



Prevalence of parasitic diseases of goat at Pirganj upazilla of Bangladesh

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ABSTRACT

The prevalence of parasitic diseases in Pirgonj of Rangpur district was studied from January to December 2010. One hundred and forty goats of different ages in different seasons were investigated for parasitic diseases. The disease was diagnosed by clinical and physical examinations. The faeces were examined by direct smear method following concentration by sedimentation and floatation techniques in order to identify gastro intestinal parasites. Other endoparasitic diseases were diagnosed on the basis of specific symptoms. The goats were also examined for ectoparasitic infestation. The ectoparasites were collected by hand picking or by using hair brush and examined under microscope for morphological studies. The results revealed that the overall prevalence of endoparasitic diseases was 60.71% and ectoparasitic diseases 15.71%. Adults are more susceptible for both ecto and endo parasitic infestation. Overall prevalence of endoparasitic diseases was found higher in rainy season and ectoparasitic infestation in summer season. The study make attention that the goats in Pirgonj suffering from a number of parasitic diseases and suggests that treatment and control measures should be taken to keep the goat population out of parasitic diseases.

Key words: endoparasite, ectoparasite, goat, pirgonj

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INTRODUCTION

The economy of Bangladesh is agro based. About 52% of the Gross Domestic Product (GDP) comes from agricultural sector of which crops alone shares 38.8% , livestock 65%, fisheries 3.5% and forestry 3.2%, (Sikder,1990). The contribution of the livestock sector to the GDP is approximately 23.21% (DLS, 2008). It generates about 13% of total foreign exchange earnings and provides full time employment to about 20% and partial employment to about 50% of the rural population (Alam, 1993).

Bangladesh possesses 20.75 million goats at present (DLS, 2007). Black Bengal goats are highly preferred because of their high quality meat and skin in this country, as in other countries of the world. Farmers are interested in rearing goats due to their polite behavior, low food intake, highest fertility rate (95%) and multiple kidding

efficiency (Husain, 1993). Rural people rear more than 98% of total goats in Bangladesh. About 65% of the total populations in Bangladesh are poverty stricken and about 55% farmer having no or very little land for their homestead only (FAO, 1990). As cattle and buffalo rearing requires high cost, the landless and marginal farmers prefer rearing of goats. Rearing of goats require a small investment with a little risk. Considering these facts, the Bangladesh Government has taken up a large scale programme as “National Programme for Poverty Alleviation through Goat Development”. However, it is worth mentioning that the devastating diseases in goats can be havoc if not properly addressed.

Parasitism claims to be one of the main obstacles in livestock rearing in Bangladesh (Jabbar and Green, 1983). The hot humid climatic condition in Bangladesh greatly favors the development and survival of helminth parasite and ectoparasites that

makes parasitic infestation rampant. Parasitic diseases are of great economic importance in livestock (Islam, 1985). Asian Development Bank (1984) estimated the loss of productivity of animals in terms of mortality, loss of milk and meat, generation loss and loss of reproductive rate due to animal parasites to the extent of 50% in Bangladesh.

Studies on the epidemiology and other aspect of parasitic infestation in goat have been carried out extensively in different parts of the world (Gupta 1987; Travassos *et al.*, 1974; Waller and Thomas, 1975). On the contrary relatively little attention has been given on this important area in Bangladesh. Although, different studies (Qadir, 1981; Haq and Shaikh, 1968) have been carried out in various part in Bangladesh, but limited attempt have been taken to study the prevalence of parasites in Rangpur district. The present study was undertaken to investigate parasitic diseases of goat in Pirgonj upazila of Rangpur district.

MATERIALS AND METHODS

The present study was conducted from January to December 2010 in Pirganj upazilla, under Rangpur districts. Coprological examination was done in the laboratory of veterinary hospital, Pirgonj. One hundred and forty goats rearing in free ranging system were selected randomly and their ages were 30 days to 2.5 years.

Sample collection

During sample collection particulars of the animals as to their species, breed, age, sex and general body condition was recorded. Faecal samples (approximately 5gm) were collected directly from the rectum of the goats and put into small plastic containers, containing 10 % formalin. Label depicting particulars of the animal, village and date of collection was put in the wall of the plastic container. The samples were immediately transferred to the local veterinary hospital and kept in refrigerator at 4°C temperature until further examination. Both the direct smear and

sedimentation and flotation methods described by Urquhart et al. (1996) were performed to screen out the positive samples.

Ectoparasites were collected from the different parts of the body of the individual goat by hand picking. When required, small hairbrush dipped in ethanol was used for the collection of ticks. The point of attachment was smeared with ethanol. Adequate precautions were taken to preserve the mouthparts and appendages of the ectoparasites during collection. Ectoparasites were preserved in 70% alcohol in clean, well-stopper glass vials which were labeled properly.

Animal examination

Physical examination

Various physical examinations were done carefully in consultation of local veterinary surgeon or upazilla livestock officer and the findings were recorded. Close inspection were performed properly in order to observe the presenting signs such as anorexia, emaciation, rough hair coat, diarrhea. Respiratory distress was identified with the help of stethoscope. Per rectal temperature were recorded with the thermometer.

Clinical examination

Presumptive diagnoses of some parasitic diseases were done based on the history, clinical sign and symptoms and faeces examination (Blood and Radostits, 1989). Gross examination of faeces was made for the detection of living or dead worms or for the detection of the segments of tapeworms. The animal body was examined for the presence of any visible ectoparasites. Ectoparasites were identified according to the keys and descriptions given by Wall & Shearer (1997).

RESULTS AND DISCUSSION

A total number of 140 diseased goats were examined and 85 were recorded of endoparasitic diseases and 22 were ectoparasitic diseases.

Table 1
Prevalence of endoparasitic diseases of goat (N=140) in Pirgonj

Parasitic diseases	Age*			Seasons**			Overall prevalence
	Young No (%)	Adult No (%)	Old No (%)	Summer No (%)	Rainy No (%)	Winter No (%)	
Fascioliasis	4 (2.86)	11 (7.86)	5 (3.57)	3 (2.14)	10 (7.14)	7 (5.00)	20 (14.29)
Paramphistomiasis	2 (1.43)	5 (3.57)	6 (4.29)	2 (1.43)	7 (5.00)	4 (2.86)	13 (9.29)
Strongyloidosis	2 (1.43)	3 (2.14)	2 (1.43)	2 (1.43)	3 (2.14)	2 (1.43)	7 (5.0)
Neoscariasis	2 (1.43)	1 (0.71)	0 (0.00)	1 (0.71)	0 (0.00)	2 (1.43)	3 (2.14)
Coenuriasis	0 (0.00)	3 (2.14)	2 (1.43)	2 (1.43)	3 (2.14)	0 (0.00)	5 (3.57)
Monieziasis	2 (1.43)	5 (3.57)	3 (2.14)	2 (1.43)	6 (4.29)	2 (1.43)	10 (7.14)
Coccidiosis	3 (2.14)	1 (0.71)	0 (0.00)	3 (2.14)	0 (0.00)	1 (0.71)	4 (2.86)
Fascioliasis+ Paramphistomiasis	3 (2.14)	7 (5.00)	4 (2.86)	2 (1.43)	7 (5.00)	5 (3.57)	14 (10.0)
Paramphistomiasis + Neoscariasis	2 (1.43)	6 (4.29)	1 (0.71)	2 (1.43)	3 (2.14)	4 (2.86)	9 (6.43)
Overall prevalence	20 (14.29)	42 (30.0)	23 (16.43)	19 (13.57)	39 (27.86)	27 (19.26)	85 (60.71)

**Summer: March- June; Rainy: July-October and Winter: November-February

*Age- Young (≤ 12 months), adult (> 12 months to 24 months) and old (>24 months)

Table 2
Prevalence of ectoparasitic diseases of goat in Pirgonj

Ectoparasitic infestation	Age*			Seasons**			Overall prevalence
	Young No (%)	Adult No (%)	Old No (%)	Summer No (%)	Rainy No (%)	Winter No (%)	
Mange	1 (0.71)	2 (1.43)	2 (1.43)	2 (1.43)	1(0.71)	2 (1.43)	5 (3.57)
Tick	1 (0.71)	3 (2.14)	2 (1.43)	3 (2.14)	1(0.71)	2 (1.43)	6 (4.29)
Lice	2 (1.43)	3 (2.14)	3 (2.14)	2 (1.43)	2 (1.43)	4 (2.86)	8 (5.71)
Maggot of fly	0 (0.00)	2 (1.43)	1 (0.71)	2 (1.43)	1 (0.71)	0 (0.00)	3 (2.14)
Overall prevalence	4 (2.86)	10 (7.14)	8 (5.71)	9 (6.43)	5 (3.57)	8 (5.71)	22 (15.71)

**Summer: March- June; Rainy: July-October and Winter: November-February

*Age- Young (≤ 12 months), adult (> 12 months to 24 months) and old (>24 months)

Prevalence of endoparasites in goats

The overall prevalence of endoparasitic diseases in goats was recorded 60.71% and ectoparasite was 15.71%. The prevalence of endoparasitic disease found higher in adult (30.0%) goat compared to young (14.29%) and old (16.43%). Higher prevalence was observed for coccidiosis (2.14%) and neoscariasis (1.43%) in young goat. Age related investigations of endoparasite of goat in Pirgonj suggest that adult goat is most susceptible to endoparasitic infestation (table 1).

The prevalence of fascioliasis in goat in Pirgonj was 14.29%. The age wise prevalence of fascioliasis was comparable with the study of Hossain et al., 2011. The prevalence of paramphistomiasis was higher in adult (3.57%) and old (4.29%) goat compared to young stage (1.43%) and found more in rainy season (table 1). This results is in confirmatory with the study of Rahman (1969) but other studies were incomparable might be due to regional and environmental variations. The prevalence of strongyloidosis was 5% which was less than those

recorded by Morgan et al. (2006) by where the author reported 6.85% prevalence of strongyloidosis in goat. In case of neoscariasis prevalence was 2.14% which was less than those (5%) recorded by Tarazona (1974). Coenuriasis was found 3.57% in this study and is comparable with the study reported by Nooruddin, et. al., 2000. The prevalence of coccidiosis was 2.86% which was slightly more than those recorded by Torina et al. 2004 and Rahman et al., 2012 where they reported the prevalence of coccidiosis was 1.85% and 1.40% respectively.

Infestation of paramphistomum often associated with either fascioliasis or neoscariasis. This mixed infection was similarly observed in the studies of Mostafa et al. (1996) and Qadir (1981). However in most of cases the prevalence was higher in rainy seasons followed by winter and summer except for coccidiosis which is more in summer and neoscaris is more in winter (table 1).

Prevalence of ectoparasites in goats

The investigation of ectoparasites in goat in Pirgonj revealed that adults (7.14%) are more susceptible to ectoparasitic infestation followed by old (5.71%) and young (2.86%). The ectoparasitic infestation was found more in summer (6.43%) followed by winter (5.71%) and rainy (3.57%) seasons (table 2). The overall prevalence of ectoparasitic infestation was 15.71%. The overall prevalence of lice infestation was higher (5.71%) than tick (4.29%), mange (3.57%) and maggot infestation (2.14%). These results however differ from other studies as the authors calculated the prevalence rate compared to the total infected animals. Rahman et al., (2012) reported 2.54% prevalence rate in goat where they calculated the prevalence compared to total number of investigated animals.

However, the contrast in between the present and earlier findings can be explained by the fact of variation of geographical location of experimental area, topography, the composition of soil type and humidity, lack of control group of population and most importantly, the changed climatic condition of the earth. The rise of infestation in summer may be due to rise of temperature in late winter leading

to gradual increase in the load as well as percentage of infestation.

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