

Comparative Studies on the Prevalence of Cestode Parasites in Indigenous and Exotic Layers at Faisalabad

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ABSTRACT

The prevalence of cestode parasites in indigenous (59.4%) and exotic (16.0%) layers was investigated in Faisalabad city. *Raillietina echinobothrida* (13.2%), *Raillietina tetragona* (10.6%), *Raillietina cesticillus* (12.8%), *Choanotaenia infundibulum* (6.8%), *Amoebotaenia cuneata* (1.8%), *Hymenolepis carioca* (9.0%) and *Hymenolepis cantaniana* (5.2%) were identified in indigenous layers. In exotic layers, the prevalent species included *Raillietina echinobothrida* (2.0%), *Raillietina cesticillus* (3.6%), *Raillietina tetragona* (3.0%), *Choanotaenia infundibulum* (3.4%) and *Hymenolepis carioca* (4.0%).

Key Words: Cestode parasites; Prevalence; Indigenous; Exotic; Layers; Faisalabad

INTRODUCTION

Parasitism is one of the major problems which inflict heavy economic losses to the poultry in the form of retarded growth, reduced weight gain, decreased egg production, diarrhoea, obstruction of intestine, morbidity and mortality (Anwar *et al.*, 1991). Cestodes are of prime importance in layers and parasitized birds show a significant decrease in egg production and weight gain up to 25% (Rehman, 1958; Ahmad, 1962). The histopathological lesions of cestode infection included formation of nodules in intestinal mucosa, inflammation, congestion, pin point haemorrhages, catarrhal enteritis, degeneration and desquamation of epithelial cells and ulceration (Chand, 1967; Bhowmik & Sinha, 1983; Padhi *et al.*, 1986). The information is scanty about the prevalence of cestode parasites in layers. The present paper reports the prevalence of cestode parasites in layers at Faisalabad city.

MATERIALS AND METHODS

Collection of cestodes. The guts of freshly slaughtered indigenous (n = 500) and exotic (n = 500) layers were collected from poultry shops from different localities of Faisalabad city. The guts were incised longitudinally from oesophagus up to cloaca. The incised intestines were immersed in luke warm water for the release of tapeworms and their scolices. The intestinal contents were also examined by placing in black bottomed trays to provide contrast to whitish worms. The worms were picked up with the help of fine forceps and transferred to normal saline solution.

Permanent mounts and identification of cestodes. The recovered cestodes were fixed in 10% formalin

solution, preserved in 70% ethyl alcohol and stained with Schneider's acetocarmine stain (Ash & Orihel, 1922; Cables, 1957). The stained parasites were mounted in Canada balsam and identified (Calnek *et al.*, 1978; Hofstad *et al.*, 1978; Soulsby, 1982).

RESULTS AND DISCUSSION

The overall prevalence was 59.4% (297/500) and 16.0% (80/500) in indigenous and exotic layers, respectively (Table 1). *Raillietina* (R.) *echinobothrida* (13.2%), *R. tetragona* (10.6%), *R. cesticillus* (12.8%), *Choanotaenia* (C.) *infundibulum* (6.8%), *Amoebotaenia* (A.) *cuneata* (1.8%), *Hymenolepis* (H.) *carioca* (9.0%) and *H. cantaniana* (5.2%) were identified in indigenous layers. In exotic layers, the prevalent species included *R. echinobothrida* (2.0%), *R. cesticillus* (3.6%), *R. tetragona* (3.0%), *C. infundibulum* (3.4%) and *H. carioca* (4.0%). In indigenous layers, the most prevalent species was *R. echinobothrida* followed by *R. cesticillus*, *R. tetragona*, *H. carioca*, *C. infundibulum*, *H. cantaniana* and *A. cuneata*. *H. carioca* was the most prevalent species followed by *R. cesticillus*, *C. infundibulum*, *R. tetragona* and *R. echinobothrida*.

The prevalence of different species of cestodes has been reported by various workers from different localities of the world. For instance, *R. cesticillus* (9.6%), *R. tetragona* (5.9%), *R. echinobothrida* (3.4%), *A. cuneata* (3.4%), *Cotugnia digonopora* (2.7%), *H. cantaniana* (2.1%), *C. infundibulum* (1.7%), *Davainea proglottina* (1.7%) and *H. carioca* (0.3%) in West Bengal, India (Bhowmik & Sinha, 1983); *R. tetragona* (17.0%) and *R. echinobothrida* (4.0%) in Mysore, India (Hemalatha *et al.*, 1987); *R. tetragona* (63.5%), *R. cesticillus* (24.5%), *R. echinobothrida* (5.9%), *Cotugnia*

Table I. Prevalence of cestodes in indigenous (n = 500) and exotic (n = 500) layers

Species	Guts infected (No.)		% infected	
	Indigenous layers	Exotic layers	Indigenous layers	Exotic layers
<i>R. echinobothrida</i>	66	10	13.2	2.0
<i>R. tetragona</i>	53	15	10.6	3.0
<i>R. cesticillus</i>	64	18	12.8	3.6
<i>A. cuneata</i>	09	-	1.8	-
<i>C. infundibulum</i>	34	17	6.8	3.4
<i>H. carioca</i>	45	20	9.0	4.0
<i>H. cantaniana</i>	26	-	5.2	-
Total	297	80	59.4	16.0

digonopora (16.1%) and *C. infundibulum* (1.6%) in Ludhiana, India (Tuli, 1989); *R. tetragona* (67.2 & 69.2%) in North West Arkansas (Wilson *et al.*, 1994).

The prevalence of cestodes species recorded in this investigation had also been reported previously from Pakistan (Hayat & Hayat, 1983; Hussain *et al.*, 1990; Anwar *et al.*, 1991; Ahmed, 1992; Buriro *et al.*, 1992). Two species, *A. cuneata* and *H. cantaniana* were not recorded in exotic layers. A considerable variation in the magnitude of prevalence of cestode parasites has been reported like 3.2% (Rashid & Moeed, 1976); 34.1% (Buriro *et al.*, 1985); 68.0, 65.0 and 12.0% (Hussain *et al.*, 1990); 40.0% in indigenous and 11.2% in exotic layers (Anwar *et al.*, 1991); 84.2% (Buriro *et al.*, 1992); 16.6% (Salfina *et al.*, 1992); 95.7% (Fatihu *et al.*, 1993) and 92.0% (Fakae *et al.*, 1993). This trend reflects that the geoclimatic conditions influenced the magnitude of the prevalence of cestode parasites.

The prevalence of cestode parasites was higher (59.4%) in indigenous layers than in exotic layers (16.0%). Hussain *et al.* (1990) had reported a prevalence of 68.0 and 12.0% of cestodes in indigenous and exotic layers, respectively. The similar pattern had been documented by Anwar *et al.* (1991) who have reported higher prevalence (40.0%) in indigenous layers and lower (11.2%) in exotic layers. This trend of prevalence could be due to the fact that the indigenous chicks are not kept in confinement and can easily approach to the intermediate hosts like ants, beetles and snails etc. As the intermediate hosts are readily available in the open environment in which the indigenous layers are kept, so the indigenous layers picked intermediate hosts frequently. Further, the magnitude of variation of cestodes infection in indigenous and exotic layers could also be attributed to the poor managerial conditions and lesser use of anthelmintics in indigenous layers (Avsatthi *et al.*, 1981; Hemalatha *et al.*, 1987).

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