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Prevalence of Gastrointestinal Nematodes in Buffalo Calves in Indore and Shajapur districts - Madhya Pradesh

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Abstract

The present study was undertaken to record the prevalence of gastro-intestinal nematodes in buffalo calves randomly selected from the dairy farms of two districts viz. Indore and Shajapur of Madhya Pradesh. The results indicate that 60.93% and 61.2% calves were positive for nematode infestation in Indore and Shajapur district of Madhya Pradesh, respectively. Buffalo calves between 0-4 months of age exhibited highest prevalence as compared to the age group of 4-8 months in both districts. Overall prevalence of nematodes infection in male buffalo calves was recorded highest as compared to female ones in Indore and Shajapur districts as 63.53% and 62.22%, respectively. Overall prevalence of nematodes infection in female buffalo calves was recorded in Indore and Shajapur district as 56.14% and 60.26%, respectively.

Key Words: Prevalence, Gastrointestinal, Nematodes, Buffalo Calf

Introduction

Livestock plays a pivotal role both in national economy and the livelihood of rural communities. Parasites adversely affect the health status of animals and cause enormous economic losses to the livestock industry. Gastrointestinal (GI) parasitic infections are common in buffaloes particularly calves. In spite of significant production losses, the problem is neglected due to its chronic and insidious nature. The diverse agro-climatic conditions, animal husbandry practices and pasture management have shown to largely affect the incidence and severity of various parasitic diseases in a region. Therefore, information on the epidemiological patterns of the parasitic diseases in different agro-climatic zones of the country would provide a basis for evolving strategic and tactical control measures against these parasitic diseases (Jyoti *et. al.,* 2014). Hence the present study was carried out on GIT parasites and associated predisposing causes in buffalo calves of rural areas of Indore and Shajapur district of Madhya Pradesh.

Materials and Methods

A total of 1500 buffalo calves aged between 0 to 1 year, of either sex were randomly selected, 750 calves from Shajapur and Indore district were included in the panel of study to record the prevalence of gastrointestinal nematodes in buffalo calves. These buffalo calves were divided into two groups 0-4 month and above 4 months of age.

Faecal samples of randomly selected buffalo calves from each district were collected directly from the rectum of the animals in separate self sealed polythene bags and were brought to the Department of Veterinary Medicine, College of Veterinary Science and A.H., Mhow for qualitative examination. Method of Soulsby (1982) was followed for qualitative examination. The prevalence rate of GIT parasites was calculated based on faecal sample examination.

Information related to age, species, sex and management (Deworming, feeding system, housing conditions, mortality rate and disease problem) were recorded. The prevalence was calculated Age and Sex wise.

The Prevalence was determined by formula as

$$\text{Prevalence (\%)} = \frac{\text{Number of positive animals in specific time period}}{\text{Total number of animals screened}} \times 100$$

Results and Discussion

Age and sex wise data on prevalence of gastro-intestinal nematodes in buffalo calves in Indore and Shajapur districts are presented in tables 1 and 2 respectively.

The data revealed that the highest prevalence (63.9% and 65.47 %) of GI nematodes was recorded at the age of 0-4 months in Indore and Shajapur districts of Madhya Pradesh whereas a lower prevalence in 4-8 months calves was recorded in both the districts. Overall 61.06 % prevalence was noted. Mixed infection rate was lower in 4-8 month calves as compared to 0-4 months aged calves in both the groups (Table 1). Mixed infection was followed by *Trichostrongyles spp., Toxocara spp.,Trichuris spp.* and *Strongyloides spp.* in 4-8 months.

The prevalence rate was higher in buffalo calves of 0-4 months of age than 4-8 months of age in Indore and Shajapur districts which supported the findings of Bastianetto *et al*. (2012), Jyoti *et al.* (2014), Silva *et al*. (2013), Sharif *et al*. (2014) and Patel *et al.* (2015).

Overall prevalence of nematode infection in male buffalo calves was recorded highest as compared to female in Indore and Shajapur districts as 63.53% and 62.22%, respectively. Overall prevalence of nematodes infection in female buffalo calves was recorded in Indore and Shajapur district as 56.14% and 60.26%, respectively. Present findings are in agreement with Bilal *et al.* (2009) and Sharif *et al.* (2014). On the other hand Bhutto *et al*. (2002) observed slightly higher prevalence of helminths in female than in male calves. This might be due to the variation in the sampling area or the number of samples studied.

The higher prevalence of worm infestation in buffalo male calves might be attributed to neglected attitude of the farmers towards the management of buffalo male calves, and concentrate in female raising as heifer farming. This justification also supports that of Bilal *et al*. (2009).

Higher prevalence of *Toxocara spp.* in calves of 0- 4 months are in agreement with findings of Sharif *et al*. (2014) and Bastianetto *et al.* (2012). The age of animal is considered to be the major factor in the prevalence of helminth infection. The highest prevalence recorded in buffalo calves may be due to *Toxocara vitulorum* as it always occurred in early age. Earlier Soulsby (1982) also documented higher prevalence in youngest calves and related its occurrence to parental infection or with the transfer of 3rd larvae in colostrum, milk and post natal infection due to poor hygienic conditions. The buffalo is the definitive host of *Toxocara vitulorum,* therefore prevalence of *Toxocara vitulorum* is more in buffalo than in cattle. The prevalence of *Toxocara vitulorum* and *Trichostrongyles spp*. showed negative correlation with age.

Nematodes infestation lowers the resistance of animals and predisposes them to secondary infestations. Young animals are more susceptible due to inefficient development of immune system.

Table 01: Age wise prevalence of gastro-intestinal nematodes in buffalo calves in Indore and Shajapur district

Age (Months)	Districts	Samples		Prevalence (%)				
		Examined	Positive (%)	*Trichostrongyles spp.*	*Toxocara spp.*	*Trichuris spp.*	*Strongyloides spp.*	Mixed Infection
0- 4	Indore	305	195(63.93%)	54 (17.70%)	62 (20.33%)	8 (2.62%)	4 (1.31%)	67(21.97%)
4– 8		445	262 (58.88%)	91 (20.45%)	57 (12.81%)	22(4.94%)	7 (1.57%)	85(19.10%)
Total		750	457 (60.93%)	145 (19.33%)	119(15.87%)	30 (4%)	11 (1.47%)	152 (20.27%)
0 – 4	Shajapur	278	182(65.47%)	50(17.99%)	54(19.42%)	14(5.04%)	1 (0.36%)	63(22.66%)
4 – 8		472	277(58.69%)	87 (18.43%)	66(13.98%)	33(6.99%)	3 (0.64%)	88(18.64%)
Total		750	459 (61.2%)	137(18.27%)	120 (16%)	47 (6.27%)	4 (0.53%)	151(20.13%)

Table 02: Sex wise prevalence of gastro-intestinal nematodes in buffalo calves in Indore and Shajapur districts

Sex	Districts	Samples		Prevalence (%)				
		Examined	Positive (%)	*Trichostrongyles spp.*	*Toxocara spp.*	*Trichuris spp.*	*Strongyloides spp.*	Mixed Infection
Male	Indore	351	233 (63.53%)	75 (21.37%)	61(17.38%)	18 (5.13%)	5 (1.42%)	73 (20.80%)
Female		399	224 (56.14%)	70 (17.54%)	58 (14.54%)	12 (3.01%)	6 (1.50%)	79 (19.80%)
Total		750	457 (60.93%)	145(19.33%)	119(15.87%)	30(4%)	11(1.47%)	152(20.27%)
Male	Shajapur	360	224 (62.22%)	67 (18.61%)	58 (16.11%)	25 (6.94%)	1(0.28%)	73 (20.28%)
Female		390	235(60.26%)	70(17.95%)	62(15.90%)	22 (5.64%)	3 (0.77%)	78 (20%)
Total		750	459 (61.2%)	137(18.27%)	120(16%)	47(6.27%)	4(0.53%)	151(20.13%)

Lower prevalence in adult may be due to the immunological maturity as the animals get older and the development of acquired resistance due to repeated exposures. In this study higher prevalence of endoparasites may be attributed to non-adoption of recommended calf management, related practices and careless attitude of the farmers in calf raising (Bilal *et al*., 2009).

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Conflict of Interest: All authors express no conflict of interest.

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