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Studies on Prevalence of Gastrointestinal Helminthic Infections in Poultry of Durg (Chhattisgarh)

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ABSTRACT

The present study was undertaken to determine the prevalence of gastrointestinal helminthic infections in birds reared under deep litter and free range system in Durg, Chhattisgarh. For this study, the gastrointestinal tracts of 100 farm birds reared under deep litter system and 100 local birds reared under free range system were collected from Durg district and screened for the presence of helminth parasites. The study revealed that the prevalence of gastrointestinal helminthic infection was 25% in farm birds out of which 12 (48%) were found positive for Ascaridiagalli, 11 (44%) harboured Raillietinaspp as single infection and remaining 2 (8%) had mixed infection. Among 100 local birds, 67 (67%) were found positive of gastrointestinal parasites, out of which 24 (35.82%) were found positive for Raillietinaspp, 12 (17.91%) had A. galli, 3 had Heterakisgallinarum (4.48%) infections and remaining 28 (41.79%) had mixed infection.

Key word: *Gastrointestinal tract, Helminth parasites, Prevalence, Poultry, Durg*

INTRODUCTION

Poultry farming, backyard farming in particular, makes a significant contribution to improve the nutritional status and income of many smallholder farmers and landless communities as well as in the national economy of developing countries like India. Helminthiosis is considered as one of the significant constraints on profitable poultry production in humid tropical climatic conditions of India, which are favorable for faster propagation and development of the larval stages of helminth parasites[10,9,7]. Though the impact of parasitic diseases in farm birds reared on cage systems have diminished due to modernization in poultry farming and biosecurity measures, farm birds maintained on deep litter system and backyard free ranging still remain susceptible to parasitic infection via litter droppings and scavenging habits.

The worm infections cause considerable damage and great economic loss to the poultry industry due to malnutrition, decreased feed conversion ratio, weight loss, lowered egg production and death in young birds[13].

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Parasitism has also been reported to result in up to 17% reduction of weight gain in growing chicks and 12.5% reduction in egg production in egg laying hens[2]. Prevalence of gastrointestinal helminth parasites has been reported from different parts of India like Pantnagar[8], Bangalore[13], Marathwada region[12], Jabalpur[17], etc. and from abroad like Pakistan[15], Bangladesh[4], Iran[3] etc. However, reports regarding the gastrointestinal parasites of poultry from Chhattisgarh are very scanty. Therefore, the present studies were conducted to see the prevalence of gastrointestinal helminth parasites of poultry in Durg district of Chhattisgarh.

MATERIAL AND METHOD

Two hundred gastrointestinal tracts comprising of 100 local birds reared under free range system and 100 farm birds reared under deep litter system were collected from slaughter houses in different markets of Durg district. The intestines were dissected longitudinally and screened for the presence of helminth parasites. The adult parasites recovered from the intestine were preserved in 10% buffered formalin for identification. The helminth species were identified according to the description given by Soulsby[16].

The following formula was used to analyze the prevalence of GI helminthes

Prevalence (%) = (No. of chickens Infected / No. of chickens examined) x 100

RESULT AND DISCUSSION

In the present study, the gastrointestinal tracts of 100 farm birds reared under deep litter system and 100 local birds reared under free range system were screened for the presence of gastrointestinal helminths. Among 100 farm birds reared under deep litter system, 25 (25%) were found positive of gastrointestinal parasites on gross examination of gastrointestinal tract (Table 1). Out of 25 infected birds, 12 (48%) were found positive for *Ascaridiagalli*, 11 (44%) harboured *Raillietina*spp as single infection and remaining 2 (8%) had mixed infection. Among mixed infection *A. galli* and *Rallietina*spp were recorded in one bird and *Subulurabrumpti* (*Allodapasuctoria*) and *Raillietina* spp were found in another bird (Table2). Hence, Parasite wise prevalence was 13% for both *A. galli* and *Raillietina* spp and 1% for *S. brumpti*. Among 100 local birds reared under free range system, 67 (67%) were found positive of gastrointestinal parasites. Out of 67 infected birds, 24 (35.82%) were found positive for *Raillietina*spp (Fig.1), 12 (17.91%) had *A. galli* (Fig. 2), 3 had *Heterakisgallinarum* (4.48%) infections and remaining 28 (41.79%) had mixed infection (Table 1). Among mixed infections, *A. galli* and *Rallietina*spp were recorded in 13 birds, *A. galli* and *H. gallinarum* in 4 birds, *H. gallinarum* and *Raillietina*spp in 4 birds, *S. brumpti* and *Raillietina* spp. in 1 bird and *A. galli*, *H. gallinarum*, and *Raillietina*spp. in 6 birds (Table 2).

The Parasite-wise prevalence in free range birds were 48% for *Raillietina*spp, 35% for *A. galli*, 17% for *H. gallinarum*, and 1% for *S. brumpti*. Different parasites present in the GI tract of birds are *A. galli*, *H. gallinarum* and *S. brumpti* among nematodes and *Raillietina*spp among cestodes. The present study also showed that, *A. galli* and *Raillietina*spp were found in caecum along with intestine in one bird (Fig.3), whereas only *A. galli* was found in caecum of other bird. Neither farm birds nor the local birds showed trematode infection. Absence of trematode infection in the present study might be due to non accessibility of infected snails.

Table 1: Overall prevalence of helminthes parasites in poultry in Durg

Birds reared under	Number of birds examined	Number of positive cases	Prevalence(%)	Types of infection	Number of infected birds	Prevalence(%)
Deep litter system	100	25	25	*Ascaridiagalli*	12	48
				*Raillietina*spp	11	44
				Mixed	2	8
Free range system	100	67	67	*Ascaridiagalli*	12	17.91
				Heterakisgallinarum	3	4.48
				*Raillietina*spp	24	35.82
				Mixed	28	41.79

Table 2: Mixed infection of intestinal parasites of deep litter and free range birds

Birds reared under	Parasites	Number of infected birds	Prevalence (%)
Deep litter system	*A. galli*+ *Raillietina*spp	1	4
	S. brumpti+*Raillietina*spp	1	4
Free range system	*A. galli*+ *Raillietina*spp	13	19.40
	A. galli + *H. gallinarum*	4	5.97
	H. gallinarum+ *Raillietina*spp	4	5.97
	S. brumpti+*Raillietina*spp	1	1.49
	A. galli + *H. gallinarum*+ *Raillietina*spp	6	8.96

Fig 1: Collection of *Raillietina* spp from chicken intestine(free range system)

Fig. 2: Collection of adult A. galli parasites from intestines of chicken reared under free range system

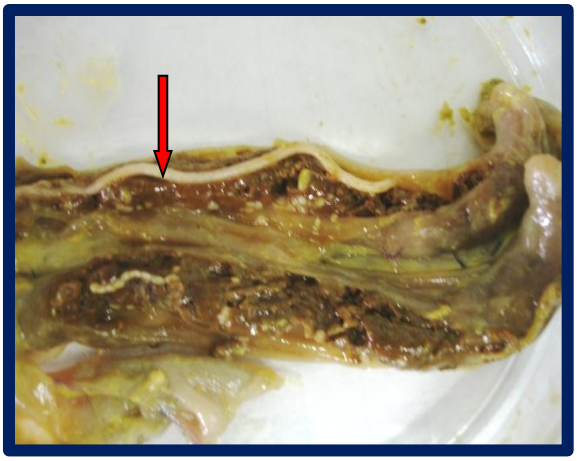

Fig. 3: Photograph showing presence of *A. galli* (red arrow) and *Raillietina* spp (green arrow) in caecum (free range system)

The overall prevalence of infection in free range birds (67%) was higher, than the farm birds (25%). This was not uncommon because free range system allowed them free access to virtually all types of pathogen present in the environment. These results were in agreement with the finding of Raote *et al.*[14] who recorded 71% prevalence of helminths in Akola region, Hange *et al.*[5] reported 63% prevalence rate in desi birds at Parbhani; Puttalakshmamma *et al.*[13] reported 71% prevalence in desi birds around Bangalore; Katoch *et al.*[6] observed prevalence of 72% in free range birds of subtropical and humid zone of northwestern India; Bhat *et al.*[1] reported prevalence rate of 68.33% in free range birds of North Indian region and Garedaghi and Haji,[3] reported prevalence of 63% in domestic chicken in Iran. Present study also showed that the prevalence of *A. galli* and *Raillietinaspp* was same in the birds reared under deep litter system, while prevalence of *Raillietina*spp was highest in free range birds followed by *A. galli*, *H. gallinarum*, and *S. brumpti*. The present observation were quite similar with the observations made by Nadakal *et al.*[11] who reported highest prevalence rate of cestodes followed by nematodes in desi birds.

CONCLUSION

The study of screening of 100 farm birds and 100 local birds revealed that the prevalence of gastrointestinal helminthic infection was 25% in birds reared under deep litter system and 67% infection in birds reared under free range system. Therefore, more attention should be focused towards the improvement of the poultry management and care of local breed of chickens which are usually free ranging. The study provides valuable information regarding prevalence of gastrointestinal helminthes and will essentially be helpful for researchers and local veterinarians to develop strategies for both treatment and control of these parasites of poultry.

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