



**Short Communication:
Prevalence of Intestinal Helminths of
Dog (*Canis familiaris*) in Some New
Layouts of Sokoto Metropolis**

ALAYANDE, M.O.¹, FALEKE, O.O.², SALIHU, M.D.², MAHMUDA, A.¹ and MUHAMMAD, M.B.¹

¹Department of Veterinary Parasitology and Entomology, ²Department of Veterinary Public Health and Preventive Medicine, Faculty of Veterinary Medicine, Usmanu Danfodiyo University, Sokoto. E-mail: musolade2000@yahoo.com, Telephone: 08036852795

INTRODUCTION

Various classes of animals can be termed pets; these include mammals, birds, reptiles, fishes and even some invertebrates (Gruffra *et al.*, 2000; Koler-Matznick, 2002; Zeder, 2008). But canines, especially dog is one of the longest known domesticated pet animal (Lasseby *et al.*, 2011). The reason for keeping dogs, their values and veterinary care varies according to the culture, status, social interest and economic activities of people (Oboegbulam, *et al.*, 1989). In Sokoto, northwestern Nigeria, there is no prospect for keeping dogs as pet in the old city where religion and cultural practices frowns at such practice. However, in the new layout with increasing awareness on the use of dogs for security purposes, demand for dogs is on the increase and this is of public health significance in view of dogs' involvement in the transmission of zoonotic parasites. A large number of the dogs' are kept in confinement while some are kept semi intensively which promotes straying of dogs. There is high proportion of gastro-intestinal parasites in Nigerian dogs (Olufemi and Bobade, 1979; Fabiyi, 1983; Mafiana *et al.*, 1993) and this is of great concerned.

The progressive increase in dog population and the ultimate contamination of environment with dog faeces stimulated our interest in investigating the occurrence of gastro-intestinal helminths of dogs in the study area. It is believed that the result of this work will create awareness on the occurrence of the

gastro-intestinal helminths of dogs in the study area and the need for functional veterinary care for the dogs.

KEY WORDS: Dogs, intestinal helminths, layouts, prevalence, Sokoto

MATERIALS and METHODS

The study was carried out in Sokoto, a town at the extreme North-Western part of the country. It is a predominantly Muslim population city, located between latitudes 12°50' and 13°12' N and longitudes 5°05' and 5°25' is within Sudan Savannah zone. The study areas were zoned to ensure proper sampling. The new layouts considered and sampled were those located at Tamaje, Mabera-Idi and Rujin-Sambo. Houses in each zone were visited to solicit for the cooperation of the dog owners. Each zone was informed of the day of visit by members of the team (Mafiana *et al.*, 1993). Consented dog owners were instructed to restrict their dogs the night before the day of visit.

Questionnaire was administered to the owners of the dogs. The information solicited for include the number of dogs, age, breed, sex, reasons for keeping dogs, veterinary care given and management system. Faecal sample was then collected per rectum of each dog. In addition, faecal sample were collected from stray dogs, after adequate restrained. Faecal sample collected from each animal was immediately examined, where this was not possible, the sample was stored at 4°C and

examined not later than 48 hour.

FAECAL SAMPLES ANALYSIS

Fifty faecal samples from each of the three layouts were analysed using a floatation technique as described by Hansen and Perry (1990).

DATA ANALYSIS

The evidence of the association between prevalence of gastro-intestinal helminths among sexes and ages of dogs sampled were determined using Chi-square test. The analysis was done with Instat. package version 3.05 (2000) at 5% probability level.

RESULTS

A total of 150 (72 males and 78 females) dogs were included in this study. Information was provided by the respective owners of the dogs. All the dogs were indigenous (local) breed.

TABLE I: Prevalence of gastro-intestinal helminths in new layout Sokoto

Parasites	No. of dogs positive	%
<i>Ancylostoma</i> sp.	62	48.4
<i>Dipylidium caninum</i>	35	27.3
<i>Toxocara canis</i>	23	17.9
<i>Echinococcus/Teania</i>	5	3.9
<i>Toxoascaris</i>	2	1.6
<i>Diphylobothrium latum</i>	1	0.8

Table I shows the prevalence of gastro-intestinal helminths in 128 positive dogs found in the study area. Out of the 128 dogs positive for the presence of gastro-intestinal helminths, *Ancylostoma* sp. had the highest prevalence 62 (48.4%) and this was found among the dogs between the ages of 1-2 years (Table I).

The age and sex prevalence of gastro-intestinal helminths of dogs in the study area was presented in Table II.

The infection in the females (43.3%) was significantly higher than in the males (35.3%) but there was no significant association with sexes 0.1662 and also with ages 0.3605 ($p < 0.05$).

TABLE II: Prevalence of helminths ova in dogs sex

Age	Male	No. Positive	%	Female	No. positive	(%)	Cumulative total positive	(%)
<6 months	16	14	(87.50)	6	3	(50)	47	(77.22)
6mn-1yr	36	25	(69.4)	15	12	(80)	37	(72.54)
1yr-2yrs	15	11	(73.3)	27	22	(81.5)	33	(78.57)
>2yrs	5	3	(60)	30	28	(93.3)	37	(88.57)

DISCUSSION

The presence of helminths eggs in the study area has not been hitherto elucidated. The gradual and alarming increase in the dog population due to sudden realisation of its usefulness for hunting and security especially among the non-indigenes is of concern because of its implication as vehicle of transmission of zoonotic helminths.

The findings of this study did not only establish the presence of the intestinal helminths in dogs, but also indicates the occurrence of helminths of zoonotic importance.

Helminthic diseases of zoonotic importance transmitted by dogs include echinococcosis, taeniasis, dipylidiasis, toxocariasis (visceral larva migrans), ancylostomiasis (cutaneous larva migrans) and strongyloidosis. The

prevalence of helminths obtained in this study was relatively higher compared to that by Baba *et al.*, (1973) in Chori and Mafiana *et al.*, (1993) in Abeokuta. Similarly, the range of helminths obtained was not similar with those obtained by some other previous workers (Dada and Belino, 1979; Baba *et al.*, 1993; Fabiyi, 1993; Mafiana *et al.*, 1993). All helminths detected in this study are known to be zoonotic. *Ancylostoma* sp. was frequently encountered and in high proportion. *Diphylobothrium latum* was found less frequently. It can be concluded therefore that *Ancylostoma* sp. is probably endemic in this environment based on its high frequency than any of the other helminths. Nonetheless, the presence of *Toxocara canis* eggs is of concern. Two helminths, the *Ancylostoma* and *Toxocara canis* may induce cutaneous larva migrans (CLM) and visceral larva migrans (VLM) in humans respectively. The occurrence of these two helminths (*Ancylostoma* sp. and *Toxocara* sp.) in pups less than 6 months might therefore be as a result of lactogenic route. Flea is an intermediate host of another zoonotic helminths, *D. caninum*, an agent of dipylidiasis, a disease that occasionally may lead to death from diarrhoea. This is an indicator of flea infestation on the affected dogs and is of public health significance due to frequent contact between human and dogs (Umar, 2009).

The eggs of *Taenia* and *Echinococcus* are indistinguishable in faecal sample analysis. The differences can only be established through the identification of adults at post mortem which was not carried out in this study. These two helminths (*Taenia* and *Echinococcus*) are indeed zoonotic, causing cysticercosis in man if infection is due to *Taenia* sp. and large cyst in vital organs if infection is due to *Echinococcus*. Earlier reports had been made on the occurrence of cysticercosis and hydatid cysts in some food animals (Ajogi *et al.*, 1975). The low prevalence of *Diphylobothrium latum* is not surprising considering the manner the second intermediate host, fish, is prepared for human

consumption. However, its presence is an indication of its occurrence in human food sources.

It is concluded that dogs in the study area harbours helminth parasites. The dogs' owners should be encouraged to seek for veterinary attention and advice when necessary. However, it's recommended that veterinary products (drugs, vaccines and other accessories) should be made available at subsidised rate for interested owners; this may improve the management of the dogs.

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