



ISSN (E): 2277- 7695

ISSN (P): 2349-8242

NAAS Rating: 5.03

TPI 2020; 9(2): 239-241

© 2020 TPI

www.thepharmajournal.com

Received: 19-12-2019

Accepted: 20-01-2020

## Hardeep Kalkal

PhD Scholar, Department of Veterinary Parasitology, College of Veterinary Sciences Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar, India

## Sukhdeep Vohra

Senior Scientist, Department of Veterinary Parasitology, College of Veterinary Sciences Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar, India

## Snehil Gupta

Assistant Professor, Department of Veterinary Parasitology, College of Veterinary Sciences Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar, India

## Corresponding Author:

### Hardeep Kalkal

PhD Scholar, Department of Veterinary Parasitology, College of Veterinary Sciences Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar, India

## Prevalence of gastrointestinal parasites in buffaloes in and around Hisar district, Haryana, India

Hardeep Kalkal, Sukhdeep Vohra and Snehil Gupta

### Abstract

During the present study, a total of 400 buffalo faecal samples was collected from four blocks (Hisar-1, Hisar-2, Adampur and Agroha) of Hisar district, Haryana along with their age and sex to know the prevalence of gastrointestinal (GI) parasitic infection. Samples were examined using floatation and sedimentation techniques and data generated was statistically analyzed using IBM SPSS software (version 20). A total of 329 (82.25%) samples were infected with one or more species of GI parasites. In positive cases, *Eimeria* spp. (56.25%) was the most prevalent followed by *Strongyloides* spp. 30%, strongyles 26.75%, *Moniezia* spp. 6% and *Trichuris* spp. 5.57%. Age-wise prevalence of *Eimeria* spp. 42% was found higher ( $p < 0.01$ ) in animals below six months of age, however, higher ( $p < 0.01$ ) prevalence of *Strongyloides* spp. 20% and strongyles 17.25% was recorded in animals above 6 months. Sex wise prevalence of *Eimeria* spp. 45.75% was found higher ( $p < 0.01$ ) in females as compared to males. *Strongyloides*, strongyles, *Moniezia* and *Trichuris* spp. were also recorded higher in female but not significant ( $p > 0.05$ ).

**Keywords:** Buffalo, *Eimeria* spp., prevalence, gastrointestinal, Haryana

### 1. Introduction

Parasitic infestation is a major constraint of livestock and causes great economic loss to the dairy industry by way of retarded growth, low productivity and increased susceptibility of animals to other infections (Yadav *et al.* 2004) [13]. Buffaloes are raised as economically important animals because they are multipurpose animals providing milk, meat and good quality hides (Liu *et al.* 2009) [10]. In India, the majority of small and marginal farmers are more dependent on buffaloes than cattle for their livelihood as they also serve as an insurance against the risk of crop failure due to natural calamities (Dhanda, 2004) [4]. The global population of buffaloes (*Bubalus bubalis*) spread in some 42 countries is estimated to be approximately 177.2 million of which 97% (171 million) and 55.7% (98.7 million) are found in Asia and India, respectively (FAO, 2008) [5]. However, information on the prevalence and distribution of gastrointestinal parasites in buffalo from Haryana, India is very fragmentary and scanty. The current study was carried out to determine the levels of GI infections of buffalo in the Hisar, Haryana and to determine the effects of age and sex on the prevalence of GI parasitism to form a basis for formulating strategies for parasite control.

### 2. Material and Methods

#### 2.1 Location, Geography and Climate

The district Hisar of Haryana is located at 29°05'5" north latitude and 75°04'55" east longitudes. It covers a geographical area of 3,983 Sq. Km. and elevated from sea 215m (705ft).

#### 2.2 Sample collection and analysis

A total of 400 faecal samples were collected from buffaloes of Hisar districts. Multi-stage stratified random sampling was done while collecting the faecal sample from Hisar districts. Four blocks were randomly selected from Hisar district and from each block four villages were randomly selected and 25 samples were collected from each village. Only one faecal sample was taken from each willing household covering a cross-section of the village. Samples were examined using floatation and sedimentation techniques. Effect of age (1-6 months and 6 months above) and sex (male and female) was epidemiologically investigated.

#### 2.3 Statistical analysis

The data generated were statistically analysed using IBM SPSS software version 20). Chi-square test was applied for epidemiological investigations.

### 3. Results and Discussion

#### 3.1 Prevalence of GI parasites

The results of the survey revealed the prevalence of GI parasitic infections in buffalo of Hisar as 82.25% and *Eimeria*

spp. 56.25% was the most prevalent GI parasite followed by *Strongyloides* spp. 30%, *Strongyles* spp. 26.75%, *Moniezia* spp. 6% and *Trichuris* spp. 5.57% as shown in Table 1.

**Table 1:** Prevalence of GI parasites in Hisar, Haryana.

Parasite	No. of samples positive	Total no. of samples	Per cent of prevalence
<i>Eimeria</i> spp.	225	400	56.25
<i>Strongyloides</i> spp.	120		30.00
<i>Strongyles</i> spp.	107		26.75
<i>Moniezia</i> spp.	24		6
<i>Trichuris</i> spp.	23		5.75

**Table 2:** Age-wise prevalence of GI parasites in Hisar, Haryana.

Parasite	No. of samples positive		Total no. of samples	Per cent of prevalence	
	1-6 months	Above 6 months		1-6 months	Above 6 months
<i>Eimeria</i> spp.	168	57	400	42	14.25
<i>Strongyloides</i> spp.	40	80		10	20
<i>Strongyles</i> spp.	38	69		9.5	17.25
<i>Moniezia</i> spp.	13	11		3.25	2.75
<i>Trichuris</i> spp.	9	14		2.25	3.5

**Table 3:** Sex wise prevalence of GI parasites in Hisar, Haryana.

Parasite	No. of samples positive		Total no. of samples	Per cent of prevalence	
	Male	Female		Male	Female
<i>Eimeria</i> spp.	42	183	400	10.5	45.75
<i>Strongyloides</i> spp.	25	95		6.25	23.75
<i>Strongyles</i> spp.	27	102		6.75	25.5
<i>Moniezia</i> spp.	8	16		2	4
<i>Trichuris</i> spp.	7	16		1.75	4

The higher prevalence of GI parasitism recorded from buffalo may be attributed to the feeding habit and habitats of the animal and non-adoption of prophylactic measures as regular deworming with quality dewormer and recommended dose for calves in field conditions (Bilal *et al.*, 2009) [3]. Higher prevalence of *Eimeria*, *Strongyloides* and *strongyles* spp. infection was recorded because of the presence of environmental condition favourable for the development of pre-parasitic free-living stages of concerned parasites these report are more or less similar and reported from various parts of India (Jyoti *et al.* 2012; Muraleedharan, 2005; Gupta *et al.* 1990; Hirani *et al.* 1999; Kaur and Kaur, 2008 and Singh *et al.* 2008) [8, 11, 6, 7, 9, 12].

#### 3.2 Age-wise prevalence of GI parasites in buffalo calves

Age-wise prevalence of *Eimeria* spp. 42% was found higher ( $p < 0.01$ ) in animals below six months of age, however, higher ( $p < 0.01$ ) prevalence of *Strongyloides* spp. 20% and *strongyles* 17.25% was recorded in animals above 6 months (Table 2). The findings of the present study are more or less similar to earlier reports (Jyoti *et al.* 2012 and Bharkad *et al.*, 1999) [8].

#### 3.3 Sex wise prevalence of GI parasites in buffalo calves

Sex wise prevalence of *Eimeria* spp. 45.75% was found higher ( $p < 0.01$ ) in females as compared to males. *Strongyloides*, *strongyles*, *Moniezia* and *Trichuris* spp. were also recorded higher in female but not significant ( $p > 0.05$ ) other details are shown in Table 3. More or less similar prevalence rates had been reported from both sexes of buffaloes but in calves (Jyoti *et al.* 2012 and Kaur and Kaur, 2008 and Singh *et al.* 2008) [8, 9, 12].

### 4. Conclusion

The results of the present investigation indicated that the

prevalence of GI parasites in buffaloes is very common irrespective of age and sex of the animal. Keeping in view the present findings, it can be concluded that there is an urgent need for chemotherapeutic and prophylactic strategies for the helminthes control in this region of Haryana.

### References

1. Afridi ZK, Khan K, Zaman G, Ullah S, Habibullah Q. Prevalence of gastrointestinal nematode parasites of economic importance in dairy buffaloes in Peshawar. *Sarhad Journal of Agriculture* 2007; 23:787-792.
2. Agnihotri RK. Prevalence of intestinal nematodes and coccidia in buffalo-calves in Tarai region of Western Uttar Pradesh. *Indian Veterinary Medical Journal*. 1993; 17:126-129.
3. Bilal MQ, Hameed A. and Ahmad T. Prevalence of gastrointestinal parasites in buffalo and cow calves in rural areas of Toba Tek Singh, Pakistan. *Journal Animal Plant Science* 2009; 19(2):67-70.
4. Dhanda OP. Developments in water buffalo in Asia and Oceania. In *Proc. of the Seventh World Buffalo Congress, Manila, Philippines* 2004; 20:17-28.
5. FAO Statistic database, 2008. (<http://www.faostat.fao.org>)
6. Gupta SK, Chhabra MB. Intestinal parasitic infections in young buffalo calves and anthelmintic treatment. *Indian Veterinary Medical Journal*. 1990; 14(3):194-7.
7. Hirani ND, Katariya MA, Patel A, Hasnani JJ, Kathiria LG, Pater PV. Prevalence of gastrointestinal parasitic infection in cattle and buffaloes in Kheda district in Gujarat. *Journal of Veterinary Parasitology*. 1999; 13:147-9.
8. Jyoti NK, Singh PO, Juyal MH. Epidemiology of gastrointestinal parasites in buffalo calves of Punjab

- state. *Journal of Veterinary Parasitology*. 2012; 26:19-22.
9. Kaur H, Kaur D. Prevalence of gastrointestinal parasites in domestic animals of Patiala and its adjoining areas. *Journal of Veterinary Parasitology*. 2008; 22(2):25-8.
  10. Liu Y, Li F, Liu W, Dai RS, Tan YM, He DS *et al*. Prevalence of helminths in water buffaloes in Hunan Province, China. *Tropical animal health and production*. 2009; 41(4):543-6.
  11. Muraleedharan K. Prevalence of gastrointestinal parasites of livestock in a central dry zone of Karnataka. *Journal of Veterinary Parasitology* 2005; 19(1):31-3.
  12. Singh A, Gangwar AK, Shinde NK, Srivastava S. Gastrointestinal parasitism in bovines of Faizabad. *Journal of Veterinary Parasitology*. 2008; 22(1):31-3.
  13. Yadav A, Khajuria JK, Raina AK. Gastrointestinal parasitic infestation profile of bovines at RS Pura. *Journal of Veterinary Parasitology*. 2004; 18 (2):167-9.