

**NSAP****47th Annual
Conference
(JOS 2022)****CONFERENCE
PROCEEDINGS**THEME
**SECURING ANIMAL
AGRICULTURE AMIDST
GLOBAL CHALLENGES****PREVALENCE OF GASTROINTESTINAL PARASITES OF DOMESTIC PIGEONS
(*Columba livia domestica*) IN SOUTHERN ZONE OF PLATEAU STATE, NIGERIA**Magaji, S. T¹, Latu, M. Y², Wumnokol, D.P² and Gofwan, P.G¹¹Department of Animal Health Technology Plateau State College of Agriculture, Garkawa,²Department of Animal Production Technology, Plateau State College of Agriculture, Garkawasatimagaji2009@yahoo.com,**ABSTRACT**

*Parasitic infections are the major cause of financial losses in poultry and huge losses to the livestock industries. This research was carried out to determine the prevalence of faecal parasites and intestinal helminths of pigeons (*Columba livia domestica*) in three communities in Southern Zone of Plateau State, Nigeria. The study area comprises of Garkawa in Mikang Local Government Area with Yelwa and Shendam in Shendam Local Government Area. A total of 120 (40 in each study area) domestic pigeons of different ages and sexes were purchased from the different markets in the study areas. The birds were sacrificed and intestinal contents were gotten by scrapping and simple floatation and sedimentation method of oocyst identification was used. The study showed that there was a combination of gastrointestinal helminthes and coccidia parasites in the study areas with different prevalence rates as Yelwa (21.0%). Shendam and Garkawa had 18.0 and 17.0% in that order using simple percentage. The percentage prevalence based on age distribution indicates that the adults had 33.3% compared to the young ones with 14.2%. The parasites identified showed that coccidian sp accounts for 33.3% the highest followed by *Capillaria* sp and *Ascaris* sp with 9.2% and 5.0% respectively. The study highlights that pigeons are hosts of helminthes and coccidian parasites of veterinary importance and may act as important source of infection for other avian hosts. The work carried out revealed high helminthes infections with nematodes having the highest prevalence. Therefore, it was concluded that pigeon management programs and public education should be implemented to reduce the risk of pigeon being a major transmitter of pathogenic agents and parasites to livestock in the country.*

Keywords: prevalence, gastrointestinal parasites, pigeons, Southern Plateau**INTRODUCTION**

Pigeons live side by side with other animal species in nature. They are sources of contamination of surroundings with their droppings as they are kept by humans for fancy and performing purposes. However, in many parts of the country, pigeons are seen daily searching for food together with other poultry species. Pigeons may be infected with many organisms, as a reservoir of many parasitic diseases for poultry and the close contact of pigeons with other domestic birds' increases risk of parasitic infestation in birds (Sari *et al.*, 2008). Msoffe *et al.* (2010) reported the recovery of three helminthes from domesticated pigeons of Tanzania. They included the cestodes, *Raillietina tetragona*, and *R. echinobothrida* and the nematode, *Ascaridiagalli*. Bahrami *et al.* (2013) found the following parasites in the fecal samples of pigeons of Iran: *Raillietina* sp, *Tetramers* sp., *Syngamus* sp., *Capillaria* sp., *Ascaridiacolumbae* and oocyst protozoa. Qamar *et al.* (2017) recorded *Capillaria* spp in the fecal samples of pigeons from Pakistan. There is a paucity of information on infections of indigenous pigeons especially in Southern Zone of Plateau State of Nigeria. However some studies have been carried out in Northern and Southern Nigeria (Riise *et al.*, 2004). This work investigated intestinal helminthes and coccidial infection of pigeons (*Columba livia domestica*) in three communities in Southern Zone of Plateau State, Nigeria.

MATERIALS AND METHODS

The study area comprises of three communities namely Garkawa in Mikang Local Government Area and Yelwa and Shendam in Shendam Local Government Area of Plateau State. Shendam is the headquarters of Shendam Local Government Area and is located on 8°53'N and 9°32'E. It has an area of 2477km² (956sq m) and a population of 208,017 as at 2006 census (NPC, 2006). Garkawa is in Mikang Local Government Area and is located on 9°00'N and 9°35'E and has an area of 739km² (285sqmi) the population of the inhabitants of 97,411 (NPC, 2006). One hundred and twenty of both young and adult domestic pigeons (*Columba livia domestica*) were purchased from the different markets in the study areas. Faecal samples were collected and analysed.



Briefly, 1g of faecal sample was added in a centrifuge test tube and 5ml of normal saline was added, emulsified and sieved or filtered. It was centrifuge at 3000rpm for 3 minutes and this process was repeated until a clear supernatant was obtained. The sample was later observed with X10 and X40 objective for ova and cyst if present.

RESULTS AND DISCUSSION

The prevalence rates of faecal parasites from the three communities in Southern Zone of Plateau which Yelwa had the highest prevalence of 21.0% while Shendam and Garkawa had prevalence of 19.0% and 17.0% as presented in Table 1. In the current study, the overall prevalence of intestinal helminths in pigeons was 47.5%. However, in Egypt, Nagwaet *al.* (2013) reported prevalence rate of 51.7% in Gharbia provinces. Furthermore, 23.18% in Urmia, Iran (Khezerpour and Naem, 2013) and 74% in Bursa Province, Turkey (Senlik *et al.*, 2005). Table 2 indicates percentage prevalence of faecal parasites in the three communities based on age distribution. The adults had 33.3% as compared to the young ones with 14.2%. The reason could be that the immune response of the adults is always suppressed when they are older while the juveniles still have maternal immunity. This result is not in agreement with Magaji *et al.* (2020) whose report shows that the younger pigeons were more infected in terms of coccidial infection.

The prevalence and mean intensity of infection were also computed based on the sex of the specimens (Table 3). Prevalence of infection was generally higher in male specimens (28.3%) and the female had 19.1%. Higher infection rate was recorded in Yelwa (17.5%) followed by Shendam and Garkawa with 15.8 and 14.2% in that order.

Table 4 shows that *coccidian spp* accounts 33.3% as the highest followed by *Capillariasp* and *Ascarissp* with 9.2 and 5.0% respectively. This is in agreement with Baris *et al.*, (2008) who recorded 4.3% in Turkey in *Capillaria* sp. It was higher than that recorded by Khezerpour and Naem (2013) in domestic pigeons in Iran (0.72%) but lower than those recorded by Ghosh *et al.* (2014) in Bangladesh and Eljadar *et al.* (2012) in Green Mountain Region, Libya, 22 and 20% respectively. Results obtained in Trans-Amadi abattoir, Port Harcourt, Rivers State, Nigeria recovered cestode, *Raillietina tetragona*, nematodes (*Ascaridia columbae*) and the protozoa, *Eimeria* sp. The overall prevalence of cestode, nematode, and *Eimeria* infections were 38%, 6%, and 2%, respectively. Both single and multiple infections were observed. The endoparasites were *R. tetragona*, *A. Columbae* and *Eimeria* sp. *Raillietiella tetragona* and *Ascaridia* sp. are frequently reported from pigeons in Africa and overseas (Natalaet *al.*, 2009; Msoffeet *al.*, 2010) Parsani. *et al.*, 2014) found an overall prevalence of 6.0% for *R. tetragona* and 15.5% for *A. galli* in the pigeons of Tanzania. Similarly, Bahramiet *al.* (2013) reported a prevalence rate of 24.24% and 4.04% for *Raillietina* sp.

Table 1: Prevalence of faecal parasites in three communities in Southern zone of Plateau State

Location	No. sampled	Positive	Prevalence(%)
Garkawa	40	17	14.2
Yelwa	40	21	7.5
Shendam	40	19	15.8
Total	120	57	47.5

Table 2: Prevalence of faecal parasites in three communities based on age distribution

Location	Young	Adult	Prevalence(%)
Garkawa	7(5.8)	10(8.3)	17(14.2)
Yelwa	4(3.3)	17(14.2)	21(17.5)



Shendam	6(5.0)	13(10.8)	19(15.8)
Total	17(14.2)	40(33.3)	57(47.5)

Numbers in parenthesis represent percentages

Table 3: Prevalence of faecal parasites in three communities based on sex

Location	Male	Female	Total
Garkawa	7(5.8)	10(8.3)	17(14.2)
Yelwa	15(12.5)	6(5.0)	21(17.5)
Shendam	12(10.0)	7(5.8)	19(15.8)
Total	34(28.3)	23(19.1)	57(47.5)

Numbers in parenthesis represent percentages

Table 4: Prevalence of faecal parasites identified in relation to the locations

Location	Parasites identified			Total
	<i>Coccidia spp</i>	<i>Capillaria spp</i>	<i>Ascaris spp</i>	
Garkawa	13(10.8)	3(2.5)	1(0.8)	17(14.2)
Yelwa	14(11.7)	4(3.3)	3(2.5)	21(17.5)
Shendam	13(10.8)	4(3.3)	2(1.7)	19(15.8)
Total	40(33.3)	11(9.2)	6(5.0)	57(47.5)

CONCLUSION AND RECOMMENDATION

Therefore, it was concluded that pigeon management programs and public education should be implemented to reduce the risk of pigeon being a major transmitter of pathogenic agents and parasites to livestock in the country. Study of blood and ecto parasites will help in improving the economic values of these birds.

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