

Original Research Article

HAEMATO-BIOCHEMICAL PROFILE AND PREVALENCE OF GASTROINTESTINAL PARASITISM IN MIGRATORY GADDI GOATS OF HIMACHAL PRADESH

ABSTRACT

Study conducted on migratory goats in mid-hills around Palampur revealed high prevalence of gastro-intestinal parasitism (Strongyle, Trichuris and Monezia) with mean EPG value of 1656 ± 136.40 in 30 goats out of the total 40 included in this study. Flotation method of faecal examination revealed greater incidence of GIT parasitism. There was significant reduction in TEC, Hb, PCV and MCV in infected goats as compared to healthy goats. Mean values of calcium, albumin, globulin, magnesium and iron were also found to be significantly decreased statistically in infected group. Considering the high parasitic load during migration regular deworming of the migratory goats is advised to keep them healthy and in good body condition.

Conclusion: Present study concluded that prevalence of GIT parasitism in migratory flock of goat was high when assessed at mid-hills altitude with various haematological and biochemical parameters below the normal range as compared to healthy animals. Considering the high parasitic load during migration regular deworming of the migratory goats is advised to keep them healthy and in good body condition.

Keywords: *Migratory; Gaddi; Goats; Parasitism; Haemato-biochemical;*

plasma separation. Plasma was separated by centrifugation at 3000 rpm for 10 minutes and these plasma samples were preserved at -20°C in a deep freezer for further biochemical and mineral estimations.

Evaluation of haemato-biochemical parameters

The haematological parameters were studied using an Auto-Haematology Analyser BC-2800 Vet (Manufactured by Mindray Medical International Limited, Shenzhen-China; Marketed by Fresenius Medical Care Private Limited, New Delhi). Parameters assessed were Haemoglobin (Hb) (g%), Packed cell volume (PCV) (%), Total erythrocyte count (TEC) ($\times 10^{12}/L$), Total leucocyte count (TLC) ($\times 10^9/L$), Mean corpuscular volume (MCV) (fL), Mean corpuscular haemoglobin (MCH) (pg) and mean corpuscular haemoglobin concentration (MCHC) (%). Biochemical parameters studied were glucose (mg%), total serum protein (TSP) (g/dL), albumin (g/dL), globulin (g/dL), Calcium (mg/dL), Phosphorus (mg/dL), Iron ($\mu\text{g}/\text{mL}$) and Magnesium (mg/dL) using commercial reagent kits, based on spectrophotometric methods, through semi-automatic biochemical analyser Microlab 300 Clinical Chemistry Analyser (by Merck Limited, Mumbai). The results were compared with values obtained from healthy control. Data collected, was analysed statistically employing "t test" InStat software. Ten apparently healthy goats were selected as healthy group from the same flock. Only those goats were selected as healthy control in which EPG value was less than 500.

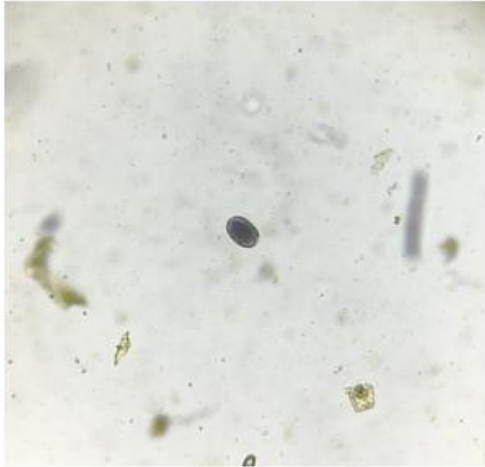
3. RESULTS AND DISCUSSION

30 goats were found positive for git parasitism and constituted infected group in present study. All of them had epg above 1200. Prevalence of git parasites was found to be 86.6% (26/30) on direct smear examination and 93.33% (28/30) on floatation method (table 1). Different types of eggs found were Strongyle, Trichuris and Monezia.

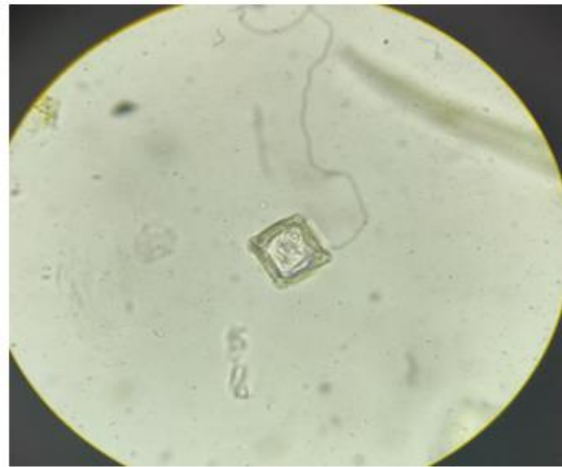
FIG. 1 Site of Sampling

FIG.2COLLECTION OF SAMPLES





Strongyle egg



Monezia egg



Trichuris egg

Fig. 3 Eggs of different endoparasite found

Table 1. Observation On Faecal Examination In Infected Group

Total Samples In Infected Group	% Incidence On Direct Smear Method	% Incidence On Flotation Method	Types Of Parasites Found	Mean EPG
30	86.6% (26/30)	93.33% (28/30)	Strongyle, Trichuris and Monezia	1656±136.40

Mean epg value was found to be 1656±136.40 as compared to 370.82±92.08 of healthy control. There was significant reduction in TEC, Hb, PCV and MCV in infected goats as compared to healthy goats (table 2).

TABLE 2. Haematological Profile of Goats Infected with Gastrointestinal Parasitism And Apparently Healthy Goats.

Sr. No	Parameters	Infected Goats (N=30)	Healthy Goats (N=10)
		Mean ±Se	Mean ±Se
1	Tlc (10 ⁹ /L)	12.98±0.89	12.11± 1.030
2	Tec (10 ¹² /L)	14.77±0.46**	16.63± 0.25**
3	Hb (G/Dl)	6.40±0.22***	9.18 ±0.25***
4	Pcv (%)	24.40±0.91***	32.72 ±0.88***
5	Mean Corpuscular Volume (fl)	16.55±0.27***	21.19 ±0.45***
6	Mean Corpuscular Haemoglobin (pg)	4.78±0.16	4.93 ± 0.04
7	Mean Corpuscular Haemoglobin Concentration (g/dl)	28.49±1.06	29.90± 0.28

*Significant At 5% Level (P<0.05) **Significant At 1% Level (P<0.01) ***Significant At 0.1% Level (P<0.001)

The reduction in PCV, Hb and total erythrocyte may be due to acute loss of blood by sucking activity and haemorrhages caused by various parasites (bhat *et al.* 2004 and amulya *et al.* 2014). The decreased level of Hb and Pcv during gastro-intestinal nematode infection in goats has also been reported by pal *et al.* (2001), rajguru *et al.* (2002) and kar *et al.* (2007). The gastro-intestinal nematodes and cestodes infection has been reported to affect the normal

digestion and assimilation in small intestine (Iakra *et al.* 2007). Mean values of calcium, albumin, globulin, magnesium and iron were found to be significantly decreased statistically in infected group when compared to healthy group (table 3).

table 3. Biochemical Profile Of Goats Infected With Gastrointestinal Parasitism And Apparently Healthy Goats.

Sr. No	Parameters	Infected Goats(N=30)	Healthy Goats(N=10)
		Mean \pm SE	Mean \pm SE
1	Calcium (mg/dl)	7.86 \pm 0.26*	8.92 \pm 0.41*
2	Phosphorus (mg/dl)	3.43 \pm 0.26	4.13 \pm 0.28
3	Albumin (g/dl)	3.28 \pm 0.15**	4.15 \pm 0.23**
4	Globulin(g/dl)	2.98 \pm 0.16***	3.75 \pm 0.20***
5	Total Protein (g%)	6.26 \pm 0.31	7.90 \pm 0.43
6	Iron (μ g/ml)	1.45 \pm 0.41*	2.63 \pm 0.23*
7	Magnesium (mg/dl)	2.6 \pm 0.06***	3.25 \pm 0.04***
8	Glucose (mg%)	52.20 \pm 1.67	53.31 + 1.90

*significant at 5% level (p<0.05) **significant at 1% level (p<0.01) ***significant at 0.1% level (p<0.001)

The hypoproteinemia and hypoalbuminemia in the affected animals could be attributed to protein losing gastroenteropathy in nematodiasis (soulsby, 1982) and malabsorption of proteins from damaged intestinal mucosa in concurrent gastrointestinal infections (ahmed *et al.* 2015). The phosphorus and glucose level did not differ significantly.

4. CONCLUSION

Present study concluded that prevalence of GIT parasitism in migratory flock of goat was high when assessed at mid-hills altitude with various haematological and biochemical parameters below the normal range as compared to healthy animals. Considering the high parasitic load during migration regular deworming of the migratory goats is advised to keep them healthy and in good body condition.

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