Point Prevalence of Gastrointestinal Helminthiaisis in large Ruminants of Jammu, India

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Abstract- The present study was carried out to determine the prevalence of gastrointestinal helminthiasis in large ruminants (cattle and buffalo) in Jammu area of J&K. For this purpose, 310 faecal samples were collected from cattle and buffalo from different areas of Jammu. Parasitological procedures used for the identification of helminthes were direct and indirect methods. The overall prevalence of helminthiasis was 51.29 % (67.15% in case of cattle and 38.72% in case of buffaloes). Helminthic infection was recorded throughout the year with seasonal variations.

Index Terms- Gastrointestinal helminthiasis, large ruminants, Prevalence, Jammu

I. Introduction

The prevalence of helminthes in tropical and subtropical areas has reduced production potential of livestock development programmes by causing countless deaths and economic losses (Al-Quaisy *et al*., 1987). Helminthic infection is a major constraint of livestock and causes great economic losses to dairy industry of retarded growth, low productivity and increased susceptibility of animals to other diseases. In spite of significant production losses, which may run into millions of rupees (Jithendran and Bhat 1999), the problem is persisting because of chronic and insidious nature. Helminthiasis adversely affects ruminants e.g. hematological and biochemical disturbances (Iqbal *et al*., 1998 and Hayat *et al*., 1999). The incidence of parasites in cattle and buffaloes has been reported from different states of India (Krishna *et al*., 1989; Hirani *et al*., 1999 and Aggarwal *et al*., 2002). In Jammu and Kashmir the incidence has been reported by Alam *et al*.(1994), Raina *et al*.,(1999), Pandit *et al*.,(2004), Yadav *et al*.,(2004), Hassan *et al*.,(2005) and Kuchay *et al*.,(2011). The present investigation records and highlights the prevalence and other epidemiological parameters of gastrointestinal helminthiaisis of large ruminants of Jammu in order to add more information to already existing data.

II. Materials and Methods

Study area and sample collection

The study subtropical area is located between 74.24^0 and 75.18^0 and between 32.50^0 and 33.30^0 N. The annual rainfall in subtropical Jammu is 1115.9 mm.

In total of 310 faecal samples collected over a period of one year from November 2007 to October 2008 from the study areas like Samba, Akhnoor, Bisnah, Jammu, and R S Pura. The samples were collected either directly from the rectum or when freshly passed and subjected to direct microscopic examination as well as Sedmentation and floatation methods (Solusby 1982).

Parasitological procedures

Faecal samples were examined for helminth eggs using direct and sedmentation/ floatation techniques (Solusby 1982). Identification of eggs was made according to the description given by Solusby (1982).

III. Results and Discussion

Out of the 310 samples collected, 159 (51.29%) were found positive for single mixed helminthic infection. Among various infections, maximum incidence was of trematodes (24.83%) followed by nematodes (21.93%) and minimum of cestodes (4.51%). The most prevalent helminth parasites isolated were *Paramphistomum spp*. (20.32%), *Haemonchus spp*. (11.93%), *Trichurs spp*. (5.16%), *Chabertia spp*. (4.83%), *Dicrocillium spp*. (2.58%), *Moniezia spp*. (2.25%), *Stilesia spp*. (2.25%) and *Fasciola spp*. (1.93%) as shown in **Table 1**. The overall prevalence was 67.15% in case of cattle and 38.72% in case of buffaloes as shown in **Table 2**. The infection was recorded maximum in summer and spring and lowest in autumn and winter as shown in **Table 3**.

The present study showed that the highest prevalence of helminthes was recorded in cattle followed by buffaloes because of higher proportion of time spend on grazing by cattle as compared to buffaloes which are grazed proportionally less and kept mainly in stalls for feeding in the present study area. The highest infection of helminth in case of cattle is in agreement with D' Souza *et al*. 1983 who reported 67.22% infection and Maske *et al*., 1990 who reported 83.46% infection.

The helminthes isolated in the present study are in agreement with the previous findings of Dhar *et al*. 1988; Alam *et al*., 1994; Raina *et al*., 1999; Pandit *et al*., 2004; Yadav *et al*., 2004 and Kuchay *et al*., 2011. The present findings are in agreement of the helminthic infection reported in other subtropical areas of the world (Mcculloch & Kasimbala, 1968; Taylor & Canthone 1972; Beveridge & Ford, 1982; Pinto *et al*., 1988; El- Sayed, 1997 and Stear *et al*., 1998). However, these workers have also recorded the occurrence of other helminthes and this regional variation may be attributed to different geographical distributions, host factors and climatic conditions required for the development of free living stages of the nematodes. The maximum prevalence of amphistomes in the present study is in agreement with Yadav *et al*., 2004 and

Kuchay *et al*., 2011. Wallowing habit, easy dispersion of faeces in water and bulk ingestion of grasses near the water sources increases the risk of amphistomes due to availability of intermediate host (Radostitis *et al*., 1994). Although FAO (1994) recommended strategic dosing against fluke diseases in ruminants in India, non-adaptation of strategic deworming schedule in the region is responsible for high parasitic infection.

The higher helminthic infection as observed in summer and spring months are in agreement with Sanyal (1998) and Agrawal *et al*. (2002).

IV. Conclusion

Keeping in view the present findings, it can be concluded that there is urgent need for chemotherapeutic and prophylactic strategies for the helminthes control in this region of Jammu And Kashmir State

Acknowledgement

Authors are thankful to Dean Division of Veterinary Parasitology, faculty of Veterinary Sciences and Animal Husbandry SKUAST R S Pura Jammu and P G Department of Zoology the University of Kashmir Srinagar for providing necessary laboratory facilities.

Table 1: Prevalence of gastrointestinal helminth parasites in large ruminants.

S.No	Species	Total samples examined	Total samples positive	Prevalence percentage
1	*Paramphistomum spp.*	310	63	20.32
2	*Dicrocillium spp*.	310	8	2.58
3	*Fasciola spp.*	310	6	1.93
4	*Trichuris spp.*	310	16	5.16
5	*Haemonchus spp.*	310	37	11.93
6	*Chabertia spp.*	310	15	4.83
7	*Moniezia spp.*	310	7	2.25
8	*Stilesia spp.*	310	7	2.25
	Total	**310**	**159**	**51.29%**

Table 2: **Overall prevalence's (%) of helminthes in large ruminants.**

Species of Helminth	Cattle	Buffalo
Paramphistomum spp.	29.92	12.71
Dicrocillium spp.	4.37	1.15
Fasciola spp.	2.18	1.73
Trichuris spp.	8.02	2.89
Haemonchus spp	14.59	9.82
Chabertia spp.	2.91	6.35
Moniezia spp.	3.64	1.15
Stilesia spp.	1.45	2.89
Total	**67.15**	**38.72**

Table 3: Seasonal prevalence of gastrointestinal helminthes in large ruminants.

S.No	Season	No. of samples examined	No. of samples positive	Percentage of infection
1	Summer	81	59	72.83
2	Autumn	71	22	30.98
3	Winter	83	34	40.96
4	spring	75	44	58
	Total	**310**	**159**	**51.29**

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