



**Short communication**

**Frequency of infestation of gastrointestinal helminthes in horses (*Equus ferus*) in Peshawar, Pakistan**

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**Abstract**

In the present study, prevalence of gastrointestinal helminthes in horses was surveyed in Peshawar, Pakistan. For this purpose, 142 and 50 faecal samples were examined from females and males horses respectively. The horses included in the study were used for carriage (65%), riding (30%) and loading (5%). In these horses, *Parascaris equorum* was found to be the highest, while *Delafondia vulgaris* and *Trichurus ovis* were in the lowest number. This study showed that working *E. ferus* are infected with middle range of the same parasites in Peshawar and are representatives of the important pathogenic gastrointestinal helminthes parasites found in equines worldwide. It is concluded that good management practices and awareness of the equines holders are of prime importance in reducing gastrointestinal helminthes infestation.

**Keywords:** Horse; gastrointestinal parasites; helminthes; infestation; Peshawar

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**Introduction**

The horse (*Equus ferus* Linnaeus) is one of two extant sub-species of the wild horse, *E. ferus*. It is an ungulate mammal belongs to the taxonomic family Equidae. Its anatomy enables it to make use of speed to escape from predators and it has a well-developed sense of balance and a strong fight and flight instinct. It is also able to sleep in both standing up and lying down positions. Female horse, called mare, carries her young for approximately 11 months, and a young horse, called a foal, can stand and run shortly following birth (Swinker, 1998).

Most domesticated horses begin training under saddle or in harness during the age of 2-4 years. They reach to their adolescent by the age of five years and have an average life-span of 25-30 years. The crosses between *E. ferus* and their congeneric, the donkeys (ass), *E. asinus* are result of mule (male) and hinny (female). However, they served to man-kind as source of energy for millennia. Moreover, they play an

important role in the military, civil-society, industry, agriculture and horse-race games. Further, their most readily recognizable function against traction and draught in industry and agriculture that they have made the greatest contribution to human welfare and advancement (Chivers, 1976). Furthermore, many horses are used for rural or urban transport, pulling two-wheel carts for passengers and freight, four-wheel wagons, carriages and buses for public transport (Valdes, 2002).

*Equus ferus* are infected with gastrointestinal helminthes parasites which show a rough with dull-coat, weight-loss, stunted-growth, colic, weakness, diarrhea, dysentery and tail-rubbing. They die of heavy infections and even healthy looking horses die of internal damages due to the same parasites (Swinker, 1998). The damage to organs is caused by movement of the parasites from one tissue to another. It may be temporary but sometimes responsible for permanent problems and leads to invasion by foreign bacteria such as *Clostridium*. For repairing of damage tissues

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requires energy and protein, which diverts energy from production of meat and fats etc. Scarring from damage may reduce organ function as well. Helminthiasis is the most important animal disease that can cause heavy production losses in grazing animals. This disease is prevalent all over the world especially in developing countries (Dhar et al., 1982; Matthee et al., 2000). The present study was planned to determine the frequency of presence of gastrointestinal helminthes in faecal samples of *E. ferus* in Peshawar. The collected information will help in taking appropriate measures to reduce gastrointestinal helminthes infestation. Hence, it will help to utilized maximum efficiencies of *E. ferus* and to improve management practices.

**Materials and Methods**

The present study was conducted to determine frequency of infestation of gastrointestinal helminthes parasites in *E. ferus* during September-2010 to January-2011 in Peshawar, Pakistan. Fresh 192 faecal samples from 142 female and 50 male were collected from the field and floor. As gastrointestinal helminthes parasites' eggs undego embryonation rapidly, therefore, the fecal samples were stored in the refrigerator at 5°C till preparation of slides were examine for presence of helminthes parasite's eggs.

All eggs and larvae of helminthes species were identified with the method described by Cheesbrough (1998). Briefly, 2.0 gm of fresh fecal sample was mixed with 10 ml of flotation solution (ZnSO<sub>4</sub>). A cover slip glass was then put on top of surface of the tube and left for 10-13 min. The cover slip glass was removed vertically and placed on a glass slide and examined under the microscope at 10 and 40X (Nikon, Nippon Kogaku, Tokyo, Japan).

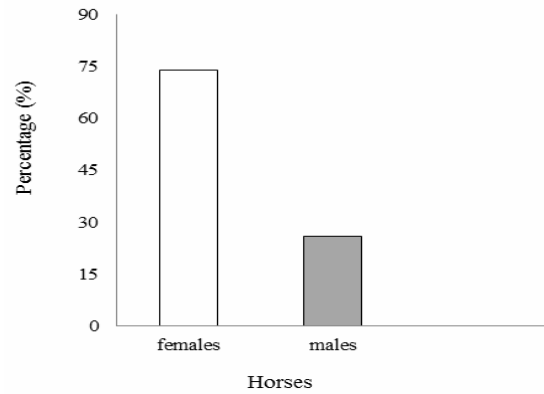
**Results**

The collection of helminthes samples according to the physical status of the horses are given in Table 1. Out of 192 fresh faecal samples collected, the females constituted 74 and males 26% for presence of the gastrointestinal helminthes (Fig. 1). Among them, 65% were used for carriage, 30% for riding and 5% for loading in Peshawar, Pakistan (Fig. 2).

The helminthes parasites observed in faecal samples of *E. ferus* were highest for *Parascaris equorum* (66.7%) and lowest for *Trichurus ovis* and *Delafondia vulgaris* (2.1%) (Table 2).

**Discussion**

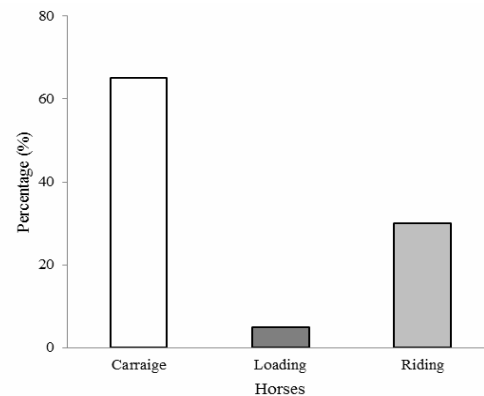
The research on gastrointestinal helminthes in *E. ferus* is rare and little literature is available. Getachew



**Fig. 1: The percentage of female and male horses collected from females and males during September-2010 to January-2011 in Peshawar, Pakistan**

**Table 1: Total number of collected faecal samples from female and male horses on basis of health condition**

Gender	Total number of samples	Physical condition	
		Healthy	Weak
Female	142	50 (35.21%)	92 (64.78%)
Male	50	28 (56%)	22 (44%)



**Fig. 3: The type of works performed by horses from which the faecal samples were collected.**

Helminthes parasitic spp.	Number	Positive	
		Number	%
<i>Dictylocalus arnified</i>	192	36	18.8
<i>Cyathostoma spp.</i>	192	16	8.3
<i>Strongylus sp.</i>	192	64	33.3
<i>Parascarcum equirum</i>	192	128	66.7
<i>Triodontoforus spp.</i>	192	16	8.3
<i>Habronema spp.</i>	192	18	9.4
<i>Dicrocoelium lanceatum</i>	192	40	20.8
<i>Trichostrongylus axei</i>	192	36	18.8
<i>Anoplocephala spp.</i>	192	30	15.7
<i>Delafondia vulgaris</i>	192	4	2.1
<i>Trichurus ovis</i>	192	4	2.1
<i>Apophalus donicus</i>	192	6	3.1
<i>Oxyuris equi</i>	192	48	25.0

et al. (2009) in *E. asinus* from Ethiopia revealed 80% *Fasciola*, 51% *Parascaris*, 30% *Gastrodiscus*, 11% *S. swesteri*, 8% *Cestodes* and 2% *Oxyurisequi* infection. Other parasites identified were *Habronema muscae*, *Draschia megastoma*, *T. axei*, *Strongyloides swesteri*, *Anoplo cephalaperfoliata*, *A. cephalamagna*, *A. cephaloides*, *P. equorum*, *F. hepatica*, *F. gigantea*, *Gastrodiscus aegyptiacus*, *Dictyo caulसारनfieldi*, *Oxyuri sequi*, *Probst mayriavivipara*, *G. intestinalis*, *G. nasalis*, *Rhino estruszbekistanicus* and *Setaria equine*. Some of the species, i.e., *Fasciola*, *Gastrodiscus*, *Draschia megastoma*, *Probstmayria vivipara*, *R. estruszbekistanicus* and *Setaria equine*, which were not found in the current study in *E. ferus*, may be due to differences in environmental condition, food or application of different methods which were used for identification of these helminthes parasites.

Perveen et al. (2011) conducted similar experiments on *E. asinus*, in which 162 fecal samples were tested for the infestation. The helminthes parasites observed in faecal samples of *E. asinus* in descending order were: *Parascaris equorum* (66.66%)> *Strongylus sp.* (58.2%)> *Dictylocalus arnified* (30.86%)> *Triodontospecies* (20.98%)> *Cyathostoma* (11.11%)> *Dicrocoelium lanceatum* (8.64%)> *Habronema* and *Apophalusdonicus* (each 6.17%)> *Delafondia vulgaris larvae* (4.93%)> *Trocho axei* (3.70%)> *Oxyuri sequi* (2.46%). Bastiaensen (1995) reported 44.88% *Trichostrongylus spp.* and 100% *Strongylus spp.* in cattle while in the current study *Trichostrongylus spp.* were found 18.8% and *Strongylus spp.* 33.3% in *E. ferus*. This difference may also be due to different host species or different environmental condition. Hosseini (2008) reported 1.9% *Strongylus spp.*, 11.39% *Cyathostomum spp.*, 0.53% *Triodontoforus spp.*, 6.6% *Tr. axei*, 20% *P. equorum* and 80% *Habronema spp.* in donkeys. In the current study 33.3% *Strongylus sp.*, 8.3% *Cyathostomum sp.*, 8.3% *Triodontoforus sp.*, 18.8% *T. axei*, 66.7% *P. equorum* and 9.4% *Habronema sp.* were found.

The present studies revealed the presence of a range of intestinal helminthes, which is representative of the important pathogenic parasites of equines worldwide. The presence of poly-parasitism with prevalence and infection intensity is an indication that favourable environmental conditions for infection, survival and perpetuation of the parasites exist in

Peshawar. The lack of anti-helminthic treatment may also be a contributing factor. A detailed study of the pathogenicity, treatment and control strategies of *E. ferus* to the infection of each parasitic species is highly recommended.

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