

## Prevalence of gastrointestinal parasites in cattle and buffaloes in and around Jabalpur, Madhya Pradesh

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### Abstract

A total of 1413 faecal samples of cattle and buffaloes were examined of which 68.93% were found positive for various gastrointestinal parasites. The prevalence was found higher in buffaloes (73%) as compared to cattle (65%). In cattle, strongyle infection (43%) was most prevalent followed by coccidia (24.25%), amphistomes (17.59%), *Trichuris* sp. (5.96%), *Fasciola gigantica* (0.99%), *Toxocara* sp. (0.43%), *Strongyloides* sp. (0.28%) and *Moniezia* sp. (0.28%). Prevalence of amphistomes (45%) was found highest in buffaloes followed by strongyles (39%), coccidia (22%), *F. gigantica* (6.77%), *Strongyloides* sp. (2.97%), *Trichuris* sp. (2.26%) and *Moniezia* sp. (0.71%). Season wise prevalence rates of different parasitic diseases revealed that the incidence was highest in the rainy season.

**Keywords :** Buffalo, Cattle, Gastrointestinal parasite, Jabalpur, Prevalence.

### Introduction

India has a population of 185 million cattle and 98 million buffaloes, besides other livestock (FAO, 2006). Gastrointestinal (GI) parasitism is one of the major health problems severely limiting the productivity of dairy animals. Millions of rupees are being lost due to reduced milk yield, rejection of meat and edible offals, depreciation of hides, delayed age of maturity and death particularly in calves and high production cost due to the use of drugs. To combat these infections, there is a need for regional surveys of GI parasites of dairy animals. Incidence of GI parasites in cattle and buffaloes has been reported from different states of India from time to time for these purposes (Pal *et al.*, 2001; Pandit *et al.*, 2004; Agrawal *et al.*, 2004; Muraleedharan, 2005 and Samanta and Santra, 2009). The information so gathered can be utilized for devising effective control measures against the parasitic infections to improve the productivity of our livestock. The present work was designed to gather information in respect of GI parasites in cattle and buffaloes of Jabalpur, India.

### Materials and Methods

Epidemiological studies on the prevalence of GI parasites in large ruminants in various villages of Jabalpur,

(M.P.) were carried out by randomly collected faecal samples from these animals from April 2009 to March 2010. Jabalpur (23.1° latitude and 79.5° longitude, 410.87 meters above sea level) is located in the tropical Savana region. It lies in southern Madhya Pradesh which encompasses the Satpura plateau and Kymore hills. The climate is tropical with an average annual precipitation of 1241mm. The maximum temperature varies from 23° to 42° C and minimum 7° to 27° C. The maximum relative humidity varies from 44-93% and minimum 13-69% with an annual rainfall of 1515 mm. A total of 1413 faecal samples of cattle ( $n = 705$ ) and buffaloes ( $n = 708$ ) were collected on monthly basis and screened for the presence of eggs by standard qualitative techniques (Sloss *et al.*, 1994). A representative number of faecal samples were pooled in equal quantities and used for coproculture. Culture larvae were harvested using Bearmann's apparatus and were identified as per the key of Soulsby (1982).

### Results and Discussion

Out of a total of 1413 faecal samples of cattle and buffaloes examined, 68.93% were found positive for various GI parasites. D'Souza *et al.* (1988) also reported 67.22% infection in cattle and buffaloes of Karnataka. The prevalence was found higher in buffaloes (73%) as compared to cattle (65%), may be due to their habits and swampy habitat as this favour the development of many helminth species as well as snail vectors for trematodes (Bilal *et al.*, 2009). The

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present results are in agreement with Muraleedharan (2005). Contrary to these findings, high rate of parasitism in cattle was reported earlier by Agrawal *et al.* (2004) in Madhya Pradesh. The reasons for the fall in infection rates over a period of eight years could be the availability of effective anthelmintics and good managemental practices adopted by the farmers.

In cattle, strongyle infection (43%) was more prevalent as compared to other helminths followed by coccidia (24.25%), amphistomes (17.59%), *Trichuris* sp. (5.96%), *F. gigantica* (0.99%), *Toxocara* sp. (0.43%), *Strongyloides* sp. (0.28%) and *Moniezia* sp. (0.28%). The rate of infection of strongyle did not exhibit much variation throughout the year and did not fall below 27% (Fig. 1). Predominance of strongyles in cattle was similar to the findings of Pal *et al.* (2001), Pandit *et al.* (2004) and Samanta and Santra (2009). However, Agrawal *et al.* (2004) reported highest incidence of amphistomes as compared to other helminths in cattle of Madhya Pradesh.

Prevalence of amphistomes (45%) was found highest in buffaloes followed by strongyle (39%), coccidia (22%), *F. gigantica* (6.77%), *Strongyloides* sp. (2.97%), *Trichuris* sp. (2.26%) and *Moniezia* sp. (0.71%). The peak amphistome infection was found during the month of May to August (Fig. 2). High prevalence of amphistome infection in buffaloes may be due to dwelling behaviour of buffaloes in water bodies which are infested with the snail intermediate host and thus pick up more infection as compared to cattle. The present study showed that out of two trematode infections i.e. amphistomes and *Fasciola*, the prevalence of amphistomes was higher than *Fasciola* which was similar to the findings of Agrawal *et al.* (2004) and Keyyu *et al.* (2005). The pattern

appeared to overlap the snail biology in Madhya Pradesh since *Lymnaea auricularia*, a snail intermediate host of *F. gigantica*, requires perennial water sources while it is not the case with *Indoplanorbis exustus* involved in transmitting amphistomosis. Keyyu *et al.* (2005) also reported that the proportion of animals shedding the amphistome egg was always higher than the animals shedding *Fasciola* eggs in all zones, management systems, farms and age groups. Season wise prevalence rates of different parasitic diseases revealed that the incidence was highest in the rainy season which is similar to the study of Sardar *et al.* (2006) except *Fasciola* which was reported highest in winter. The high rate of infection in rainy season is quite reasonable as the temperature and humidity become optimum for development of pre-parasitic larval stages of the parasites. In addition, overstocking, which is a major problem in many Indian communal pastures may have contributed to the observed increased availability of infective larvae of GI nematodes on pasture during the wet season. The incidence of *Fasciola* was found highest in buffaloes in winter because animals infected in July-August start voiding ova in September/October due to long prepatent period of parasite (13 weeks).

Third stage larvae of *Haemonchus*, *Oesophagostomum*, *Trichostrongylus*, *Bunostomum* and *Strongyloides* were recovered from pooled faecal samples of cattle and buffaloes. Overall high parasitism in cattle and buffaloes may prove dangerous to the young stock through pasture contamination and can cause huge economic loss to the country. Adoption of prophylactic measures such as regular screening and deworming, hygienic measures and feeding management can minimize this problem.

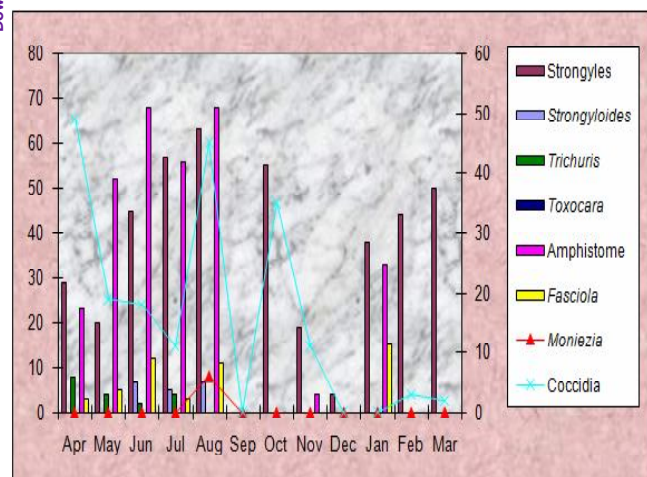


Fig 1. Monthly prevalence of gastrointestinal parasites in cattle

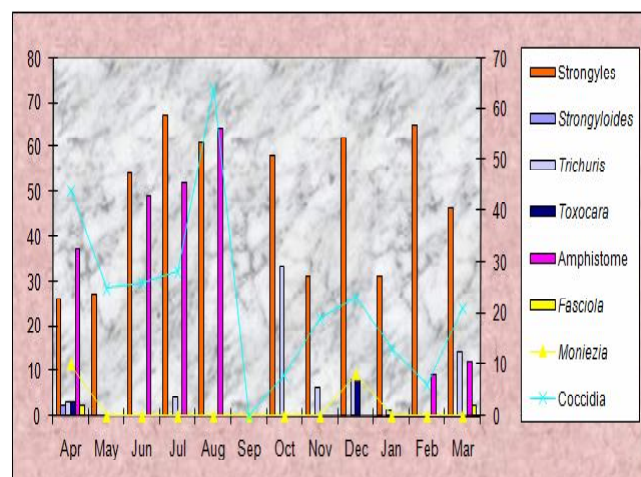


Fig 2. Monthly prevalence of gastrointestinal parasites in buffaloes

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2.1.collection of parasites. The liver of buffaloes was inspected for the presence of liver flukes during slaughter at various abattoir places in Gujarat. Adult flukes were recovered from the parenchyma of liver of naturally infected buffaloes and then washed 3-4 times with phosphate buffer saline (PBS). After washing, samples were preserved in 10% buffered formalin until being processed for morphological and histological studies. The samples were carefully labelled with proper details.

### 2.2.MORPHOLOGICAL IDENTIFICATION.

in cattle and buffaloes in and around Jabalpur, Madhya Pradesh. J. vet. Parasitology Gastrointestinal parasites Prevalence (%) Cow and Buffalo

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.

Â Cattle in and Around Gondar Town, Amhara Regional State. Ethiopia Acta Parasitologica The only cestode observed in the ruminants Globalis. 3 (2): 28-33. Prevalence of gastrointestinal helminthosis in animals visiting clinics, and is thus biased. It is, cattle and buffaloes : Faecal examination of 100 however, apparent that the prevalence of fasciolosis in cattle and buffaloes each during the year 2006-07 a tropical country like India is largely determined by revealed 11 per cent cattle and 13 per cent buffaloes to rainfall and production systems (Copeman and be positive for gastrointestinal helminthosis.Â 17(2): 116-120. in Malwa region of Madhya Pradesh., Haryana Vet. 36: 34-36. 3. Chowdhury, N. and Tada, I. (1994).Â 36: 1667- Incidence of gastrointestinal parasites in cattle and buffaloes 1682. Conclusion: GI parasites are problem in cattle and buffaloes of Jabalpur, Madhya Pradesh. The prevalence rate of GI parasites varied with month. The burden of parasitic infection was moderate in most animals warranting treatment.Â In Madhya Pradesh, studies have been under-taken to provide information on the prevalence of GI infections in cattle and buffaloes [2,3], but limited attempt has been made to study prevalence and bur-den of GI parasitic infections in cattle and buffaloes in Jabalpur region [4,5]. Therefore, it is important.