Incidence of gastro-intestinal parasites in horses of Shimoga region, Karnataka state

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Abstract A study was conducted to ascertain the incidence of gastrointestinal parasites in horses of Shimoga region, to generate the data regarding status of parasitic infections of equines in Karnataka state due to paucity of information. A total of 100 fresh fecal samples of equines were collected and examined by direct and sedimentation method for the detection of parasitic egg/ova. Among 100 samples examined, 84 (84.0 %) were found positive for various gastrointestinal helminths. Out of 84 positive cases, 44 (52.38 %) were found positive for *Strongylus* spp. eggs, 09 (10.71 %) showed *Parascaris equorum* eggs, 06 (7.14 %) had *Gastrodiscus* spp. eggs, 04 (4.76 %) harbored *Oxyuris equi* and the remaining 21 (25.0 %) had a mixed infection of *Strongylus* spp., *Strongyloides* spp. and *Gastrodiscus* spp.

Keywords Equines · Fecal samples ·
Gastro-intestinal parasites · Shimoga

Introduction

The horses have been a symbol of bravery and power since ancient days and this taboo is still exists in our society. Equine acts as a main means of transport of goods and economy for poor farmers. Horse's domestication is the livelihood of landless, small and marginal farmers in India.

The present scenario with respect to the equines in the economy and social structure varies in different parts of the world (Equine Scenario, National research center on equines report 2007). These animals also do suffer from a various infectious diseases; the parasitic infection is one among the infectious diseases responsible for causing unthriftiness, emaciation, poor growth and reduces the working capacity of the animals. The prevalence of parasitic infection in equines have been reported from different parts of India Viz., Kaur and Kaur (2008) from Punjab; Naresh et al. (2013) from Jabalpur; Pilania et al. (2013) from Rajasthan and Matto et al. (2013) from Maharashtra. Since there is no report available on prevalence of gastrointestinal parasites of horses from Karnataka state, the present study was undertaken to identify the gastrointestinal parasites of horses and to estimate its prevalence in and around Shimoga, a malnad region of Karnataka.

Materials and methods

During the present study, a total of 100 faecal samples of horses in and around Shimoga region were examined for the detection of gastro-intestinal parasitic eggs/ova. The fresh faecal samples were randomly collected from individual animals in a separate dry, clean polythene zipped cover and immediately brought to the laboratory after affixing a proper identification label. The faecal samples were grossly examined for the presence of mucus, blood or any parasitic segments and recorded. Then, the fecal samples were processed by direct and sedimentation method as per standard procedure (Bowmann 2009) for the detection of parasitic eggs/ova. The parasitic eggs/ova were identified based on the morphology as per Soulsby (1982) and Bowmann (2009).

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Results and discussion

In the present study, a total of 100 faecal samples were screened for the detection of different gastrointestinal helminths and protozoon parasites. Out of 100 samples examined 84 (84.0 %) samples were found positive for various helminth egg/ova. The present finding almost is in agreement with Hassan et al. (2005) who reported 89.29 % of helminth infection in equines from Lahore, Pakistan. However, in comparison to the present study, slightly lower incidence of helminthic infection in equines was reported by many workers includes, 79.1 % by Chitra et al. (2011) in donkeys from Tamil Nadu, 76.4 % by Kaur and Kaur (2008) in horse from Patilia, Punjab. Whereas the lowest incidence of 10.1 % was reported by Pilania et al. (2013) from Rajasthan. The variations in the prevalence rate might be due to number of samples examined, type of management practices followed by change in geographical area.

Among 84 positive samples, 52.3 % showed *Strongylus* spp. (Figure 1) eggs, 10.7 % found positive for *Parascaris equorum* (Fig. 2) eggs, 7.14 % had *Gastrodiscus* spp. (Figure 3) eggs, 4.7 % harbored *Oxyuris equi* (Fig. 4) eggs and the remaining 25.0 % had a mixed infection of *Strongyloides* spp. (Figure 5) eggs, *Gastrodiscus* spp. eggs and *Strongylus* spp. eggs (Table 1). During the present study, the generated data indicated the highest prevalence of *Strongylus* spp. followed by *P. equorum* and *Gastrodiscus* spp. in horses. The similar observations was made by Subbarayudu et al. (1995) who reported higher incidence of 52.7 % of *Strongylus* spp. infection in horse from Andhra Pradesh. In contrast to the present study, little higher incidence of 76.1 % *Strongylus* spp. infection was reported by Chitra et al. (2011) from Tamil Nadu and 70.1 % by Wadhwa et al. (1993) from Himachal Pradesh, However, the low incidence of *Strongylus* spp. (32.0 %) infection in horses was reported by Ram Naresh et al. (2013) from Jabalpur whereas Chaudhari et al. (1985) reported 45.3 % from Haryana. The discrepancies in the prevalence rate may be due to number of samples included in the study, geographical location, seasonal variations of *Strongylus* spp. infections in horses and managerial practices adopted.

In the present study, 10.7 % of *P. equorum* prevalence was recorded. Pilania et al. (2013) reported slightly low prevalence of 7.09 % of *P. equorum* in horses from different animal fairs of Rajasthan. But relatively higher prevalence of *Ascaris* infection (25.5 %) was reported by Singh et al. (2002) from Uttar Pradesh and Uttaranchal. The difference may be due to different age groups, number of animals included in the study and geographical changes.

Among helminth parasites, 7.1 % incidence of *Gastrodiscus* spp. and 4.7 % of *O. equi* infection was recorded in horses in the present study. This is in agreement with

Fig. 1 Showing egg of *Strongylus* spp. (40×)

Fig. 2 Showing egg of *Parascaris equorum* (40×)

Fig. 3 Showing egg of *Gastrodiscus* spp. (40×)

Fig. 4 Showing egg of *Oxyuris equi* (40×)

Fig. 5 Showing egg of *Strongyloides* spp. (40×)

Table 1 Prevalence of gastro-intestinal parasites of horses

Parasite species	No. positive	% Positive
<i>Strongylus</i> spp.	44	52.38
<i>Parascaris equorum</i>	09	10.71
<i>Gastrodiscus</i> spp.	06	7.14
<i>Oxyuris equi</i>	04	4.76
Mixed infection	21	25.0
Total examined (n = 100)	84	84.0

Mixed infection: *Strongyloides* spp. eggs, *Gastrodiscus* spp. eggs and *Strongylus* spp. eggs

Sengupta and Yadav (2001) who reported almost similar incidence of 7.8 % Amphistomes spp. in horses from Rajasthan. But Matto et al. (2013) reported very low incidence of 1.3 % Amphistomes spp. infection in horses of Maharashtra, region. Sengupta and Yadav (2001) reported

low incidence of 2.8 % *O. equi* infection in horses of Rajasthan and 0.13 % incidence of *O. equi* by Pilania et al. (2013) from Rajasthan. The differences in the prevalence rate may be due to number of samples included in the study, geographical location and the managerial practices adopted.

During the present study, 21 (25.0 %) samples had a mixed infection of *Strongylus* spp. *P. equorum* and *O. equi* infection in horses. The present observation is in accordance with Singh et al. (2002) in horses from Uttar Pradesh and Uttaranchal. It is concluded that, the present work was carried out for the first time to generate the data regarding gastro-intestinal parasites of horses in Shimoga-a malnad region of Karnataka state. During the present study, the higher prevalence of *Strongylus* spp. infection was observed followed by *P. equorum*, *Gastrodiscus* spp. and *O. equi*.

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