Original Research Article

Studies on Prevalence of GI Nematodes InBuffalo In Udaipur, District (Rajasthan)

Abstract

A study was conducted from Sept 2020 to January 2021 in and around Udaipur district (Rajasthan).The Overall prevalence of GI nematode infection in buffalo was 260 (85.24%). Among various GI nematode infections reported in the present study, *Strongyles*120(46.15%) were the most prevalent gastrointestinal nematode followed by *Trichuris, Toxocara*and *Strongyloides*.In buffalo seasonalanalysisrevealed highest prevalence in rainy season 195 (96.05%) and lowest in winter 65 (63.72%). ~~Sex wise observations that the f~~Females (89.04%~~& 76.84%) ~~) were more infected with GI nematodeinfection than the male(76.84%) buffalo ~~respectively~~. The age wise prevalence of GI nematode infection reported highest prevalence in age group below 3 years 142 (93.42%) followed by 3-5 years age group 91 (91%) and above 5 years age group 27 (50.94%) in buffalo. Month wise GI nematode infection showed higher prevalence in September Month 113 (91.13.%).Conclusion??

Key Words: GI Parasites, Prevalance,

1. INTRODUCTION

Parasitic infection are very common in tropical and sub-tropical regions of the World and causes major economic losses to the livestock industry (Velusamy*et al.,* 2014). India is a tropical country and tropical climate is highly suitable for growth and propagation of common diseases and carrier or vectors leading to increase in the incidence of vector borne diseases (Kohli*et al.,* 2014). In India, there are 109.85 million buffalo which constitute approximately 57.80% of total world buffalo population (Livestock Census, 2019). The gastrointestinal tract (GIT) of animals harbor wide variety of parasites like helminthes, coccidia etc. which cause clinical and sub clinical parasitism. Gastrointestinal (GI) parasites are ~~u~~obiquitous, taxonomically diverse, and cause mortality, or declines in condition and/or reproduction in a variety of livestock (Larsson *et al.,* 2006; Larsson et al., 2011; Thumbi*et*

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al., 2013). GI parasites can affect their hosts by directly consuming host resources or indirectly by damaging intestinal function, altering host behaviour (Adelman and Martin, 2009) or disrupting the control of co-infecting parasites (Jolles*et al.,* 2008). Internal parasites are a significant threat to the health of~~facing today's in~~ cattle and buffalo. Problems associated with parasites, particularly those of the gastrointestinal tract of cattle and buffalo can cause irreversible damage or even death of the animal, reduced performance and economic losses for the farmer. Animals that are overburdened with parasites can be hindered in their reproductive performance, experience reduced growth rates and become less productive overall, whether their purpose be milk, meat and draft. The harmful effects on these animals range from gastroenteritis, anorexia, abdominal distention, diarrhoea, emaciation, all of which result in serious economic losses to the farmer particularly and nation in general. Interactions of various risk factors influences the prevalence of gastrointestinal nematodes. The climate of the certain areas of Rajasthan province is quite different from many tropical, and temperate regions of the world and arid areas of India. Information on the epidemiology of gastrointestinal nematodes of large ruminants (domestic cattle and buffaloes) from this region is not available. A number of helminths species are known to infect cattle worldwide. The most important ones include nematodes like Strongyle species (Haemonchus, Ostartagia, Trichostrongylus, Cooperia). The problem is however much more severe in tropical countries due to very favorable environmental conditions for helminth transmission poor nutrition of the host animal (Mbuh*et al.,* 2008) and poor sanitation in rural areas (Badran*et al.,* 2012). Ecological conditions like weather, texture of soil, population density, type and amount of vegetation, management system, host species and age of the animals play an important role in the prevalence of parasites (Thomas, 1982). In grazing animals, parasitic stages enter the body from the contaminated pasture and water (Levine, 1968). The diagnostic formulations mainly rest on a tripod consisting of clinical history, Physical examination and laboratory investigation. Peripheral blood film is a basis and a highly informative haematological tool at the clinician's disposal in screening, diagnosis and monitoring of disease progression and therapeutic response. Diagnosis of haemoprotozoan mainly relies on wet blood film examination, blood smear examination, haematological investigation and molecular studies (Maharana*et al.,* 2016).Justification

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3. MATERIALS AND METHODS

3.1 StudyArea:

The study was conducted from the month of Sept 2020 to January 2021inand around Udaipur district in SouthernRajasthan.Study area description?

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3.2 StudyPopulation:

A total of 305 faecal samples were collected from buffalo ofdifferentagegroupand sex of local origin. The records were maintained regularly for month and season of faecal samplecollection.

3.3 StudyMethodology:

Cross-sectional study method was followed in this study.Faecalsampleswerecollectedfrombuffalofreshlyduringmorning hours directly from the rectum.TheHE collection of samples inairandwatertightpolythenecontainersandthen taken to the laboratory for routine examination. In the laboratory the samples were subjected to Floatation, Sedimentation technique.

3.4 StatisticalAnalysis:

The prevalence studies were analysed by Chi-square test.

4. RESULT & DISCUSSION

4.1 Overallprevalenceofnematodeinfectioninbuffalo

The significant ($p < 0.05$) overallprevalence for nematode infection in buffalo, 260(85.24%)werefoundtobeinfected. Among thevarious nematode infections in buffalo the highest overall prevalence was noted in *Strongyle sp.* 120 (46.15%).Gupta *et al.*,(2012) who recorded 68.93% overall prevalence in cattle and buffaloes, 73% in buffaloes and 65% in cattle of Madhya Pradesh

Table:1Overall prevalence of nematode of large ruminants in Udaipur.

Species	Examine	Infected	Mix infection	Strongyle	Trichuris	Toxocara	Strongy-loides
Buffalo	305 (59.30)	260 (85.24)	57 (21.93)	120 (46.15)	45 (17.30)	33 (12.69)	5 (1.93)

4.2 Season wise prevalence of nematode inbuffalo

Significant ($p<0.05$) highest prevalence was observed in rainy season (96.05%) and lowest in winter (63.72%).Among the various nematode infections highest

prevalence was of *Strongyle sp.* 94 (48.20%) in rainy and 26(40%) in winter season.Ganguly*et al.*, (2017)recorded (37.26%) in rainy season and (26.37%) in winter season. Patel *et al*., (2015) also found highest prevalence in rainy season (51.54%) followed by winter (34.02%).

Table:2Seasonal ~~-wise~~ Prevalence of nematodes in buffalo

Season	Examine	Infected	Mix infection	Strongyle	Trichuris	Toxocara	Strongyloides
Rainy	203	195 (96.05)	39 (20.0)	94 (48.20)	33 (16.92)	25 (12.82)	4 (2.05)
Winter	102	65 (63.72)	18 (27.69)	26 (40)	12 (18.47)	8 (12.30)	1 (1.53)
Total	305	260 (85.24)	57 (21.93)	120 (46.15)	45 (17.97)	33 (12.41)	5 (1.93)

4.3 P~~Gender wise p~~revalence of nematodes inbuffalo according to sex

Out of 95 male, 73 (76.84%) were found to be positive for nematode infection whereas out of 210 females 187 (89.04%) were positive.Nematodeinfectionshowedhigherprevalenceinfemale(89.04%)in comparison to male buffalo(76.84%).In females, among various nematode, *Strongyle sp.* was noted in 90 (48.13%) which was highest whereas in male *Strongyle sp.* was found in 30 (41.09%).The results are in accordance with those of Raza *et al.,* (2013) with female (71.72%) and male (34.46%), Maharana*et al*., (2016), in female (31.97%) and male (29.03).

Table:3Nematode p~~Gender wise p~~revalence ~~of nematode in~~according to age ofbuffalo

Gender	Examine	Infected	Mix infection	Strongyle	Trichuris	Toxocara	Strongyloides
Male	95	73 (76.84)	16 (21.92)	30 (41.09)	16 (21.92)	9 (12.33)	2 (2.73)
Female	210	187 (89.04)	41 (21.93)	90 (48.13)	29 (15.50)	24 (12.84)	3 (1.61)
Total	305	260 (85.24)	57 (21.92)	120 (46.15)	45 (17.30)	33 (12.69)	5 (1.92)

4.4 PAge wiseprevalenceby age ofnematodes in buffalo

Inagewiseprevalencethreegroupswereclassifiedasbelow 3 years, 3-5 years and above 5 years with 152,100 and 53 number of animals examinedrespectively.Highestsignificant ($p<0.05$)prevalenceofnematodeinfectionwas notedinagegroupofbelow 3 years142 (93.42%)followedby3-5yearsgroup 91 (91.0%) and with 27 (50.94%) in above 5 years group. The prevalence of *Strongyles sp*. was higher in all three age goups of buffalo.Mamun*et al*., (2011) reported similar lines to the findings of the nematode infection significantly higher (65.85%) in young animals aged < 2.5 years than in adult buffalo aged 2.5 to 5 years (63.16%) and in older animals aged > 5 years (59.66%).

Table:4Age wiseprevalenceofnematode in buffalo

Age	Examine	Infected	Mix infection	Strongyle	Trichuris	Toxocara	Strongy-loides
Below 3 years	152	142 (93.42)	27 (19.01)	71 (50)	21 (14.79)	20 (14.08)	3 (2.11)
3-5 Years	100	91 (91.0)	25 (28.47)	42 (46.15)	12 (14.18)	10 (10.99)	2 (2.21)
Above 5 years	53	27 (50.94)	5 (18.52)	7 (25.92)	12 (44.44)	3 (11.12)	0 (0)
Total	305	260 (85.24)	57 (21.93)	120 (46.15)	45 (17.30)	33 (12.41)	5 (1.93)

4.5Month wislye prevalence of nematode infection in buffalo:

Highly significant ($p<0.01$) prevalence was noted in September month 113 (91.13%) followed by October, 82 (90.10%) November, 32 (74.41%) December, 20 (71.43%), and January 13 (68.42%)were infected.Marskole*et al*., (2016) higher prevalence in Sept. (81.81%) followed by lowest prevalence was recorded in Dec (61.11%) .

Table:5Monthly wise prevalence of nematode infection in buffalo

Month	Examine	Infected	Mix infection	Strongyle	Trichuris	Toxocara	Strongyloides
Sept	124	113 (91.13)	29 (25.67)	47 (41.59)	20 (17.70)	15 (13.28)	2 (1.76)
Oct	91	82 (90.10)	11 (13.42)	46 (56.10)	13 (15.85)	10 (12.19)	2 (2.44)

Nov	43	32 (74.41)	10 (31.25)	13 (40.62)	4 (12.50)	4 (12.50)	1 (3.12)
Dec	28	20 (71.43)	5 (25)	9 (45)	4 (20)	2 (10)	0 (0)
Jan	19	13 (68.42)	2 (15.38)	5 (38.47)	4 (30.77)	2 (15.38)	0 (0)
Total	305	260 (78.22)	57 (20.17)	120 (46.15)	45 (18.11)	33 (13.03)	5 (1.62)

Discussion and conclusion

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