PREVALENCE OF CESTODE PARASITES OF DOMESTIC FOWL (*Gallus gallus domesticus*)

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ABSTRACT

One hundred and twenty chickens were examined during the period of February 1998 to January 1999 to investigate the prevalence and worm burden of cestode parasites. Seven species of cestodes were found as *Raillietina* spp., (1.66%), *R. tetragona* (51.66%), *R. cesticillus* (5.83%), *Cotugnia* spp., (31.66%). *Hymenolepis* spp., (1.66%), *H. Contaniana* (0.83%) and *H. Carioca* (0.83%). *R. tetragona* had the highest worm burden (21.82) and worm burden of *H. carioca* was lowest (1).

INTRODUCTION

Poultry production in an important field in agriculture in Pakistan. Its importance can be judged from the fact that almost every family in rural areas and every fifth family in urban areas are associated with poultry production in one way or the other. Poultry production has emerged as a check and balance force towards prices of beef and mutton. The threat of economic problems due to parasitism is always present when chickens are raised. These parasites cause heavy economic losses in the form of retarded growth. The chickens infected with cestodes parasites show retarded gowth, decreased egg production, reduced weight gain, significant hemoglobin depression (Nair and Nadakal, 1981), villous atrophy, catarrhal enteritis, granuloma formation in duodenum, desquamation of villi and submucosal glands congestion, inflammatory reaction and vacuolation of epithelial cells (Kurkure *et al.*, 1998).

Considerable work has been done on the cestode parasites of chicken in other parts of country except in Multan. Results of the present study, therefore, are expected to be helpful for future research programs on cestode parasites of domestic fowl in this area. So keeping in view the importance of these parasities in chickens, the present study was designed with following aims:

to investigate the prevalence and worm burden of cestode parasites of domestic fowl (*Gallus gallus domesticus*).

MATERIALS AND METHODS

The investigation was made on 120 chickens for the cestode parasites during the period of February 1998 to January 1999 (10 hosts per month) in order to study the overall prevalence and worm burden of these parasites. The intestines of freshly slaughtered chickens were collected from a shop in plastic bags and brought to Parasitology Research Laboratory of Institute of Pure and Applied Biology. The examination was done within 12 hours following death of the host.

A longitudinal incision through the intestine i.e., from duodenum to cloaca including caecum was made very carefully and any parasite seen was removed with the help of fine forceps and washed in normal saline. Cestodes after washing in saline were preserved in AFA (Alcohol-Formol-Acetic) fixative. The permanent mount of representative of each species was made. For this purpose, cestodes after washing with saline were killed and extended in hot water by vigorously shaking for 20 seconds. The temperature of the hot water was 60-65°C for the tapeworms less than 3 inches long, 70°C for medium sized and 75-80°C for large muscular tapeworms. After fixation, in 5% formalin a process of dehydration was applied gradually by treating them with graded alcohol as 30, 50 and 70% and then stained in Semichone's carmine (Cable, 1985). Again dehydrated through 70, 90% and absolute ethyl alcohol, cleared in xylene and were mounted in Canada balsam.

RESULTS AND DISCUSSION

Seven species of cestodes were recorded: *Raillietina* sp., *R. tetragona*, *R. cesticillus*, *Cotugnia* spp., *Hymenolepis* spp, H. *cantaniana* and *H. carioca*. These species have been reported by Rasool (1971), Bhowmik and Sinha (1983), Hayat and Hayat (1983), Lin and Li (1984), Buriro *et al.* (1985), Bano *et al.* (1986), Tuli (1989), Hussain *et al.* (1990), Anwar *et al.* (1991), Yadav and Tandon (1991), Buriro *et al.* (1992), Ahmad (1992) and Wilson *et al.* (1994). Although other species like *R. echnobothrida*, *Amoebotaenia sphenoides*, *A. cuneata*, *A. oligorchis*, *Choanotaenia infundibulum* and *Davainea proglottina* were found in their studies, while in the present survey less number was found.

The results regarding the prevalence of cestode parasites are given in Table 1. It was found that *R. tetragona* was most prevalent (51.66%) while the *H. cantaniana* and *H. carioca* were the least prevalent (0.83%).

Table 1: Overall prevalence of cestode parasites of domestic fowl (*Gallus gallus domesticus*).

Name of Parasite	No. of chicken examined	No. of chicken infected	Prevalence (%)
R. tetragona	120	62	51.66
Cotugnia spp.	120	38	31.66
Raillietina spp.	120	2	1.66
Hymenolepis spp.	120	2	1.66
R. cesticillus	120	7	5.83
H. cantaniana	120	1	0.83
H. carioca	120	1	0.83

The results of present study are not in agreement with those conducted by Rayaz (1979), Hayat and Hayat (1983), Tuli (1989), Hussain *et al.* (1990), Anwar *et al.* (1991), Buriro *et al.* (1992) and Wilson *et al.* (1994). This could be due to difference in the season of conducting these studies, availability of intermediate hosts, individual host resistance and ecological parameters.

The results of worm burden of cestode parasites are presented in Table 2. It was observed that the worm burden of *R. tetragona* was the highest (21.82) whereas it was the lowest for *H. carioca*.

Rayaz (1979) studied the worm burden of different parasites of chickens in Peshawar as, *Raillietina tetragona* (10.7), *R. cesticillus* (4.02), *R. ransomi* (4.25), *Catugnia digonophora* (6.25), *Hymenolepis contaniana* (26.13), *Choanotaenia infundibulum* (35). The present study does not confer with the study conducted by Rayaz (1979). There is only slight similarity of the worm burden of *R. cesticillus* and *C. digonophora*. The difference may be due to different climate, and availability of intermediate host for cestodes parasites and the certain host factors e.g., immunity of the host.

Table 2: The worm burden of cestode parasites of domestic fowl (*Gallus gallus domesticus*)

Name of Parasite	No. of parasite found	No. of chickens infected	No. of parasite per chicken
R. tetragona	1353	62	21.82
Cotugnia spp.	288	38	7.57
Raillietina spp.	3	2	1.5
Hymenolepis spp.	6	2	3
R. cesticillus	44	7	6.28
H. cantaniana	6	1	6
H. carioca	1	1	1

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