

Prevalence of Gastro-intestinal Parasites of Cattle in Ogbomoso, Oyo State

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Abstract

A study was carried out on the prevalence of gastrointestinal (GI) nematodes infection in naturally infected cattle in Ogbomoso area of Oyo State using standard parasitological techniques. The results indicated that out of the 1000 cattle examined, 30(3%) were infected and parasites identified were *Haemonchus contortus* 8(26.7%), *Trichostrongylus* spp 13(43.3%) and *Cooperia* spp 2(6.7%) as single infection. Mixed infections involved *Haemonchus contortus* with *Trichostrongylus* spp 5(16.7%), *H. contortus* with *Cooperia* spp 2(6.7%) being statistically significant ($p < 0.05$). The prevalence rates of GI nematodes based on the sex and age of the cattle were 3.02%, 2.97%, 3.2% and 2.8% in adult, young, male and female animals respectively, with the highest faecal egg counts in adult animals with no statistical significance difference ($p > 0.05$). Both female and male cattle were more infected with *Haemonchus contortus* with 5 (62.5%) each, while only male and young cattle were infected with *Cooperia* spp 2 (100%) and 1 (50%) respectively. The highest rate of mixed infection occurred in adult cattle with *Haemonchus contortus* and *Trichostrongylus* spp 2 (100%) followed by *Haemonchus contortus* and *Cooperia* spp in male 4 (80%) and adult 3 (60%). The variation in the prevalence of GI nematodes among sex and age groups within systems can be used as an entry point towards rational use of anthelmintics for each management system. More studies on seasonal transmission pattern of all these parasites are required in order to design rational, economic and locally sustainable parasite control programmes.

Key words: Prevalence, gastro-intestinal parasites, Cattle, Ogbomoso

Introduction

Ogbomoso is one of the major town in Oyo State and it lies in longitudes 4°15' East of Greenwich meridian and latitude 8°15' North East of the equator and is about 145km North East ward from Ibadan capital of Oyo State. The altitude between 800-600mm above sea level and the mean annual temperature is about 27°C (BTC, 2004) while that of rainfall is 1247mm although reported 1175mm annual rainfall and the vegetation of the study area is derived savannah (Oguntoyinbo, 1978).

Parasitic helminths affect animals and man, causing considerable hardship and

stunted growth (Otto *et al.*, 2000; Love and Hutchinson, (2003); Otto, (2005)). Most diseases caused by helminthes are of a chronic, debilitating nature; they probably cause more morbidity and greater economic and social deprivation among humans and animals than any single group of parasites. The prevalence of helminth diseases in Nigeria is very high, especially during the wet season when infection is as high as 100% in cattle. Such high infection rates prevent them from attaining optimum productivity, especially under the traditional husbandry system (Fakae, 1990). Financial costs of internal parasitism

are enormous due to increase in mortality and a reduction of growth rate (Oluwafemi, and Anosa, (2000) and wool production (McLeod, 1995). Parasitic helminths, especially nematodes, cestodes, trematodes and protozoan are commonly found in the rumen, abomasum, small and large intestines of ruminants and can cause diseases with consequences ranging from ill-thrift to sudden death Gates and Wescott, (2003). Some species such as *Haemonchus spp*, *Trichostrongylus spp*, *Ostertagia ostergii*, *Paramphistomum spp* and others have been reported to cause several health problems. *Haemonchus contortus* had been reported to cause anaemia in kids (Ameen *et al.*, 2006) and adult West African Dwarf goats (Ameen *et al.*, 2010). The aim of the present study was to determine the prevalence of gastro-intestinal helminths in naturally infected cattle in Ogbomoso areas of Oyo State.

Materials and methods

Faecal samples were collected from Kara and Saja markets. One thousand (1000) faecal samples were collected from (630 old, 370 young) cattle, which consisted of (500 male and 500 female). Most faecal samples were taken rectally, but some samples (especially from temperamental animals) were collected from fresh deposits. Animals from the age of three (3) years were considered old. All animals were examined clinically before the faecal samples were taken and the required data (sex, age, owner, etc.) were recorded. All collected faeces were stored in plastic containers and examined by the standard flotation and sedimentation method. All the eggs were identified based on egg morphologies and measurements according to the literature (Soulby, 1986; Georgi and Georgi, 1996; Hendrix, 1998; Omoha, 2007). The faecal egg counts were performed using a modified McMaster technique with a 50 eggs per gram (EPG) sensitivity (Soulby, 1986). In ruminants, 500 EPG suggests a mild infection, 800-1000 a moderate infection, and 1500-2000 a severe infection (Soulby, 1986).

Statistical Analysis: Data collected were subjected to descriptive statistics using percentages and Students' t-test method.

Results and Discussion

Out of 1000 cattle examined, 30 (3%) were infected (Table1). Parasites identified were *Haemonchus contortus*, 8 (26.7%), *Trichostrongylus spp* 13 (43.3%) and *Cooperia spp* 2 (6.7%) as single infection. Mixed infections involved *Haemonchus contortus* with *Trichostrongylus spp* 5 (16.7%) *H.contortus* with *Cooperia spp* 2 (6.7%) being statistically significant ($p < 0.05$). The prevalence of GIT nematodes based on the sex and age of the cattle examined is shown in Table 2. Adults (>3 years) were more infected 19 (3.03%) than young (<3 years) with 11 (2.97%) with no statistical significant difference ($p > 0.05$). Both female and adult cattle were more infected with *Haemonchus contortus* with 5 (62.5%) each, while only male and young cattle were infected with *Cooperia spp* 2 (100%) and 1 (50%) respectively (Table 3). The highest rate of mixed infection occurred in adult cattle with *Haemonchus contortus* and *Trichostrongylus spp* 2 (100%) followed by *Haemonchus contortus* and *Cooperia spp* in males 4 (80%) and adults 3 (60%). The high prevalence of infection with *Haemonchus contortus*, *Trichostrongylus spp* and *Cooperia spp* was connected with poor animal husbandry system, and the fact that Ogbomoso is an important town where cattle are deposited for sales. The intermediate hosts of the parasites are found in the markets (beetles, cockroaches, earthworms etc.). The detection of *Trichostrongylus spp* as the commonest infection in this study may suggest that these worms are seriously affecting the cattle in the study area. Variation in the prevalence of these parasites in relation to sex as observed in this study confirms the reports of previous researchers on the range of gastrointestinal parasites in cattle in Nigeria (Springer – Verlag (2006)). It can therefore be deduced that since GIT nematodes are prevalent in cattle in the study area and they

pose danger to their productivity and health. improved husbandry systems as well as
 The concerted efforts should be channeled chemo-therapeutic and prophylactic controls.
 towards endoparasitic helminths' control,

Table 1: Prevalence of gastrointestinal tract nematodes in cattle in Ogbomoso area of Oyo State

Parasite	Total number of cattle	Number positive	Prevalence (%)
	1000	30	3
Single infection			
<i>Haemonchus contortus</i>		8	26.7
<i>Trichostrongylus spp</i>		13	43.3
<i>Cooperia spp</i>		2	6.7
Mixed infection			
<i>H. contortus</i> + <i>Trichostrongylus spp</i>		5	16.7
<i>H. contortus</i> + <i>Cooperia spp</i>		2	6.7

Table 2: Prevalence of gastrointestinal tract nematodes based on sex and age of cattle examined

All cattle	Number examined	Number positive	% Positive
	1000	30	3
AGE			
Young	370	11	2.97
Adult	630	19	3.02
SEX			
Male	500	16	3.2
Female	500	14	2.8

Table 3: Distribution of gastrointestinal tract nematodes based on sex and age of the cattle

Parasite	Male (16)	Female (14)	Adult (19)	Young (11)
Single infection				
<i>H. contortus</i>	3 (37.5)	5 (62.5)	5 (62.5)	3 (37.5)
<i>Trichostrongylus spp</i>	6 (46.2)	7 (53.8)	8 (61.5)	5 (38.5)
<i>Cooperia spp</i>	2 (100.0)	0 (0)	1 (50.0)	1(50.0)
Mixed infection				
<i>H. contortus</i> + <i>Cooperia spp</i>	4 (80.0)	1 (20.0)	3 (60.0)	2 (40.0)
<i>H. contortus</i> + <i>Trichostrongylus spp</i>	1 (50.0)	1 (50.0)	2 (100.0)	0 (0)

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