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A Report on Gastrointestinal Parasitic Infections in Yaks

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ABSTRACT

A study was conducted to know the prevalence of gastrointestinal parasitism in yaks in some pockets of Arunachal Pradesh and Sikkim by examination of faecal samples. For this, 152 and 80 numbers of faecal samples were collected randomly from Arunachal Pradesh and Sikkim, respectively. Out of these, 40 (26.31%) yaks were found positive in Arunachal Pradesh and 16 (20.00%) yaks were found positive in Sikkim for gastrointestinal parasitic infection with overall 24.13% infections. The percentage of infection of *Strongyle* sp. and *Eimeria* sp. were 95.00% and 10.00% in Arunachal Pradesh and 75.00% and 25.00% in Sikkim, respectively. Mean faecal egg count of infected yaks in Arunachal Pradesh and Sikkim were 185.00 and 168.75, respectively. It can be concluded from this study that a moderate percentage of yaks were suffering from gastrointestinal parasitic infections with less faecal egg count which is significant to contaminate the pasture and aid in spread of infections to healthy yaks as well as to contribute to increase faecal egg count in repeated infections.

Keywords: Arunachal Pradesh, Gastrointestinal parasite, Sikkim, Yak

INTRODUCTION

Yak (*Poephagus gruenniens* L.) is a multipurpose animal which provides meat, milk, hair, wool, and hide. As per livestock census (2007), the total population of yaks in India is 83,169 which are distributed in Arunachal Pradesh (14,251), Himachal Pradesh (1,705), Jammu and Kashmir (61,910), Sikkim (5,225), Uttarakhand (50), West Bengal (26) and Nagaland (2). Yaks play a vital role in agricultural and rural economies of the people. They are considered to be an excellent pack animal for transportation of goods in difficult terrain (Lensch 1996). They are also considered to be one of the hardiest animals and an efficient converter of forest biomass into valued beef (Rahman et al. 2007). They are reared under free-range system in the high hills and migratory system of grazing is in practice. They becomes susceptible to many diseases affecting cattle due to the reason that in winter, yaks are taken to a lower altitude grazing land (<3000 msl) which is shared by other domesticated animals. Therefore, many of the infectious diseases of cattle are also reported in yaks (Geilhausen 2000).

Gastrointestinal (GI) parasitic infections in animals cause degradation of health as a result production of quality milk, meat and hair products decrease (Waller 2002). This GI parasitic infection is one of the most common health problems in the hilly regions of India. Prevalence of gastrointestinal parasites is considerably influenced by geographical location and climatic conditions. There are reports of nematodes, cestodes and trematodes infection in yaks from India (Katiyar et al. 1981; Ansari et al. 1989; Ansari and Rai 1991; RangaRao et al. 1994; Yadav et al. 2007). GI parasitic infections in animals may vary from time to time within a state even within an area depending upon the climatic conditions of the area, availability of infective stages of the parasites in the pasture and management practices. The information related to yak health is very scarce due to the remoteness, inaccessibility and the migratory system of yak husbandry (Rahman et al. 2010). Keeping in view of these, the present study was undertaken in some pockets of Arunachal Pradesh and Sikkim, to add more information regarding GI parasitic infections in yaks.

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MATERIALS AND METHODS

During the year 2011-12, a total of 232 numbers of faecal samples of yaks were collected from Mandala, Dirang, West Kameng district, Arunachal Pradesh (n=152) and East Sikkim, Gnathang and Kupup area (n=80). All the samples were collected randomly directly from rectum in sterile plastic container and brought to the laboratory maintaining refrigerated condition. Faecal samples obtained were examined by direct smear, sedimentation and flotation methods as per standard techniques (MAFF 1986). Quantitative examination of these faecal samples was done to know the eggs per gram of faeces (EPG) by Modified MacMaster Technique (MAFF 1986). The eggs of the helminthes were identified using low and high power microscope according to the size of eggs and morphological characteristics (Soulsby 1986).

RESULTS AND DISCUSSION

The prevalence of GI parasitic infection in yak during the study period has been presented in table 1. It could be observed from the table that, out of 232 numbers of faecal samples of yak, 56 (24.13%) were found positive for gastrointestinal parasitic infection. The percentage of infection recorded in Mandala (Arunachal Pradesh) was 26.31% and in Sikkim was 20.00%. Only Strongyle sp. and *Eimeria* sp. were found in faecal samples of yaks collected from these two areas. The percentage of infection of Strongyle sp. and *Eimeria* sp. were 95.00% and 10.00% in Arunachal Pradesh and 75.00% and 25.00% in Sikkim, respectively. Mean faecal egg count (FEC) of infected yaks in Arunachal Pradesh and Sikkim were 185.00 (ranges 50-750) and 168.75 (ranges 50-250), respectively.

Table 1: Prevalence of GI parasitic infection in yaks with EPG

Location	Nos. of faecal samples examined	Nos. Positive (%)	Mean EPG
Arunachal Pradesh	152	40 (26.31)	185.00
Sikkim	80	16 (20.00)	168.75
Total	232	56 (24.13)	181.50

No cestode and trematode infections could be recorded from the samples collected from both the places in the study.

The present findings of percentage of infections in yaks of Sikkim is in agreement with those of Rahman et al. (2010) who reported 20.68% gastrointestinal parasitic infection in yaks of Sikkim during 2001 to 2008. Although they have reported higher FEC ranges from 100 to 2900, but in the present study lower EPG ranges (50-250) with mean EPG 168.75 have been observed, might be due to personal variation. On the contrary, Bandyopadhyay et al. (2010) observed lower prevalence of GI parasitic infection in yaks of Sikkim (10.05%) in comparison to the present study but they recorded FEC ranges from 100 to 200 which is almost similar to the present study. In a recent study at Arunachal Pradesh (West Kameng and Tawang), Bam et al. (2012) reported 5.47% helminth and protozoan infections in yaks after examination of faecal samples. A high percentage (81.82%) of GI parasitic infections in yaks of Nepal have been recorded by Byanju et al.(2011), who also observed high prevalence of Strongyle infection (47.23%) in yaks. The highest infection rate of nematoda and coccidian (average 56.7%) in yaks has been reported from China (Yunfei et al. 2004). Strongyle sp. (42%) was recorded as most prevalent species followed by *Eimeria* sp. (32%) in yaks of China (Hogg 2004), supported the findings of the present study. Although most of the earlier workers recorded some other GI parasitic infections in yaks in addition to Strongyle sp. and *Eimeria* sp. might be due to nonavailability of infective stages of such infections in our study area.

CONCLUSIONS

It can be concluded from this study that a moderate percentage of yaks were suffering from GI parasitic infections with less FEC which is significant to contaminate the pasture and spread infections to healthy yaks as well as to increase EPG on repeated infections.

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