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## Determination of prevalence of helminthiasis in sheep (*Ovis aries*) in Bikaner district of Rajasthan

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### Abstract

Gastrointestinal parasitic infestations are common in sheep. It not only affects the health but also the productive and reproductive performance of the animals which includes loss of body weight, infertility, digestive disturbance and increased susceptibility of animals to other infections, causing considerable economic losses as consequence of mortality in infected animals, reduced weight gain, cost of management and animal treatment. In view of the epidemiology of Gastrointestinal Helminths in India the topic on the prevalence of this disease in the sheep population of Bikaner District of Rajasthan state was carried out. Age-wise and Overall prevalence of Gastrointestinal Helminths carried out by using Gross Examination, Sedimentation and Willi's floatation test. A total 100 sheep faecal samples were screened. The age-wise prevalence was found 70 percent in age group above 6 months of age and 50 percent in age group below 6 months of age. An overall prevalence of Gastrointestinal Helminths in sheep was found 60 percent. The current findings revealed that Gastrointestinal Helminths infestation is more prevalent in Bikaner District of Rajasthan.

**Keywords:** Gastrointestinal helminths, prevalence, sedimentation and willi's floatation test

### Introduction

As per 20<sup>th</sup> Livestock census (2019) [1], sheep population in Rajasthan is 74.26 million. In Rajasthan Sheep population has increased by 14.13 percent over previous Livestock Census (2012). About 13.8 percent of the total livestock population is contributed by Sheep.

The gastrointestinal nematodes are considered as major constraints in sheep which is responsible for low productivity, stunted growth, poor weight gain, poor feed utilization, unthriftiness and occasional death in farm animals. Parasitic infestations especially with gastrointestinal nematodes and trematodes limit the productivity of livestock due to the associated morbidity, mortality, cost of treatment and control measures (Nwosu *et al.*, 2007) [7]. Epidemiological survey of helminthic infestations is an important tool in controlling losses due to helminths which can be minimized by early detection and timely initiation of prophylactic measure or by adopting effective control and preventive measures.

### Material and Methods

In present investigation, 100 sheep faecal samples were collected from Veterinary Clinical Complex, CVAS, Bikaner, local abattoir and private farms in Bikaner District of Rajasthan. The faecal sample of individual sheep was collected in small polythene beg. The collected faecal samples were examined qualitatively with Sedimentation and Willi's floatation technique. Collected faecal samples were also examined grossly for the presence of adult helminths.

### Results and Discussion

#### Overall prevalence of gastrointestinal Infestations in sheep

Out of 100 sheep faecal samples 60 percent (60/100) were found positive for gastrointestinal parasitism. Present helminths species were identified as *Strongles* spp., *Strongyloides* spp., *Trichuris* spp. and *Moniezia* spp. while *Eimeria* spp. was the only coccidian species found from faecal samples. The overall prevalence was 10 percent of *Strongles* spp., 18 percent of *Strongyloides* spp., 6 percent of *Trichuris* spp., 5 percent of *Moniezia* spp. and 21 percent *Eimeria* spp. (Table 1).

**Table 1:** Overall prevalence of different helminths in sheep

S. No.	Identified helminths	Overall prevalence (N=100)
1.	<i>Strongyle</i> spp.	(10/100) 10 percent
2.	<i>Strongyloides</i> spp.	(18/100)18 percent
3.	<i>Trichuris</i> spp.	(6/100) 6 percent
4.	<i>Moniezia</i> spp.	(5/100) 5 percent
5.	<i>Eimeria</i> spp.	(21/100) 21 percent

Similar work was also done by previous researchers in their respective studies with different prevalence of helminths infestation in sheep. Saleem *et al.* (2018)<sup>[9]</sup> and Safi (2015)<sup>[8]</sup> reported 91.04 percent and 50 percent prevalence of gastrointestinal parasites in sheep in and around Bikaner district of Rajasthan, respectively. Singh *et al.* (2013)<sup>[10]</sup> found that overall prevalence of helminths infestation in sheep was 68.75 percent and the most common gastrointestinal parasites were *Haemonchus* spp., *Moniezia* spp. and coccidian spp. Jemal *et al.*, (2017)<sup>[6]</sup> examined a total of 372 sheep and goat faecal samples using faecal flotation technique and found that 57 percent (212/372) samples were positive for gastrointestinal infestation. They found that *Strongyles* species were highly prevalent nematode parasites identified as 22.3 percent (83/372) followed by *Trichuris* spp. 9.1 percent (34/372) and *Strongyloides* spp. 5.6 percent (21/372). The only cestode observed in the present study was *Moniezia* spp. Presence of *Moniezia* spp. in tropics may be associated with the ingestion of oribatid mites infected with larvocysts of

*Moniezia* spp. (Diop *et al.*, 2015)<sup>[3]</sup>.

In the present study highest prevalence was found of *Eimeria* spp. than helminths infestation which is in agreement with previous work of Velusamy *et al.* (2015)<sup>[11]</sup>.

#### Age wise prevalence of gastrointestinal infestation in sheep

To determine the possible association of gastrointestinal parasitism load with age animals were divided into 2 age groups *i.e.*, group 1 less than 6 months of age (young animals) and group 2 above 6 months of age (adult animals) containing 50 animals in each. Statistical data analysis revealed that higher prevalence of overall gastrointestinal infestation in sheep was in group 2 (70 percent) as compared to group 1 (50 percent). Brahma *et al.* (2015)<sup>[2]</sup> and Dixit *et al.* (2016)<sup>[4]</sup> also reported that the prevalence of gastrointestinal parasitism in goats of more than 1 year were high than less than 6 months of age.

*Strongyle* spp., *Strongyloides* spp., *Trichuris* spp. and *Moniezia* spp. were found less prevalent in Group 1 (12,28,4 and 8 percent, respectively) as compared to Group 2 (20,31.42,14.28 and 8.57 percent respectively) whereas *Eimeria* spp. infestation was more prevalent in Group 1 (48 percent) as compared to Group 2 (25.71 percent). In agreement to current study Gwaze *et al.* (2009)<sup>[5]</sup> also reported higher prevalence of *Eimeria* spp. infestation in sheep of below 6 months age as compared to adult animals. Almost similar findings were also reported by Safi (2015)<sup>[8]</sup>.

**Table 2:** Age wise prevalence of different gastrointestinal helminths in sheep

Age	Samples Tested	Sample Positive	<i>Strongyle</i> (%) +ve	<i>Strongyloides</i> (%) +ve	<i>Trichuris</i> (%) +ve	<i>Moniezia</i> (%) +ve	<i>Eimeria</i> (%) +ve
Below 6 month	50	25(50%)	12	28	4	8	48
Adult	50	35(70%)	20	31.42	14.28	8.57	25.71

#### Conclusion

The current findings prove that gastrointestinal infestation is prevalent in Bikaner district of Rajasthan. However, adopting of all year-round surveillance system is needed to enable early detection among sheep and other susceptible animal species because some livestock owners used to keep different animal species in one flock/herd which may increase the inter-species transmission of the diseases.

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