

A Case Study on Seasonal Prevalence of Helminth Parasites in Goats (*Capra hircus*) in Kalanki (Khasibazzar), Kathmandu Nepal

¹Kedar Karki, ²Bimla Kumari Bashir and ³Janak Raj Subedi

¹Department of Veterinary, Central Veterinary Laboratory, ²Department of Zoology,

³Central Department of Zoology, Tribhuvan University, Kirtipur, Nepal

Abstract: In the study 100 samples were collected in Winter months (December and January) and 124 samples were collected in Summer months (May, June and July). Out of 100 samples collected in Winter, 46% samples were found positive for helminthes and out of 124 samples collected in Summer, 90.3% samples were found positive for helminthes parasite.

Key words: Goats, Kathmandu, Nepal, seasonal, prevalence, helminthes

INTRODUCTION

Prevalence of gastro intestinal parasites is considerably influenced by the climatic conditions and as far as possible the evidence for the distribution and prevalence of the diseases is presented by geographical area, roughly corresponding to climatic conditions. Generally warm and humid conditions which prevail in much of South-East Asia provide good conditions for many gastro intestinal parasites to flourish. Continuous high rainfall throughout the year in parts of the region means that there is no season during which the parasites are not a problem.

MATERIALS AND METHODS

To identify the status of helminth infestation in marketable goats an investigation was carried out in December, January, May, June and July. As market is the best place to find the parasites from different parts of the region. In Kathmandu, Kalanki Khasibazzar is the major site for goat trading. It provides trading spot to all traders throughout the country and it receives goats from all major producing areas of Nepal. Thus, Kalanki Khasibazzar was selected as the site of the study.

In the study 100 samples were collected in Winter months (December and January) and 124 samples were collected in Summer months (May, June and July). Out of 100 samples collected in Winter 46% samples were found positive for helminthes and out of 124 samples collected in Summer 90.3% samples were found positive for helminth parasite as shown in Table 1. The numbers of samples found positive during winter and summer for Trematoda were 10 and 22 for Cestoda, 28 and 46 and for Nematoda

Table 1: Results of the samples collected in Winter and Summer

Season of sample collection	No. of samples	No. of positive sample	Positive (%)
Winter	100	46	46.0
Summer	124	112	90.3

were 58 and 268, respectively (The number of samples exceeds the total number of samples taken due to multiple infections).

From this study, 2 genera of Trematoda, 2 genera of Cestoda and 11 genera of Nematoda were identified during Winter. Similarly from the Summer samples, 2 genera of Trematoda, 2 genera of Cestoda and 15 genera of Nematoda were identified. Fasciola was common during Winter and Summer among Trematodes but Dicrocoelium was found only during Winter and Schistosoma was found during Summer only. In both the seasons, Moniezia and Taenia genera of Cestode were observed. However, very little difference was observed in their prevalence during both seasons. In case of Nematodes, 11 genera were observed in winter samples including Ascaris, Capillaria, Chabertia, Diactophyma, Dictyocaulus, Gnathostoma, Haemonchus, Oesophagostomum, Strongyloides, Trichostrongylus and Trichuris. Whereas in summer samples, 15 genera of nematodes were observed including Ancylostoma, Ascaris, Bunostomum, Capillaria, Chabertia, Dictyocaulus, Gnathostoma, Haemonchus, Necator, Oesophagostomum, Oestertagia Strongyloides, Trichostrongylus and Trichuris. Dicrocoelium and Diactophyma were not found in Summer. Similarly, Schistosoma, Ancylostoma, Bunostomum, Oestertagia, Oxyuris and Necator were not observed during Winter.

Schistosoma of trematode genera was identified for the first time as it has not been reported from Nepal. Similarly in Nematode genera Ancylostoma, Necator and

Table 2: The seasonal prevalence of trematode in goats

Trematode	Winter (Prevalence %)	Summer (Prevalence %)
Dicrocoelium	4	-
Fasciola	6	11.20
Schistosoma	-	6.45

Table 3: The seasonal prevalence of cestode in goats

Cestode	Winter (Prevalence %)	Summer (Prevalence %)
Moniezia	16	6.45
Taenia	12	19.35

Table 4: The seasonal prevalence of nematode in goats

Nematode	Winter (Prevalence %)	Summer (Prevalence %)
Ancylostoma	-	1.61
Ascaris	4	6.45
Bunostomum	-	3.22
Capillaria	2	6.45
Chabertia	10	33.87
Diactophyma	2	-
Dictyocaulus	2	43.54
Gnathostoma	4	6.45
Haemonchus	10	14.51
Oesophagostomum	14	35.48
Oestertagia	-	16.12
Oxyuris	-	6.45
Strongyloids	6	29.03
Trichostrongylus	2	4.83
Trichuris	2	6.45
Necator	-	1.61

Gnathostoma are also reported for the first time in goats of Nepal. *Ancylostoma* and *Gnathostoma* were reported in goats from other parts of world but was not reported from Nepal before.

Oesophagostomum (36.7%) was the most encountered species followed by *Dictyocaulus* (35.44%) and *Chabertia* (32.91%) and among the least prevalence species were *Necator*, *Ancylostoma* and *Diactophyma* (Table 2-4).

RESULTS AND DISCUSSION

The present study exhibited 6.0 and 11.29% prevalence rate of fascioliasis during Winter and Summer, respectively. The increase in their prevalence during Summer may be due to increase in humidity and availability of favorable temperature. High prevalence of *Fasciola* was reported from Surkhet among goats (Ghimire, 1992) followed by 58% from Chitwan district (Dhakal *et al.*, 1996) 31.25% infection from Dhanusa

district (Jaiswal, 2006). The 31.5% from Kenya (Waruiru *et al.*, 2005) and 8.8% from Himanchal Pradesh, India (Jithendran and Bhat, 2001). Similarly, the prevalence of *Dicrocoelium* was reported to be 2.5% by Jithendran and Bhat (2001) and in the present study its prevalence was found to be 4% during Winter.

CONCLUSION

In this study 6.45% *Schistosoma* was encountered in summer samples only. Their prevalence during summer only might be due to favorable environmental conditions.

ACKNOWLEDGEMENTS

Researchers would like to acknowledge the sincere thanks to Dr. Damodar Sedai Chief Central Veterinary Laboratory for providing the laboratory facilities to conduct the study. The sincere thanks are due to all faculty members of Central Department of Zoology for their continuous encouragements for this study. The laboratory help provided by Lab. Technician Mr. Laxman Sijapati also cannot be forgettable.

REFERENCES

- Dhakal, I.P., R. Jha and H.B. Basnet, 1996. Common diseases of livestock at Pathivara VDC of Sankhuwasawa. Bull. Vet. Sci. Anim. Husbandry Nepal, 24: 95-99.
- Ghimire, S.C., 1992. The Role of Small Ruminants. In: Sustainable Livestock Production in the Mountain Agro-Ecological Region of Nepal, Abington, J.B. (Ed.). Food and Agriculture Organization, Rome, Italy, ISBN: 9789251032732, pp: 77-109.
- Jaiswal, L.K., 2006. Study on fascioliasis in ruminants at Dhanusa district. Blue Cross, 8: 122-122.
- Jithendran, K.P. and T.K. Bhat, 2001. Epidemiology and control of parasitism in nomadic situations in Hemachal Pradesh. ENVIS Bull. Himalayan Ecol. Develop., 9: 5-13.
- Waruiru, R.M., R.O. Otieno and M.N. Mutune, 2005. Gastro-intestinal parasitic infections of sheep and goats in semi-arid areas of Machakos district, Kenya. Bull. Anim. Health Prod. Africa, 53: 25-34.