

## Incidence of gastrointestinal nematodes in sheep in Kashmir valley

Shugufta Nasreen, Syed Gh. Jeelani and Munir Hakeem

Division of Parasitology,  
Disease Investigation Laboratory,  
Sheep Husbandry Department,  
Nowshera, Srinagar, India

### Abstract

The incidence of gastrointestinal nematodes in sheep of Kashmir valley was investigated at Disease Investigation Laboratory, Nowshera, Srinagar, for the year 2000-2001. A total of 3,652 faecal samples were examined for gastrointestinal nematodes. Five types of nematodes viz., strongyles, *Trichostrongylus* spp., *Haemonchus* spp., *Nematodirus* spp. and *Marshallagia* spp. were identified. The seasonal prevalence of infections indicated that the nematode infection (overall) was highest in summer (67.14%) and lowest in winter (44.31%).

**Keywords:** Gastrointestinal nematodes, Sheep, Kashmir, Incidence.

### Introduction

In Kashmir during spring (March-May), the valley gets the maximum rainfall, while in summer (June-August), it is the lowest followed by autumn (September-November). During autumn it is comparatively dry and in winter extending from December to February, there is precipitation in the form of snow and rain. The sheep flocks are reared in lush green pastures during summer. However, they are allowed to graze on village grazing parks during spring and autumn. A number of reports are available on gastrointestinal nematodes in domestic ruminants from other parts especially tropical India (Thaper, 1956; Bali and Singh, 1977; Patnaik *et al.*, 1973; Misra *et al.*, 1974). The present study was undertaken to obtain a season-wise comprehensive picture of most prevalent gastrointestinal nematodes in sheep in Kashmir valley, to enable the sheep breeders and veterinarians in planning the prophylactic measures well in advance.

### Materials and Methods

The samples were examined and cultured at Disease Investigation Laboratory, Srinagar. The faecal samples were examined for gastrointestinal nematode infections qualitatively, as per Soulsby (1986). The number of gastrointestinal nematode eggs per gram (EPG) of the faeces was estimated. For identification of the genus, faeces were cultured by standard methodology. Identification was done on the basis of characteristic morphology of the infective stage-larvae, as per Soulsby (1986). A total of 3,652 samples were examined and data were analysed by standard statistical procedures (Snedecor and Cochran, 1967).

### Results and Discussion

Out of a total of 3,652 faecal samples examined, 59.83% were positive for nematodes. The highest incidence (67.14%) was observed in summer followed by 64.87% during autumn season. The difference found between autumn and summer parasitic infections, however, was statistically non-significant. Winter recorded the lowest incidence of 44.31% of nematode (overall) infection. Strongyles had the highest percentage (60.78%) as against *Trichostrongylus* sp., *Haemonchus*, *Nematodirus* and *Marshallagia* infection in order of 35.56%, 20.73%, 3.66% and 1.37%, respectively (Table 2).

Strongyles infection showed a descending trend in spring, summer and autumn at 61.72%, 59.77% and 56.00%, respectively but increased during winter season. *Trichostrongylus* spp. infection also showed a similar trend of descending order up to summer, but *Haemonchus* spp. infection was highest in summer (33.81%) with a decreasing trend during autumn, winter and spring at 17.23%, 15.25% and 10.99%, respectively. *Nematodirus* spp. has almost the same trend i.e. highest in summer and descending trend in other seasons (Table 2).

The increasing trend of infection of *Trichostrongylus* spp. and *Marshallagia* spp. during winter to spring season may be because of the poor managerial practices adopted by the sheep breeders. The sheds are not cleaned regularly during winter, resulting in liberation of ammonia gas and rise in temperature and humidity inside the sheds which favour the development of ova of various nematodes to infective stages. The direct life cycle of nematodes can also

Table 1: Prevalence of gastrointestinal nematode infection of sheep in Kashmir valley

Month	Total No. of samples collected	Total No. of samples positive	Nematode infection revealed				
			Strongyles spp.	<i>Trichostrongylus</i> spp.	<i>Haemonchus</i> spp.	<i>Marshalliegia</i> spp.	<i>Nematodirus</i> spp.
Dec 2000	248	67	40	23	11	0	-
Jan 2001	242	152	105	57	22	6	-
Feb 2001	160	69	63	37	11	1	-
Mar 2001	469	211	149	92	22	13	1
Apr 2001	239	131	86	54	11	2	-
May 2001	248	204	102	49	27	7	6
Jun 2001	278	172	103	63	49	1	8
Jul 2001	420	285	181	99	110	-	18
Aug 2001	346	244	135	66	78	-	23
Sep 2001	327	197	162	116	35	-	9
Oct 2001	287	128	93	47	28	-	15
Nov 2001	388	325	109	74	49		
Total	3662	2185	(59,83%)				

Table 2: Season-wise prevalence of gastrointestinal nematode infection in sheep in Kashmir valley

Season	Overall	Strongyles sp.	<i>Trichostrongyles</i> sp.	<i>Haemonchus</i> sp.	<i>Nematodirus</i> sp.	<i>Marshallieigic</i> sp.
Winter	0.443	0.722 <sup>a</sup>	0.4062 <sup>a</sup>	0.1528 <sup>bc</sup>	0.00	0.0243 <sup>b</sup>
	44.31%	60.78%	35.56%	20.73%	3.66%	1.37%
	(n)	72.22%	40.62%	15.28%	0.00	2.43%
Spring	0.571	0.617	0.357 <sup>ab</sup>	0.1099 <sup>c</sup>	0.0128 <sup>a</sup>	0.0403 <sup>b</sup>
	57.11%	61.72%	35.71%	10.99%	1.28%	4.03%
	(n)					
Summer	0.671 <sup>c</sup>	0.5977 <sup>bc</sup>	0.325 <sup>b</sup>	0.3381 <sup>a</sup>	0.0694 <sup>b</sup>	0.0014 <sup>a</sup>
	67.14%	59.77%	32.52%	33.81%	6.94%	0.14%
	(n)					
Autumn	0.649 <sup>c</sup>	0.56 <sup>c</sup>	0.3646 <sup>ab</sup>	0.1723 <sup>b</sup>	0.0369	0.00
	64.87%	56.00%	36.46%	17.23%	3.69%	0.00
	(n)					

Values with same superscript in a column do not differ significantly (P<0.05)

(n) indicates number of samples found positive

be one of the reasons which favour infection of nematodes during winter season.

The findings are suggestive that these animals were responsible for contaminating the pasture during spring season. The results corroborate with the observations of Dhar *et al.* (1997).

*Haemonchus* ova was found to withstand extreme climatic conditions and also survive longer period during winter season (Blood *et al.*, 1994) resulting in mass hatching of ova and high summer infection of pasture (Bhat, 1997).

## References

- Bali, M.K. and Singh, R.P., 1977. Studies of the prevalence of *Haemonchus contortus* in sheep and goat in Hisar, Haryana Agric.d Univ. J. Res., 7: 143-148.
- Bhat, M.S., 1997. Studies on prevalence some haematobiochemical changes and treatment of gastrointestinal nematodiasis in sheep. Thesis to SKAUST, Kashmir, Srinagar.
- Blood, D.C., Radostitis, O.M. and Gay, C.C., 1994. Veterinary Medicine. A Textbook of Diseases of Cattle, Sheep, Pigs, Goats and Horses.
- Dhar, D.N., Sharma, R.L. and Bansal, G.C., 1982. Gastrointestinal nematodes in sheep in Kashmir. Vet. Parasitol., 11: 271-277.
- Misra, S.C., Das, D.N. and Mahapatra, G.S., 1974. Seasonal distribution of gastrointestinal helminths in sheep of Orissa. Indian J. Anim. Hlth., 13: 25-28.
- Patnaik, B., Mathur, P.B. and Pachalag, S.N., 1973. Gastrointestinal helminthiasis in sheep in semi-arid zone with particular reference to Rambouillet breed. Guj. Vet., 7: 38-43.
- Snedecor, G.W. and Cochran, W.G., 1967. Statistical Methods, Oxford and IBH Publishing Co., New Delhi.
- Soulsby, E.J.L., 1986. Helminth, Arothropods and Protozoa of Domesticated Animals. 7th Edn. Blackwell Scientific Publication, Oxford.
- Thaper, G.S., 1956. Systematic survey of helminth parasites of domesticated animals in India. Indian J. Vet. Sci. Anim. Husb., 26: 211-271.