

Prevalence of gastrointestinal parasites in Chauries of Gumdel VDC of Ramechhap District, Nepal

Sulochana Shrestha* and Yugal Raj Bindari

Himalayan College of Agricultural Sciences and Technology, Nepal.

Accepted 25 April, 2013

ABSTRACT

Fifty-two fecal samples of Chauries from Gumdel VDC of Ramechhap district were taken for study of gastrointestinal (GI) parasites and 47 samples were found positive representing 90.38% prevalence. The mode of infection was either mixed (57.44%) or single (42.55%). Among the gastrointestinal parasites, Strongyle (52%) showed the highest infection followed by Eimeria (23.07%), Ascaris (19.23%), Trichuris (11.53%), and Amphistomum (5.76%).

Keywords: Chauries, parasites, prevalence.

*Corresponding author. E-mail: shreansta@yahoo.com.

INTRODUCTION

Yak and their hybrids are integral components of the livelihood of people in most of northern Nepal. There are around 20,000 Yak and about 40,000 Yak-cattle hybrids in the 18 alpine districts of Nepal (Joshi, 1982; Joshi et al., 1996). Chauries are the hybrid off-springs of yak-cattle crosses. These are known for their ability to withstand low temperature, and have potential to survive on coarse fodder at higher altitude where no other ruminants can survive (Katiyar and Sinha, 1982). They are mostly black color but white and other colors (fawn) are also common. They are very hardy and can thrive on harsh climatic conditions and provide milk, transport, manure and many others products such as tail and hides in low input system (Neopane and Pokhrel, 2005). The population of Chauries in Gumdel VDC is 1453 and is reared at 6000 to 8000 ft of Ramechhap district (DLSO, 2011). The cold climate of this VDC and increasing demand of milk and milk products encapsulate the people of this area for rearing yak and Chauries. Rearing of Yak and Chauries are an important source of income generation for those people. Despite the economic importance, this animal has been given least importance and ignored by the researchers. Because of unavailability of veterinary care and ignorance of the herders about diseases and conditions, these animals harbor several endoparasites. Among them gastrointestinal (GI) parasites have become a major problem in Chauries and this causes heavy economic losses due to primarily

through severe weight loss, poor meat, milk and wool production, carcass and offal condemnation and impaired reproductive performance. Joshi (1982) has reported the incidence of liverfluke in both yak and their cross breeds in Nepal. Similarly, Weiner et al. (2003) have found *Fasciola hepatica*, *Echinococcus* cysts and nematodes in yaks of Nepal. There is no documentation elsewhere about the prevalence of GI parasites of Chauries in this area. This study provided useful information of GI parasites and may help in effective deworming schedule, treatment and developing control strategies. Moreover, this could be a service for resourceless poor community and a benchmark for future investigators/researchers.

METHODOLOGY

Samples were collected from Gumdel VDC of Ramechhap District from July to September 2012. Ramechhap district (Area: 1546 sq.km) lies in central Nepal, and situated between altitude 27° 20" to 27° 50" north and longitude 85° 50" to 86° 35" east. The climate is mostly subtropical type. The average annual rainfall is 2020 mm. Maximum temperature is 31.3°C and minimum is 11.9°C. Survey of farm house and pastures were done at regular intervals during the study period. A total of 52 fecal samples irrespective of age and sex were mostly collected from the rectum of the animals and were placed in collection tubes containing 10% formalin. The tubes were labeled properly and were brought in the laboratory of DLSO, Ramechhap for further analysis. The samples were examined by direct smear method along with floatation and sedimentation

method for the presence of helminths parasites (Urquhart et al., 1966). Identification of parasites was done following Soulsby (1982).

RESULTS AND DISCUSSION

Overall prevalence was found to be 90.38% with 57.44% mixed and 42.55% single infections. The highest prevalence may be due to favorable agroclimatic conditions, constant exposure of infestation and availability of infective stage larvae on the grazing ground by animals (Rahaman et al., 2010). The highest prevalence of GI parasites in Chauries are in agreement with those reported by Katiyar et al. (1981), Ansari et al. (1989), Rangorao et al. (1994) and Byanju et al. (2011) in Yak. Furthermore, samples were taken from July to September which is rainy season. This might be the reason for the highest prevalence of parasites in the study area. The higher prevalence in wet season is also reported by other authors in various regions (Moyo et al., 1996; Tembely et al., 1997; Fritche et al., 1993; Githigia et al., 2005). Sufficient rainfall and moisture during wet season favor the survival of infective larvae in pasture and higher probability of uptake of the infective larvae leading to higher prevalence rate (Kuchai et al., 2010). In present study highest prevalence of *Strongyle* infection (52%) was recorded. The similar results were reported by RangaRao et al. (1994), Rahaman et al. (2010) and Byanju et al. (2011) in Yak. Wangdi (1996) examined fecal samples collected from 26 adult yak and 81 yak calves from western Bhutan and reported 19 and 37% prevalence of *Strongyle* spp. for adult and calves yak respectively; 2% prevalence of each *Coccidia* spp. and *Trichuris* spp. was also recorded. In Sikkim 62% yak population was found infected with helminths (Pal, 1993). Another report of National Research Centre on yak in India (1995) indicated 51% presence of helminth eggs (*Trichuris*, *Strongyles*, Hookworms, *Dicrocoelium* and *Ascaris*). This preliminary study showed that parasitic load in Chauries of Gumdel VDC was much greater than yak; so further research on GI parasites and effective deworming should be implemented to enhance the productivity and population of Chauries.

Conclusion

It is of utmost importance to take necessary steps to collect more knowledge regarding GI parasites for better control measures. Further, investigations on GI parasites in Yaks and Chauries are required for better understanding of GI parasitism in this region and for making effective control plan.

ACKNOWLEDGEMENT

The authors would like to thanks all the staffs of DLSo, Ramechhap for their assistance throughout the study.

REFERENCES

- Ansari MZ, Rai MK, Chauhan HVS, 1989. Pathology of liver, lung and caecum of yaks (*Bos poepagus*) infected with *Dicrocoelium*, *Fasciola*, *Echinococcus* and *Trichuris*. Indian J Anim Sci, 59:552-554.
- Byanju R, Shrestha SP, Khanal DR, 2011. Prevalence of Gastrointestinal Parasites in Yaks of Lehe VDC, Manaslu Conservation Area. Nepal J Sci Technol, 12:366-369.
- DLSo Ramechhap, 2011. The Annual Report. pp 6-7
- Fritche T, Kaufmann J, Pfister K, 1993. Parasite spectrum and seasonal epidemiology of gastrointestinal nematodes of small ruminants in Gambia. Vet Parasitol, 49:271-283.
- Githigia SM, Thamsborg SM, Maingi N, Munyua WK, 2005. The epidemiology of gastrointestinal nematodes in Goats in the low potential areas of Thika District. Kenya. Bull. Anim Hlth Prod Afr, 53:5-12.
- Joshi DD, 1982. Yak and Chauri Husbandry in Nepal. 1st Edition. Published by Mrs. K. D. Joshi, Kathmandu, Nepal.
- Joshi DD, Lensch J, Sasaki M, Hentsch G, 1996. Final Report on Epidemiological Surveillance of Yak Disease in Nepal. Published by NZFHRC, Kathmandu, Nepal.
- Katiyar RD, Sinha SB, 1982. Yak breeding and their health problems in Sikkim. Livestock Research 2:1-9.
- Katiyar RD, Srivastava VK, Khara RC, Sinha SB, 1981. Incidence of helminths in domesticated yaks (*Bos poepagus*) in Sikkim. Livestock Res, 1:115-108.
- Kuchai JA, Chishti MZ, Ahmad F, Rasool M, 2010. Prevalence of Trematode Parasitic Infestation in Yak of Ladakh (*Bos grunniens*). Pak J Wildlife, 1(2):64-66.
- Moyo DZ, Bwangamoi O, Hendriks WM, Eysker M, 1996. The epidemiology of gastrointestinal nematodes infections in communal cattle and commercial beef cattle on the highveld of Zimbabwe. Vet Parasitol, 67:105-120.
- Neopane SP, Pokhrel PK, 2005. Indigenous Cattle of Nepal. Animal Breeding Division. Nepal Agricultural Research Council, Nepal.
- Pal RN, 1993. Domestic yak (*Poepagus grunniens* L.): A research review. Indian J Anim Sci, 63:743-753.
- Rahaman H, Pal P, Bandyopadhyay S, 2010. Occurrence of gastrointestinal parasites in domestic yaks in Sikkim. Indian J Anim Sci, 80:195-98.
- RangaRao GSC, Sharma RL, Hemaprasanth B, 1994. Parasitic infections of Indian yak *Bos (Poepagus) grunniens*- an overview. Vet Parasitol, 53:75-82.
- Soulsby EJL, 1982. Helminths, Arthropods and Protozoa of Domesticated animals. Bailliere, Tindal and Cassel, London.
- Tembely S, Lahlou-Kassi K, Rege JE, Sovani S, Diedkiou ML, Baker RL, 1997. The epidemiology of nematode infections in sheep in a cool tropical environment. Vet Parasitol, 70:129-141.
- Urquhart GM, Armour J, Duncan JL, Dunn AM, Jennings FW, 1996. Veterinary Parasitology. Blackwell Science, United Kingdom.
- Wangdi P, 1996. Survey of gid eradication program: incidence of coenurosis in yak population at Lingshe dungkahg. Yak Newsletter (Volume no. 2, November, 1996), pp. 12-24.
- Weiner G, Jianlin H, Ruijun L, 2003. The yak (2nd edition). Regional Office for Asia and the Pacific of the Food and Agriculture Organization of the United Nations: Bangkok, Thailand. 22: 460.