Osmanabad Dist M.S. India during the year Aug. 2015 to July. 2016.



RESULT AND DISSCUSION

The data of population dynamics of helminth parasites of *Gallus gallus domesticus* from different places of Solapur and Osmanabad dist (M.S) India during Aug 2015- July 2016.

The analysis of data showed that the occurrences of helminth parasites variable according to season. The high incidences, intensity, density and index of infection of all the helminth parasites occurred in summer season followed by winter season where

as lower infections in monsoon season .The intensity varies greatly with respect to helminth parasites and host species, host size and feeding habitats, season and locality.

On incidences works have been done by Wunder (1939), Calentine and Fredrickson (1965) and Kanavev (1965).

According to the Kennedy (1971, 1975 and 1977) and Rodhe (1993) the temp, humidity and rainfall, feeding habitats of host, availability of infective hosts and parasite maturation, and such factors are responsible for influencing the parasitic infections.

CONCLUSION

After the analysis of data the present study can be concluded that the high infections of helminth parasite (incidences, intensity, density and index of infection) are occurred in summer season followed by winter whereas low in monsoon season. This type of results indicated that environmental factors and feeding habitat are influencing the seasonality of parasitic infection either directly or indirectly.

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