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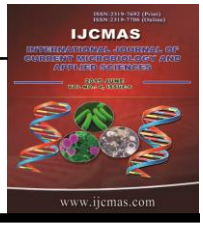

Original Research Article

Prevalence of gastrointestinal parasites in cow and buffalo of Udaipur district, India

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Keywords

Gastrointestinal parasite, Nematode, Helminth, Domestic ruminants and cattle

A B S T R A C T

This study carried out with the aim of investigating endoparasitism by helminthes and protozoa in cow and buffalo of Udaipur district. Stool samples were collected from Regional Disease Diagnostic Centre (RDDC), Udaipur, Rajasthan between April 2008 to March 2012 monthly. The Stool samples were examined to determine eggs and oocytes counts per gram of feces to identify helminthes parasites. These parasites were an accompanying infection in nearly all animals. The parasitological investigation revealed eggs in the following groups of helminthes: *Strongyle* species, *Strongyloides* species, *Toxocara* species, *Moniezia* species, *Fasciola* species, Amphistome species and oocytes were also found in *coccidian* species. It observed that cow and buffalo have been highly infected with nematode parasites in comparison to trematode and cestode.

Introduction

Helminth infections are major health problem in domestic ruminants throughout the world. The state of Rajasthan is famous for its cattle wealth. The economy of rural people largely depends on cattle's wealth. The domestic ruminates have been found to suffer from various diseases such as paramphistomiasis, fascioliasis etc. due to presence of different species of helminth parasites in the gastrointestinal tract. Morbidity and mortality have been observed in helminth infected cow and buffaloes in Rajasthan due to parasitic infections and these diseases lead to great economic losses and affect the productivity directly or indirectly worldwide.

Some external symptoms have been produced by the parasitic infected ruminants like reduced production of weight, growth rate, nutrient utilization, meat, wool and milk quality and quantity. Domestic ruminants due to improper management, unhygienic conditions and improper use of anthelminthic chemicals are suffering from helminth parasitic diseases and mostly infection occurs when they drinking water and grazing near the pond. Adult worm produce eggs that are passed to field in the faces or stool. Under favourable conditions the egg will hatch and larva transmitted to intermediate host lymnaeid snails and by snail infects many cattle and buffalo as well

as man (Pfukenyi *et al.*, 2005 & 2006 ; Keyyu *et al.*, 2006; Kumsa & Wossene, 2006; Hammami *et al.*, 2007; Biu *et al.*, 2009; Rafiullah *et al.*, 2011; Attindehou & Salifou, 2012; Getachew *et al.*, 2012; Akkari *et al.*, 2013; Garedaghi *et al.*, 2013; Hassan *et al.*, 2013; Kuchai *et al.*, 2012 & 2013; Laha *et al.*, 2013; Mir *et al.*, 2013 a & b; Pfukenyi & Mukaratirwa, 2013; Swarnakar & Kumawat, 2013; Owhoeli *et al.*, 2014; Raza *et al.*, 2014; Swarnakar *et al.*, 2014 and Swarnakar & Sanger, 2014).

Therefore, present investigation has been undertaken with the objective of assessing the occurrence of endoparasites of cow and buffalo in Udaipur region, Rajasthan, India.

Materials and Methods

Study animals and sample collection

Stool samples were collected from different villages of Udaipur, Rajasthan (from April, 2008 to March, 2012) for identification of helminthes and coccidia cyst. First of all collect the stool samples with a forceps. Then stool samples were transferred into labeled poly bags and packed. Take one gram stool sample of cow and buffalo was mixed with more salt solution (15 – 20 ml.) in cylinder and Stir well with glass rod and eggs were collected on and examine under stereo microscope. Many data during the period of study were collected from RDDC, Udaipur, Rajasthan.

Results and Discussion

During the study 2025 stool samples were collected from cow and buffaloes of different villages of Udaipur in camps and cattle farmers were took from their animal's samples to veterinary hospital to evaluation from April 2008 to March 2012 (Table 1 and 2). In Nematoda, generally found four types of eggs *i.e Strongyle* type, *Strongloides* type, *Trichuris* type and *Toxocara* type. Out of 2025 samples, 619 samples are positive in cattle and 98 faecal or stool samples in buffaloes infected with *Strongyle* species, 3 and 7 samples infected with *Strongloides* species respectively in cow and buffaloes, *Trichuris* species not found during the study and only 2 samples are positive for *Toxocara* species in buffaloes. Mostly *Fasciola* species and amphistomes species present in Trematoda, 43 cow samples and 47 buffaloes samples were found infected with *Fasciola* species Amphistomes were highly infected in cow(105 samples positive) and buffalo (119 samples positive) as compared to *Fasciola* species.

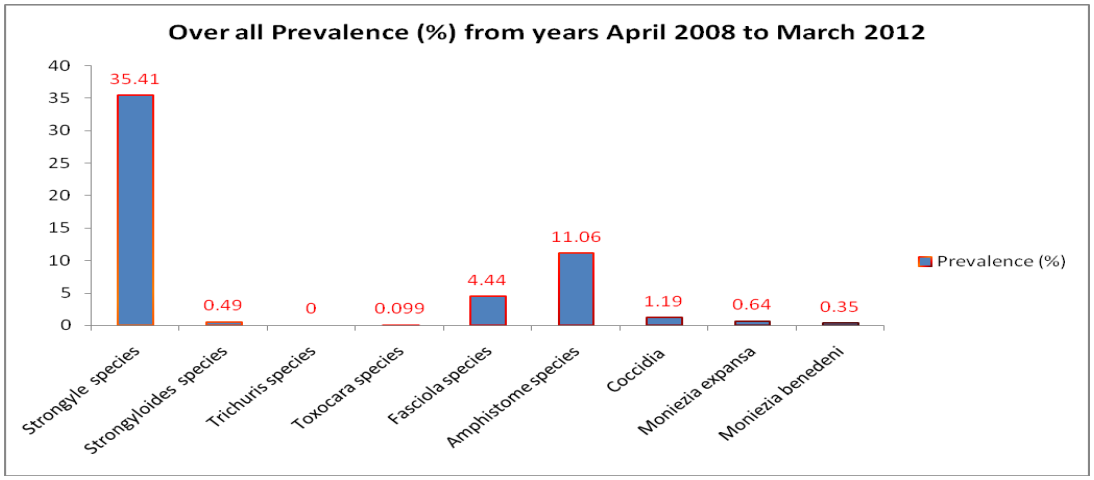
Table 1 shows that out of 2025 positive samples, 19 cow and 05 infected with oocysts of coccidia resting *Moniezia expansa* 10 in cow and 03 positive in buffalo and 3 samples (cow) and 4 samples (buffalo) were found *Moniezia benedeni* infected (Table 1). This result reveals those nematodes are more susceptible as compared to other gastrointestinal parasites in cow and buffalo.

The overall prevalence of gastrointestinal parasites in cow and buffalo presented in Table 2. In the present study the prevalence of Nematoda, *Strongyle* type eggs (35.41%), *Strongyloides* type eggs (0.49%), *Trichuris* species (0%), *Toxocara* species (0.099%) in cow and buffalo. *Fasciola* species (4.44%) and Amphistomes species (11.06%) prevalence were found in trematoda (Figs. 2-7). In Cestoda, prevalence of *Moniezia expansa* (0.64%) and *Moniezia benedeni* (0.35%) noticed in cow and buffalo. It is interesting to note that prevalence of Nematoda was higher infected with 35.41% in cow and buffalo compared to others gastrointestinal parasites (Fig1).

Table.1 Showing different type of gastrointestinal parasites collected from cow and buffalo between years April 2008 to March 2012

Species	Nematode				Trematode		Coccidia	Cestode		Year
	***Strongyle* species**	***Strongloides* species**	***Trichuris***	***Toxocara***	***Fasciola* species**	**Amphistomes species**		***Moniezia expansa***	***Moniezia benedeni***	
Cow	124	0	0	0	06	64	04	0	0	2008-09
	106	0	0	0	27	08	04	0	0	2009-10
	160	02	0	0	01	12	02	01	02	2010-11
	229	01	0	0	09	21	09	09	01	2011-12
Total	**619**	**03**	**00**	**00**	**43**	**105**	**19**	**10**	**03**	**2008-12**
Buffalo	19	0	0	0	05	51	0	0	01	2008-09
	40	02	0	01	02	15	02	2	01	2009-10
	09	01	0	0	32	28	02	0	0	2010-11
	30	04	0	01	08	23	01	01	02	2011-12
Total	**98**	**07**	**00**	**02**	**47**	**119**	**05**	**03**	**04**	**2008-12**

Fig.1 Graphical representation of overall prevalence (%) of Gastrointestinal parasites between years April 2008 to March 2012



Helminths cause severe infection to domestic animals worldwide. Helminthiasis, in large part, is caused by nematode, cestode and trematode in domestic animals and found reduction in fertility, work capacity, involuntary culling, reduction in food intake, weight & milk production and higher mortality rate (Biu *et al*., 2009; Rafiullah *et al*., 2011; Getachew *et al*., 2012; Pfukenyi & Mukaratirwa, 2013; Hassan *et al*., 2013; Mir *et al*., 2013 a & b; Raza *et al*., 2014 and Owhoeli *et al*., 2014). Present study shows similarity with other scientists that the infection of gastrointestinal parasites responsible for huge economical losses to farmers at large manner in all over the world (Aga *et al*., 2013 and Laha *et al*., 2013).

Table.2 Total prevalence (%) of different types of Gastrointestinal parasites in cow and buffalo

Sr. No.	Gastrointestinal parasites	Total parasite found in Cow and Buffalo	Prevalence (%)
1.	*Strongyle* species	717	35.41
2.	*Strongyloides* species	10	0.49
3.	*Trichuris* species	0	0
4.	*Toxocara* species	02	0.099
5.	*Fasciola* species	90	4.44
6.	Amphistome species	224	11.06
7.	*Coccidia* and others	24	1.19
8.	*Moniezia expansa*	13	0.64
9.	*Moniezia benedeni*	07	0.35

Plate1: Various types of eggs of Gastrointestinal parasites showing below

Fig 2: Egg of *Fasciola* spp. showing operculum.

Fig 3: Egg of *Toxocara* spp.

Fig 4: Egg of *Strongyle* spp.

Fig 5: Egg of *Strongyloides* spp

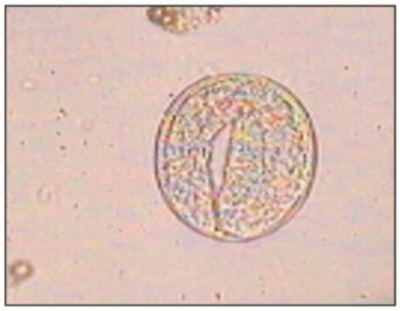


Fig 6: Egg of *Strongyle* spp. showing developing worm.

Fig 7: Worm coming outside the egg showing in fig. 6.

Due to helminthiasis, cause severe anaemia, bloody diarrhea and death to many domestic animals (Kumsa & Wossene, 2006; Rafiullah *et al.*, 2011 and Kuchai *et al*., 2013). The main nematodes recovered from the present study were *Strongyle* species, *Strongyloides* species, *Toxocara* species and *Trichuris* species, on the other hand, reported high prevalence of amphistomes species commonly called as rumen flukes compared to *Fasciola* species in domestic animals (Pfukenyi *et al.*, 2006; Awraris *et al*., 2012; Kuchai *et al*., 2012; Kakar *et al*., 2013; Mashayekhi *et al*., 2013; Swarnakar and Kumawat, 2013; Swarnakar *et al*., 2014 and Swarnakar & Sanger, 2014). These findings also similar with Biu *et al*., (2009) observed that *Strongyle* species the most common parasite found in large no. in the domestic ruminants compared to other parasites. Oryan *et al*., (2012) examined that metacestodes are responsible for severe tissue damage, reduction in meat and milk production and considerable economic loss due to condemnation of the infected organs of herbivorous animals.

The only cestode observed in the ruminants was *Moniezia* species *i.e Moniezia expansa* and *Moniezia benedeni*. The occurrence of cestode species is very few compared to others gastrointestinal parasites (Keyyu *et al*., 2006 and Raza *et al*., 2014) and Attindehou & Salifou, (2012) observed that cestode infection was so high in Benin.

The prevalence of oocysts of coccidia species reported in the current study was higher in cow than buffalo. This study states that infection of oocysts of coccidia species is less to others parasites. Present study have agreements with Raza *et al.* (2014) revealed that protozoans infection lower than others gastrointestinal infection in domestic animals.

Present investigation revealed that nematode infection highly prevalent, followed by trematode, cestode and oocysts of coccidia species. Similar investigation have been reported in Maiduguri, Nigeria, Lafia Town and Environs, Nigeria and the Cholisthan desert, Pakistan (Biu *et al*., 2009; Hassan *et al*., 2013 and Raza *et al*., 2014).

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