

# ENDOHELMINTH PARASITES OF DOMESTIC FOWL (*Gallus Domesticus*) IN DODA DISTRICT OF JAMMU & KASHMIR STATE, INDIA

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## ABSTRACT

Domestic fowl constitute an important source of protein mostly in rural areas. Different types of helminth parasites have been found infecting domestic fowl all over the world. The decreased productivity and increased mortality in fowl is mainly due to mismanagement, lack of nutritional feeding and diseases. The aim of this study was to find out the prevalence of various endohelminth parasites infecting domestic fowl in district Doda of Jammu & Kashmir State, India. Visceral samples from domestic fowl were collected from different areas of Doda district and examined for any probable endohelminths. Study revealed that 67.85 percent of the birds were infected with endoparasites. Different types of helminth parasites recovered included *Raillietina tetragona*, followed by *Heterakis gallinarum* and *Ascaridia galli*. Occurrence of various endohelminth parasites calls for intervention measures like mass chemotherapy of fowl of district Doda.

## INTRODUCTION

Poultry is of great importance in rural production system in small communities throughout the developing world. According to WATT, 1996 poultry production has been constantly increasing over the past decades and a survey made by FAO shows that whole poultry

population in the world has reached about 14 billion of which 75 percent among these are in developing countries (FAO, 2000). The domestic fowl and eggs provide an important source of protein for human consumption. The increased mortality and decreased productivity in chickens is mainly due to mismanagement, lack of nutritional feeding, diseases and predation. Helminthiasis is more common in outdoor than indoor flocks. The nematodes are widely distributed causing nonspecific clinical signs of infection, such as loss in appetite and growth and on occasions even death. These parasites have either a species specific, direct bird to bird life cycle or they have indirect cycle requiring intermediate host.

The present study was ventured to determine the prevalence of gastrointestinal helminth infections in domestic fowl.

## MATERIAL AND METHODS

In the present study, regular visits were made to selected areas (Banihal, Thathri, Baderwah, Doda, Kishtwar) of district Doda to collect samples. Age and sex of the animals were also recorded. The viscera were thoroughly examined and the cestode and trematode parasites recovered were fixed in Carnoy's fixative and then kept in 70 percent alcohol. Nematode parasites were fixed in hot 70

percent alcohol and preserved in 70% alcohol and glycerine. The parasites were then processed and mounts were prepared for their identification in parasitological laboratory of the department of Zoology, the University of Kashmir.

## RESULTS

140 domestic fowl were examined during the present study. 67.85 percent (95/140) of the birds studied were infected with endohelminths. The different types of helminth parasites recovered during the study included *Raillietina tetragona*, with highest prevalence of 51.42 percent followed by *Heterakis gallinarum* (31.42 percent) and *Ascaridia galli* (30.71 percent). *Raillietina tetragona* was the most abundant parasite with mean abundance of 2.18 followed by *Heterakis gallinarum* (1.15) and *Ascaridia galli* (0.64) (Table 1).

### Seasonal prevalence

Highest prevalence was noticed in summer (72.8 percent) followed by spring (68.75 percent), autumn (64.51 percent), and winter (55.5 percent). The results thus prove the role of warm and humid environmental conditions during summer season in higher prevalence of infections among domestic fowl (Table 2).

Season	No. examined	Infected (%)
Spring	32	22 (68.75)
Summer	59	43 (72.8)
Autumn	31	20 (64.51)
Winter	18	10 (55.5)

### Sex wise prevalence

There seems to be some sex related link in the infection pattern in domestic fowl. Males were generally more infected by all the helminth parasites than females (Table 3). The prevalence of *Ascaridia galli* was 31.1 percent in males and 28.2% in females. *Heterakis gallinarum* prevalence was 35 percent and 23 percent in male and female fowl respectively. Likewise prevalence of *Raillietina tetragona* also peaked in males with prevalence of 55.3 percent than in females (43.49 percent).

## DISCUSSION

Present study revealed a high prevalence (67.85 percent) of helminth infection in domestic fowl (*Gallus domesticus*). These figures when compared to the studies round the globe show that Doda is also an endemic

Parasite	Total infected	%age	No. of parasites	Abundance	MI±SD
<i>Ascaridia galli</i>	43	30.71	90	90/140= 0.64	2.09±0.7
<i>Heterakis gallinarum</i>	44	31.42	161	161/140=1.15	3.65±0.5
<i>Raillietina tetragona</i>	72	51.42	306	306/140=2.18	4.25±1.7
Total	95	67.85	557	557/140=3.97	5.86±1.9

Sex	No. examined	<i>Ascaridia galli</i>	<i>Heterakis gallinarum.</i>	<i>Raillietina tetragona.</i>	P- value
		No. (%)	No. (%)	No. (%)	
Male	94	30(31.19)	33(35)	52(55.3)	0.05
Female	46	13 (28.2)	11(23)	20(43.49)	
Total	140	43(30.71)	44(31.42)	72(51.42)	

region of helminth infection of fowl.

The high prevalence of infection observed in domestic fowl can be due to the type of production system, their constant contact with soil and intermediate host, free ranging management system and climatic conditions which alter the population dynamics of the parasite. Similar reasons were shown to be related with high prevalence of helminthiasis in domestic fowl by Yadav and Tandon (1989) and Magwisha *et al.* (2002).

In the present study it was observed that male chicken had a higher prevalence of infection than females, which is in agreement with the reports by Soulsby, 1982, Negesse, 1991, Sanders and Schwartz, 1994, Magwisha *et al.*, 2002, Phiri *et al.*, 2007. In Nsukka, Eastern Nigeria, 2003, Fakae and Paul-Abiade reported that male fowls carried significantly ( $P < 0.05$ ) more parasite burden than female, Magwisha *et al.* 2002 observed that *Heterakis gallinarum* prevalence is higher in male than female chickens, which is in agreement with our observation. This may be due to hormonal influence.

In current study prevalence of helminth infection was generally high during warm months of spring and summer than in other seasons of the year. The difference in the helminthic prevalence might be due to various factors such as geographical and environmental conditions of the area. In cold temperature, lower level of infestation occurs as low temperature inhibit the development and survival of infective larval stages hence decrease access to intermediate hosts or final hosts. These findings are comparable with the previous reports from other parts of world. Mpoame and Agbede, 1995 reported that the parasitic prevalence and the worm burdens were generally higher during April to October. Magwisha *et al.* 2002, observed that helminthic infection varied with the month in

the rainy season, and showed that burdens of cestode such as *Hymenolepis* and *Raillietina tetragona* were higher ( $P < 0.05$ ) in March.

## CONCLUSION

From the above results, it is clear that helminth infection is widely prevalent in fowls of district Doda. This calls for the institution of control measures like mass chemotherapy of all the fowl periodically at least once a year, so that the load of heminths could be lowered and productivity increased.

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