Prevalence of Gastrointestinal Parasites in Cattle in and around Patna

BHAWESH GOPAL DEO, NIKEE KUMARI* AND SHASHI KALA

INTRODUCTION

Among the livestock health problems, gastrointestinal parasitism is a major constraint for livestock production leading to heavy economic losses to the livestock producers. They have an important impact on the profitability of dairy production systems (Beasley et al., 2010) by affecting the productivity and reproductively of the animals. In the recent years, various epidemiological surveys of GI parasitic infections in domesticated animals have been carried out in different parts of India (Samanta and Santra, 2007 and Jyoti et al., 2011). The problems associated with the parasitism are frequently classified as production disease which occurs due to in reduced feed intake and alteration of GI motility leading to diarrhea (Rupa and Portugaliza, 2016) and in severe cases, it may even cause death. These diseases are mainly caused by internal helminths (roundworms, tapeworms and flukes) and protozoans and helminths parasite is highly prevalent and economically important in many parts of the world (Gracey, 1986).

Farmers whose herds are infected with parasites pay higher costs to raise sick animals and earn less because of lower production. Planned preventative programs are necessary to minimise the risks of parasitic disease outbreaks and sub-clinical (invisible) losses of animal production, and to ensure the most efficient use of control chemicals. Integrated parasite management programs aim to provide optimal parasite control for the minimal use of chemicals by integrating preemptive treatments, parasite monitoring schedules and non-chemical strategies such as nutrition, genetics and pasture management.

In this regard, the present study was designed to record the parasitic profile of GIT and give awareness to the farmers about parasitism and its impact on the health and production of cattle in around patna, Bihar. Furthermore, to suggest proper treatment, control and preventive measures to the farmers regarding the GIT parasites.

MATERIALS AND METHODS

A total of 2042 fecal samples consisting of 920 samples were positive. The samples were received from different areas of Patna to the parasitology section of Institute of Animal Health and production (IAHP), Bihar, Patna for gastrointestinal parasite examination during April 2017 to March 2018.

The samples were processed and screened by direct smear method and ova of parasites were identified through their morphological features (Soolsby, 1982). The samples were further examined by both floatation and sedimentation techniques for qualitative analysis. The rate of infection among the animals was derived in terms of percentage of total samples examined.

RESULTS AND DISCUSSION

Total 2142 samples examined, 911 (42.53%) were found for helminths and protozoa. Among these positive samples 345(37.87%) were positive for trematodes, 202(22.17%) for nematodes, 248(27.73%) for Protozoa and 116(12.73%) samples showed mixed infection. The most prevalent helminth parasites were identified through their morphological features ( ). The samples were processed and screened by direct smear method and ova of parasites were identified through their morphological features ( ). The results are shown in Table 1 and Fig. 1. The most prevalent helminth parasites and protozoa isolated were amphistomes (36.66%), Strongyle type spp. (14.48%), Toxocara sp. (6.26%), Strongyloides spp. (0.77%), Trichuris spp. (0.66%), Fasciola spp. (0.55%) and Balantidium coli (21.41%), Coccidia (5.82%) and Mixed Species (12.73%) as shown in Table 2 and Fig. 2.

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The prevalence of gastrointestinal helminths in cattle in and around Patna, Bihar.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Species</th>
<th>Total positive</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amphistomes</td>
<td>334</td>
<td>36.66</td>
</tr>
<tr>
<td>2</td>
<td>Fasciola spp.</td>
<td>6</td>
<td>0.66</td>
</tr>
<tr>
<td>3</td>
<td>Schistosoma spp.</td>
<td>5</td>
<td>0.55</td>
</tr>
<tr>
<td>4</td>
<td>Strongyles s</td>
<td>132</td>
<td>14.48</td>
</tr>
<tr>
<td>5</td>
<td>Strongyloides s</td>
<td>7</td>
<td>0.77</td>
</tr>
<tr>
<td>6</td>
<td>Trichuris spp.</td>
<td>6</td>
<td>0.66</td>
</tr>
<tr>
<td>7</td>
<td>Toxocara sp.</td>
<td>57</td>
<td>6.26</td>
</tr>
<tr>
<td>8</td>
<td>Balantidium coli</td>
<td>195</td>
<td>21.41</td>
</tr>
<tr>
<td>9</td>
<td>Coccidia</td>
<td>53</td>
<td>5.82</td>
</tr>
<tr>
<td>10</td>
<td>Mixed infection</td>
<td>116</td>
<td>12.73</td>
</tr>
</tbody>
</table>

Table 1: Overall prevalence of fecal eggs/oocysts in cattle in and around Patna, Bihar.

Generally, the infestation with endoparasites is caused mainly by nematodes, trematodes, and coccidian. The results of this study showed that cattle infected with a various types of gastrointestinal parasite species with a prevalence of 42.53 per cent out of 2142 samples. This is similar to that of Reddy et al. (2012) and Maharana et al., (2016), who has recorded 42.00% positive sample for gastrointestinal parasitic infections in cattle in Andhra pradesh and Jamnagar (Gujrat) respectively. The prevalence of these parasites in ruminants is usually high and this was in close agreement with Singh, 2014 and Nath et al., (2016) who recorded Balantidium Coli and Coccidia sp. was reported 21.41% and 5.82%, respectively and this in close agreement with Singh, 2014 and Nath et al., (2016) who recorded Balantidium Coli as dominant protozoa. The mixed infection in the present findings was (12.73%), Marskole et al., (2016) observed 27.50% mixed infection in cattle where as Yadav et al., (2004) reported 5.46% mixed infection with one or more helminthic ova in bovines. This variation in results might be due to difference in environment, climatic, conditions and management practices followed in the study area. Season wise prevalence Table 3 revealed higher incidence of gastrointestinal parasitic infection in rainy season followed by summer and winter. This was similar to the findings of Yadav et al., (2004), Sardar et al., (2006), Chavhan et al., (2008), Jyoti et al., (2011), Vanisri et al., (2016) and Shit et al., (2017) who noticed highest gastrointestinal parasitic infestations in the rainy season. The high rate of infection in rainy season is quite applicable as the temperature and humidity become optimum for development of pre-parasitic larval stages of the parasites (Gupta, et al., 2012) and also increased concentration and/or contamination of the grazing area by the infective larval stages of the parasites, increasing the chance of contact between host and larvae (Yadav et al., 2004).

CONCLUSION

The present study revealed overall high prevalence of gastrointestinal parasitic infection, especially of amphistomes in cattle in around Patna. Although a number of drugs are commercially available in the market for the treatment against parasitism but most of the farmers are unaware and not treat their animals routinely. Therefore, it is suggested that anthelmintic treatment on quarterly basis, especially before onset of monsoon season may be implemented to reduce the risk of infection and maximize the production.

![Fig. 1 Overall prevalence of fecal eggs/oocysts in cattle in around Patna](image-url)
REFERENCES