Incidence of gastro-intestinal parasites in wild ruminants around Jabalpur, India

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Parasitic infections can cause disease and death in wild animals and can become a source of infection for domestic animals. Epidemiological studies are important to know about the status and transmission of diseases.

Parasitic diseases are best controlled by preventing the contact and parasite transmission between wild and domestic animals and by manipulating the factors involved in the disease transmission.

Establishing a data base to predict the disease by performing epidemiological studies round the year is of utmost importance and needs attention (Shrivastava 2003).

Methods: Fifty faecal samples of wild animals including 15 samples of Chital *Axis axis*, 15 of Neelgai *Boselaphus tragocamelus*, 10 of Gaur *Bos gaurus* and 10 of Sambar *Rusa unicolor* were collected from the peripheral forests around Jabalpur. Faecal samples were subjected to coprological examination as per the method of Sloss et al. (1994) with a few modifications. Briefly, 2g of strained faecal sample was mixed with tap water in a 15ml centrifuge tube and centrifuged for 1–2 min at 1500–2000 rpm. The supernatant was removed and similarly two washings were given until the supernatant remained clear. After the last washing, the faecal decant at the bottom of the tube was mixed with sheather's sugar solution and was filled up to the brim and was covered with a clean coverslip. Then it was centrifuged at 1500–2000 rpm for two minutes. The coverslip was removed from the top, placed on clean glass slide and examined for helminths and their eggs. The supernatant fluid which remained in the tube after removing coverslip was drained off leaving the bottom sediment. The sediment was resuspended in few drops of water. One or two drops of sediment was taken on microscopic slide and examined microscopically under low magnification for trematode eggs. Identification of eggs was made by observing their characters (Soulsby 1986).

Results: Coprological examination of different wild herbivores found the highest rate of parasitic infection in Sambar (90.0%) followed by Neelgai (86.67%) and Gaur and Chital (80.0%) (Table 1).

Ninety-four percent of the parasitic infections were mixed infections comprising multiple different parasite species whereas only 6.0% consisted of only one parasite species.

In Sambar, the parasitic profile was dominated by *Coccidia* infection (60.0%) followed by *Strongylides* (50.0%). *Amphistoma* (30.0%) and *Strongyloides* (30.0%) showed equal prevalence followed by *Trichuris* (20.0%) and *Fasciola* (10.0%). In Chital, the prevalence of *Strongylides* (60.0%) was the highest followed by *Trichuris* (53.3%) and *Fasciola* (6.7%)

Table 1. Overall prevalence of parasitic infection in wild herbivores

	Animal	Total number	Infected	Non-infected	%
1	Chital	15	12	3	80.0
2	Neelgai	15	13	2	86.67
3	Gaur	10	8	2	80.0
4	Sambar	10	9	1	90.0

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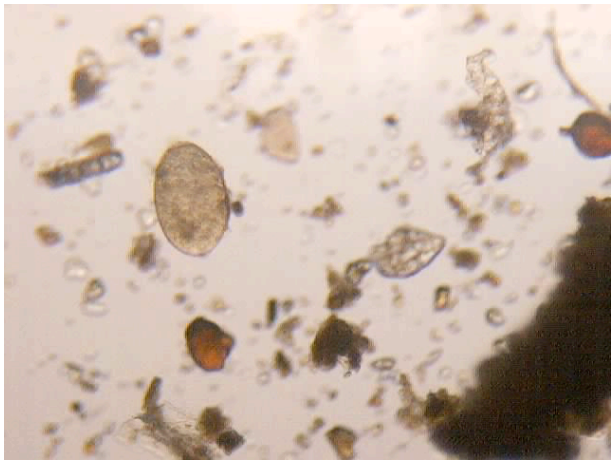

Image 1. Egg of *Fasciola gigantica* in faecal sample of Chital

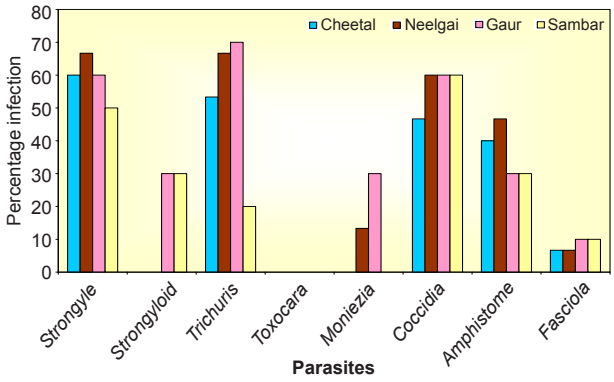

Figure 1. Parasitewise infection in wild herbivores

(Image 1).

Neelgai showed equal prevalence of *Strongylides* (66.7%) and *Trichuris* (66.7%) followed by *Coccidia* (60.0%). *Amphistoma* infection was found in 46.7%, where as *Fasciola* was present in only 6.7%. *Moniezia* occurred at a rate of 13.0%. In Gaur finally *Trichuris* (70.0%) was the dominant parasite followed by *Strongylides* (60.0%) and *Coccidia* (60.0%). *Amphistoma* (30.0%) and *Strongyloides* (30.0%) showed a similar prevalence and *Fasciola* (*Fasciola gigantica)* was found in 10% of the Gaur samples (Fig. 1).

Discussion: Most of the samples were collected around villages close to the forest areas. The prevalence of *Trichuris*, *Strongylides* and *Coccidia* was high in most of the wild animals in our study. This might be due to contamination of pastures by the grazing of domestic animals.

Of special interest was the infection with *Fasciola* found in all species of wild herbivores. One reason for this could be that domestic animals are competing with the wild animals for grazing areas in the forests and force wild animals to graze in swampy areas thus exposing them to vegetation infected with metacercaria of *Fasciola*.

Fasciola gigantica among the wild cervids and other herbivores of India has been reported from Spotted Deer *Axis axis* and Black Buck *Antelope cervicapra* by Rao & Acharjyo (1969, 1972), Swamp Deer *Rucervus duvauceli duvauceli* by Verma et al. (1994) and Indian Rhinoceros *Rhinoceros unicornis* by Bhattacharjee & Haldar (1971). In addition, eggs of *Fasciola* were detected in faeces of Chitals and Sambars of Corbett National Park, Ramnagar and Wildlife National Park at Dudwa in Uttar Pradesh (Gaur et al. 1979; Arora et al. 1985). Incidence of *Fasciola* was also reported from Chital, Sambar and Neelgai at Pench Tiger Reserve, Madhya Pradesh (Shrivastava et al. 2005). Our study reports the occurrence of *F. gigantica* from Gaur and there seems to be no previous report on *F. gigantica* in Gaur from India.

Our study provides a first overview on parasites in wild ruminants in the vicinity of villages, but to evaluate parasite transmission rates much more studies are required on livestock in the area and on wild herbivores in areas where they do not compete with livestock.

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