

PREVALENCE OF GASTRO-INTESTINAL NEMATODES IN GOAT AT CHITTAGONG HILLY AREAS OF BANGLADESH

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Summary

Eight hundred and seventy on goats from Naikhongchari FSR site in Bandarban district were examined for gastro-intestinal nematodes. The parasites encountered in the region were *Haemonchus Sp.*, *Bunostomum Sp.*, *Oesophagostomum Sp.* and *Strongyloides Sp.* The overall infection rate was 78.41%. Among various species found, *Haemonchus Sp.* emerged as the most prevalent, although *Oesophagostomum* and *Bunostomum* were also found in this studies. The seasonal fluctuation in infection was assessed by monitoring the fecal egg count. The maximum values for the prevalence and overall mean EPG were observed after the heavy rain fall season and remained at a relatively high level from June to November.

Haemonchus Sp. and *Oesophagostomum Sp.* appeared to be of major important parasites in the goats of this climatic zone which deserved proper treatment to attain higher production from goat.

(Key Words: Prevalence, Nematode, *Haemonchus*, *Bunostomum*, *Oesophagostomum*, *Strongyloides*, Chittagong, Stoll's, Mc. Master)

Introduction

The climate in a certain locality is one of the factors that determine the type and severity of parasitic infections in goat. *Haemonchus Sp.*, *Bunostomum Sp.*, *Gaigeria Sp.*, *Strongylus Sp.* and *Oesophagostomum Sp.* have been recorded in goat/sheep in Bangladesh by different authors like Haq and Sheikh (1968), Rahman (1988) and Chowdhury (1971). Stomach worm and hook worm are considered most harmful blood sucking parasites of goat/sheep. One worm being capable of sucking 0.8 ml of blood in 24 hours, Demidova (1958) and Sarimsakov (1959) recorded 83% infestation with *Bunostomum trigonocephalum* of sheep in the foot hills of Uzbekistan. The load of parasites varied between 125-162 caused considerable draining of host blood resulting in ill health, reduction of growth rate and frequent death. Ortlepp (1937) in South Africa recorded *G. pachyscelis* in arid region with humid climate and observed death in sheep with 24 *G. pachyscelis* worms indicating high pathogenecity. The

present study was undertaken to determine the gastro-intestinal nematode parasite spectrum and also to record seasonal fluctuations in these nematode infections, as monitored by fecal egg counts during a 12 month period, in the goat of selected areas of Chittagong Hill Tract.

Materials and Methods

This investigation was carried out between October 1990 to September 1991 at Naikhongchari FSR site in Bandarban district. Randomly collected 871 fecal samples from onfarm goats (Not less than 50 sample in each month). Fecal samples collected from the rectum of the goat were brought to the laboratory and stored at 4°C until analysis. The samples were examined within 48 hrs of collection by using stoll's dilution technique and Modified Mc. Master's technique with Saturated NaCl Soln. (Anon 1977) to determine the gastro-intestinal warm egg per gram of feces (EPG). Whenever necessary, a correction factor was need according to the consistency of the faeces. (Soulsby, 1982).

Results and Discussion

Out of the total of 871 goats examined during this study, 683 (78.41%) were found to be

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infected with one or more species of nematode parasite shown in table 1. No relationship could be found between the presence of a particular species and the sex of the host. The survey recorded the presence of a total of four nematode species, which arranged in descending order of prevalence, were *Haemonchus Sp* (29.04%), *Oesophagostomum Sp* (21.23%), *Bunostomum Sp*

(16.41%), and *Strongyloides Sp.* (13.54%). This has commonly been reported by several workers (Grant, 1981; Specht, 1982; Vercruyse, 1983) in different climatic areas of the World.

The observations on seasonal fluctuations of prevalence (% of positive) and the mean monthly faecal egg counts with the 12 month period were shown in table 2 and 3 respectively.

TABLE 1. TOTAL POSITIVE CASE AT DIFFERENT SEASONS

Months	No. of goat examined	No. of positive case	Percentage of positive
Oct.-Nov. (Autumn)	105	88	83.80
Dec.-Jan. (Winter)	169	133	78.69
Feb.-March (Spring)	154	103	66.88
April-May (Summer)	208	153	73.55
June-July (Monsoon)	103	85	82.52
August-Sept. (Post monsoon)	132	121	91.66
Total	871	683	78.41

TABLE 2. SEASONAL INCIDENCE OF G.I. NEMATODES IN GOAT AT CHITTAGONG HILLY AREAS

Months	<i>Bunostomum</i>	<i>Haemonchus</i>	<i>Strongyloides</i>	<i>Oesophagostomum</i>
Oct.-Nov.	42 (40.0)	43 (40.9)	33 (31.4)	47 (44.8)
Dec.-Jan.	46 (27.2)	22 (13.0)	18 (10.6)	37 (21.9)
Feb.-March	12 (7.8)	41 (26.6)	11 (7.1)	24 (15.6)
April-May	16 (7.7)	44 (21.1)	23 (11.0)	26 (12.5)
June-July	10 (9.7)	31 (30.0)	8 (7.8)	25 (24.3)
August-Sept.	17 (12.9)	72 (54.5)	25 (18.9)	26 (19.7)
Total	143 (16.4)	253 (29.0)	118 (13.5)	185 (21.2)

Note: Figures within parentheses indicate percentages.

TABLE 3. MEAN EPG AND EPG VARIATION IN DIFFERENT SEASONS

Months	<i>Bunostomum</i>	<i>Haemonchus</i>	<i>Strongyloides</i>	<i>Oesophagostomum</i>	Over all × EPG
Oct.-Nov.	239.3 (1-9)	305.4 (1-47)	551.3 (1-91)	283.9 (1-36)	344.9
Dec.-Jan.	118.3 (1-3)	120.8 (1-3)	130.5 (1-4)	128.1 (1-5)	124.4
Feb.-March	128.5 (1-2)	144.1 (1-3)	115.6 (1-3)	117.4 (1-3)	126.4
April-May	106.2 (1-2)	132.4 (1-2)	193.7 (1-3)	107.1 (1-2)	134.9
June-July	116.6 (1-3)	200 (1-2)	150.0 (1-2)	141.7 (1-3)	152.0
Aug.-Sept	128.5 (1-4)	218.7 (1-4)	164.0 (1-7)	146.1 (1-7)	164.5
Total	139.6 (1-9)	186.9 (1-47)	217.6 (1-9)	154.0 (1-36)	

Note: Figure in the parentheses indicate EPG variation in "00".

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The maximum value for prevalence (91.66%) were recorded in August to September. The maximum EPG count (344.98) were recorded in October to November, with the beginning of the winter season from December, increased then the mean total count decreased to the lowest level. With the onset of rain, it increased sharply from May afterwards. The prevalence did not show a marked seasonal pattern in the present study. However, it appeared a minimum (66.88%) during spring (Feb.-March), at the beginning of summer season and highest level (91.66%) were recorded during post monsoon (August-Sept.) followed by Autumn (Oct.-Nov.) (83.30%).

The overall nematode infection rate of goats in the present study was found to be 78.41%, which was closely related to that reported by A. K. Yadav (1989) for goat in India (86.8%). The difference might be due to the climatic difference of the two regions. *Haemonchus Sp* emerged as the most Prevalent parasite (29.04%) in the region. These findings were in agreement with those of Grant 1981, Specht 1982 and Vercruysse 1983, who studied the nematode parasite of sheep in high rain fall area in Zimbabwe, South Mozambique and Senegal respectively. The findings of this study were also in conformity with those of Bali and Singh (1977). Who reported. *H. Contortus* and *B. Trichocephalum* as the most prevalent species in goats of Hissar (Haryana). A high frequency of overall nematode infection in goats of the area was observed, which was mainly attributed to the high humidity almost throughout the year and because of the moderate

temperature prevailing in the region. Animal parasites were favoured in such a climate.

The present observations may initially be helpful in performing chemotherapeutic and prophylactic strategies for goats, which were raised in the regions with the similar climate. Effect on health, sex and age will be done in later on.

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