

OCCURRENCE OF GASTROINTESTINAL PARASITES OF DONKEYS IN THREE LOCAL GOVERNMENT AREAS OF BAUCHI STATE, NIGERIA

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ABSTRACT

A total of 1331 faecal samples were collected to determine the prevalence of gastrointestinal parasites of donkeys in Darazo, Ganjuwa and Ningi Local Government Areas of Bauchi State, Nigeria. Season, Body Condition Score (BCS), and other parameters were considered. Samples were analyzed using standard coprological methods. The overall prevalence of 52.7% and five species of parasites were identified including: Strongyles (34.3%), *Gastrodiscus spp* (2.4%), *Strongyloides* (19.6%), *Trichonema spp* (42.3%), *Tricodontophorus* (1.3%). Body Condition Score, age and season have significant influence on the parasitic burden ($p < 0.05$). Donkeys in the localities should be strategically treated against parasitic infection to enhance their condition and welfare.

INTRODUCTION

In remote rural areas of Northeastern (NE) Nigeria where modern transportation is infrequently available, the contribution of donkeys in agriculture is imperative. Donkeys suffer a number of health and other welfare difficulties especially in the rural areas. Gastrointestinal helminths are among the most serious health problems of donkeys in Africa. High prevalence of internal parasites of donkeys has been reported from African countries (Pandey *et al.*, 1994, Abdullahi *et al.*, 2010, Umar, 2013,). Despite these comprehensive reports, little information is available from this part of the country and hence one of the aims of this study.

MATERIALS and METHODS

The study was conducted in Darazo, Ningi, and Ganjuwa Local Government Areas (LGAs) of Bauchi State northeastern Nigeria. The state occupies an area of 49,119 Km² representing about 5.3% of the Nigeria's total land mass. There are two climatic seasons: rainy (May – September) and dry (October – April) in the state (Maleka, 2006). Three major livestock markets; one in each of the LGA were visited twice each season. The study animals comprised of 1331 (605 – males, 726 – females) donkeys of five different ages. Animals were randomly selected at the markets and grouped according to some measurable parameters (age, BCS) estimated using standard methods (Coombs, 2002, Pearson and Quassat, 1996). Faecal samples were collected from the rectum and transferred into labeled polythene bags and transported to the laboratory in a cooler containing ice blocks. The collected samples were analyzed using direct faecal smear, and floatation techniques at the National Veterinary Research Institute (NVRI) Parasitology Laboratory, Bauchi. Eggs were further examined microscopically. The modified McMaster and Bearman techniques were used to count the helminth eggs (epg) (Urquhart *et al.* 1996). Data was analyzed using descriptive statistics, Chi-square test and one-way ANOVA. Microsoft Excel (XP 2007) and SPSS 17.0 (2007) were used for the analysis.

RESULTS

The study showed an overall prevalence of 52.7%. Prevalence among the LGAs was similar in Darazo (54.4%) and Ganjuwa (59.5%) but significantly ($P < 0.05$) different in Ningi (44.2%). The prevalence was also significantly ($P < 0.001$) higher in rainy (84.4%) than dry (23.2%) season and between young (55.3%) and old donkeys (44.8%). These findings were however; lower than the previous studies of other researchers in the neighboring states. In 2010 Abdullahi *et al.* reported a prevalence of 86.32% and in 2013, 67.88% was recorded by Ibrahim. The variation could be due to differences in year, mode and locations of studies. The study conducted by Ibrahim (2013) in Yemaltu Deba L.G.A of Gombe State was in rainy season and involved working donkeys only, while the present study considered the two seasons but did not classify the donkeys into working or trade. Prevalence rates were similar between males (51.7%) and female donkeys (53.6%). This might be due to the absence of gestation and lactation in the female donkeys. In general, it was speculated that sex is a factor that influences the prevalence

of gastrointestinal and other parasites of mammals (Pal and Qayyum, 1992). However, there was significant ($P<0.001$) differences across different categories of BCS with only 3.9% recorded in category V (obese) and as high as 95.7% in the BCS – I (thin) donkeys. The reason might be associated with the fact that animals with poor BCS have weak immunity and as a result they could not resist the parasitic burden when compared with animals of good BCS (Sapkota, 2009). Five different types of parasites were identified in the study which were almost present in all the three LGAs: *Trichonema spp* (42.3%), were highest followed by Strongyles (34.3%), *Strongyloides* (19.6%) *Gastrodiscus spp* (2.4%), *Tricodontophorus* (1.3%) (Tab. 1). Mixed infestation was observed in 47.9% of the donkeys. This was in line with the previous reports in the Nigeria and other countries (Jajere *et al.*, 2016).

Table 1: Occurrence and species distribution of gastrointestinal parasites of donkeys in 3 Local Governments Areas (LGAs) of Bauchi State, NE Nigeria

LGA	N	No. positive	(%)
Ganjuwa	445	265	59.5
Darazo	445	242	54.4
Ningi	441	195	44.2
Total	1331	702	52.7
Species			
Strongyles		241	34.3
<i>Strongyloides</i>		138	19.6
<i>Trichonema spp</i>		297	42.3
<i>Gastrodiscus spp</i>		17	2.4
<i>Tricodontophorus spp</i>		9	1.3
Total		702	100

CONCLUSION

Donkeys will continue to play crucial roles in the livelihood of Nigerian farmers particularly in the rural areas. Parasitism, and other ill-health identified in this study, will remain a persistent treat to the health and welfare of these animals. Donkeys in the localities should be strategically treated against parasitic infections. Owners need to be educated on the basic principles of health management of donkeys. Research on donkeys should be included in priority lists of sustainable animal production in the country.

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