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## Studies on prevalence of helminthosis in donkeys of certain districts of Marathwada region (Maharashtra state, India)

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**Abstract**

Present study was performed to record the prevalence of gastro-intestinal parasites in donkeys. Overall prevalence of helminthic infection was 44.37% (193/435). Most commonly recorded parasites were *Strongyles* (81.86%), *Strongyloids* (11.39%) and mixed infection (6.70%) of *Strongyle* and *Ascarids*. Age-wise prevalence was highest in 0-3 years age group (48.31%), followed by 3-8 years age (45.90%) and lowest (37.14%) in above 8 years age group. Districts wise prevalence was highest in Latur (51.20%), followed by in Beed (44.68%) then Nanded (40.81%) and lowest in Parbhani (33.76%). The sex-wise prevalence was more in male donkeys (45.57%) as compared to female (42.93%) donkeys.

**Keywords:** Helminthosis, prevalence, donkey, *Strongyle*, *Strongyloids*

**Introduction**

Donkey-one of the most important domestic animal, which is most intimately associated with human. Though a hardy animal, it is well adopted in arid and semi-arid areas of Maharashtra to carry out various types of works. This pack animal is used for different types of work in agricultural practices like transport of goods, scaling dangerous unapproachable battle fields, riding, driving, flock protection as well as to develop road transport network. Donkeys can be utilized in areas where land is not even and underdeveloped (Muhammad *et al.*, 2015) <sup>[10]</sup>.

Parasitic helminths are one of the most common factors that constrain the health and working performance of working donkeys worldwide (Zerihun *et al.*, 2011) <sup>[16]</sup>. Donkeys are susceptible to various types of parasitic diseases like large and small *Strongyles*, *Ascarids*, *Pinworms*, *Gastrophilus*, *Lung worms*, flukes and tape worms. These endoparasites compete for essential nutrients which directly affect the growth of animals, reduced the working efficacy of donkeys and sometimes may cause mortality in severely affected animals (Ibrahim *et al.*, 2011) <sup>[8]</sup>. Many scientists studied prevalence of gastro-intestinal parasites in donkeys in the world and their study showed that most prevalent parasite in Donkey is *Strongylus* species (96.4%) (Fikru *et al.*, 2005; Yoseph *et al.*, 2005, Ayele *et al.*, 2006; Getachew *et al.* 2008) <sup>[6, 15, 4, 7]</sup>

In Marathwada region, the donkeys are used for different purposes like transport of goods, saddle used by poor mens and to carry out various agricultural operations in areas where transport facilities are not available to the people. In this area donkeys are reared on free range system and they are let loosed for grazing into the surroundings areas, which create more chances of endoparasitic infestation to animals mostly in monsoon due to ample quantity of pasture availability. Mostly the donkeys are owned by poor people who cannot afford costly anthelmintic drugs for donkeys. This favors helminthosis causing serious ill effects on the health of donkeys. Taking into consideration this situation the present study was planned to study the prevalence of helminthosis in donkeys in Parbhani, Nanded, Latur and Beed districts of Marathwada region of Maharashtra.

**Materials and Methods**

Fecal sample from 435 donkeys were collected directly from the rectum of animal irrespective of age and sex in and around Parbhani, Latur, Beed and Nanded districts of Maharashtra State for the screening of helminth infestation in donkeys.

**Parasitological Examination**

The faecal samples were screened by quantitative method such as flotation and sedimentation

method to identify the eggs of parasites. Stoll's dilution technique was used for quantification of eggs of particular parasites in terms of eggs per gram of feces.

**Data analysis:** The data collected was analyzed by employing Chi-square test to test the significance of prevalence of helminthosis in donkeys in between age wise, sex wise and districts wise in obtained data.

## Results and Discussions

### Overall prevalence

A total of 435 fecal samples from donkeys were collected from various districts of Marathwada region and processed in laboratory to record gastrointestinal parasitic infection as shown in Table No 1. Out of 435 fecal samples, 193 were positive for gastrointestinal parasites. Thus the overall

prevalence of helminthosis in Marathwada region was 44.37 per cent. Most commonly recorded parasites were *Strongyles* (81.86%), *Strongyloids* (11.39%) and mixed infection of *Strongyle* and *Ascarid* (6.70%). The finding of present research work coincide with Angsom (2017) [3] who reported overall prevalence of gastrointestinal helminth infection in equine as 41.70 per-cent, Shrikhande *et al.* (2009) [12] reported that overall incidence of helminths parasites in donkeys was 82.90% while Bewketu and Nilbret (2013) [5] reported 88.21% prevalence of helminths in donkeys. Prevalence reported in present study (44.37%) is of moderate nature as compared to previous studies. It may be due to the change in climatic condition area wise. In Marathwada region, there is low rainfall and the climate is hot and dry most of the times which do not favour multiplication of parasites. It may be the cause of low overall prevalence of helminth infection in donkeys.

**Table 1:** Overall and sex wise prevalence of helminthosis in donkeys

Sr. No	Particulars	Overall prevalence	Sex – wise	
			M	F
1	Number of donkeys screened for helminthosis	435	237	198
2	Number of donkeys positive for helminthosis	193	108	85
3	Per cent prevalence	44.37%	45.57%	42.93%
4	Chi square value (X <sup>2</sup> )	0.16	0.07	0.09
5	Significant/Non-significant	NS	NS	NS

\* NS –Non significant

### Sex wise prevalence

Out of 435 donkeys suffering from helminthosis, 108 were male and 85 female as shown in Table No 1. Thus the prevalence in male donkeys was 45.57% and that in females was 42.93 per cent. The finding of this study is in agreement with Wondwossen *et al.* (2016) [14] who reported that the prevalence of gastrointestinal helminths was higher in male (74.2%) than female (70.9%) in horses, donkeys and mules. Alemayehu and Etaferahu (2013) [2] studied sex-wise prevalence of helminths in horses, donkeys and mules. It was

observed that prevalence of gastrointestinal parasites was higher in male (66.2%) as compared to the female (64.0%). In present work there was more occurrence of helminthosis in male (45.57%) than female (42.93%). More occurrence of helminthosis in male could be attributed to the common practice of heavy work load particularly to male donkeys in specific area.

### Age-wise prevalence

**Table 2:** Age- wise prevalence of helminthosis in donkeys

Sr. No	Particulars	Age – group		
		0-3 Years	3- 8 Years	> 8 Years
1	Number of Donkeys screened for helminthosis	178	122	135
2	Number of donkeys positive for helminthosis	86	56	51
3	Per cent prevalence	48.31%	45.90%	37.77%
4	Chi square value (X <sup>2</sup> )	0.62%	0.06	1.31%
5	Significant/Non-significant	NS	NS	NS

\* NS –Non significant

The prevalence of helminthosis in donkeys was recorded in different age groups as shown in Table No. 2. Maximum incidence of parasitic infection was found in 0-3 years age group (48.31%), followed by (45.90%) 3- 8 years age group while lowest incidence of parasitic infection was found in age the of group above 8 years and it was 37.77 per cent. Similar findings were recorded by Tola *et al.* (2013) [13], Angsom (2017) [3] and Khan *et al.* (2017) [9] who observed that the prevalence of parasitic infection was more in young age than

old age group of animals. In contrast to the above observation Ahemed *et al.* (2016) [1] reported a very high prevalence of parasites in donkeys as 95.70% in the age group of 1-2 years, 100% in the age group of 2.5 to 4 years and 98.10% in the age group of above 4 years. In present research work the prevalence of parasitic infection was more in young age than old donkeys.

### Districts wise prevalence

**Table 3:** District wise prevalence of helminthosis in donkeys

Sr. No	District wise prevalence	District wise prevalence			
		Parbhani	Nanded	Latur	Beed
1	Number of donkeys screened for helminthosis	77	98	166	94
2	Number of donkeys positive for helminthosis	26	40	85	42
3	Per cent prevalence	33.76%	40.81%	51.20%	44.68%
4	Chi square value (X <sup>2</sup> )	1.94	0.27	1.74	0.002
5	Significant/ Non-significant	NS	NS	NS	NS

\* NS –Non significant

District wise prevalence of gastrointestinal parasites was reported highest in Latur (51.20%) district and lowest was found in Parbhani (33.77%) as shown in Table no 3. In Nanded and Beed districts the prevalence was 40.82% and 44.68% respectively. District wise variation in prevalence of helminthosis may be due to different number of donkeys taken for survey, location wise differences in management system and climatic variations. Naresh and Subedi (2018) [11] reported the prevalence in seven various villages of Rukutum district of Nepal and found varied prevalence rate of gastrointestinal parasites in horses area wise and justified that the differences among the different region might be due to variation in management system, geo-graphical climatic condition, sample size, sample collection period and sampling method used during study. In present research work the prevalence of gastrointestinal parasites in Latur district was 51.20% and it was maximum among the four district of Marathwada region. This high prevalence may be due to lack awareness among the donkey owners regarding health care and importance of deworming. During this study it was observed that donkey owners were illiterate and they do not take clinical manifestation of any disease showed by donkey seriously, It may be the cause of high prevalence of helminthosis in Latur district. In Parbhani district the incidence of gastrointestinal parasites was 33.76% and it was lowest amongst 4 districts. The low prevalence of helminthosis in Parbhani district may be due to proper anthelmintic therapy given to their donkeys and different animal husbandry practices adopted to control the gastrointestinal parasites. It was observed during the work that the animal owners from Parbhani were visiting veterinary dispensary regularly.

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