



PREVALENCE OF INTESTINAL PARASITES IN *Gallus domesticus*
(LOCAL CHICKEN) SLAUGHTERED AT ABUBAKAR
MUSA MARKET SOBA KADUNA STATE



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Abstract: A study on the prevalence of intestinal parasites in local chickens slaughtered at Abubakar Musa Market, Soba Kaduna state was conducted between May-July 2016 in Soba local government area Kaduna state. A total of 150 faecal Samples from the intestinal tract of already slaughtered chicken were examined for intestinal parasite using Mix of sucrose and zinc sulphate floatation methods for the presence of ova or eggs of intestinal parasite. The samples of chicken examined were positive with different types of intestinal parasite namely: nematodes, cestodes and protozoan. Nematodes species implicated are; *Ascaridia* (21%), *Heterakis* (28.33%), *Dispharynx* (20%), *Syngamus* (13.33%), *Capillaria* (5.33%) and *Strongyloides* (5.33%). The intestinal cestodes discovered were *Raillietina* (5.33%) and *Hemenolepis* (5.33%), While the intestinal protozoan isolated is *Coccidia* species representing the high parasitic infection with (43%). The examined samples shows the following percentage for sexes, 51(68%) males and 45(60%) females were infected with intestinal parasite. Mixed infection was 45 (30%), while 51 (34%) had single infection. The conclusion of this research showed the high prevalence of intestinal parasite is (100%) as observed in this area has a strong relationship with their mode of feeding and living condition which was lead to the reduction body weight, decreased in egg production and death, thus affecting the meat quality and nutrient content of the chicken. There was no statistically significantly difference ($P>0.05$) in the infection rate between the sexes.

Keywords: Prevalence, Soba, Kaduna, intestine, parasite, local chicken, infection

Introduction

Birds are the most dominant of vertebrate on land (Junaidu *et al.*, 2014). According to the FAO (2011) the domestic chicken (local chicken) they form about 58% of the poultry are the most numerous of any kind of poultry. They are kept for income generation particularly in the rural (Hassouni and Belghyti, 2006). The poultry industry in Nigeria offers the quickest supply of animal protein to man in form of high quality eggs and meats and provides comparatively faster return to investment than cattle, small ruminants or pigs (Matur *et al.*, 2010). The Chicken has been used as a means of poverty alleviation for farmers in many African countries, and has also been used to solve problems of malnutrition especially the protein obtained from the eggs, no wonder they are the most numerous of birds. The local domestic fowls are raised traditionally under free-range management system in villages with little or no supplementary feeding and very little veterinary care, there by exposing them to the large no of parasitic infection unlike the hybrid chicken breed (Gray and Richard, 2012). The domestic chicken has a wide range of feeding habit from grain, fruit to insect (grasshopper, dung beetles, cockroaches) which may be carrying infective stage of parasite serving as intermediate thus predisposing them to parasite infection (Adang, 1992; Oniye *et al.*, 2000). These parasites are found more frequently in the warm seasons, when the intermediate hosts are abundant. Beetles and houseflies inhabiting poultry houses act as intermediate host for most species of cestodes (Baba and Oveka, 2004). Although the prevalence of parasitic infection has been greatly reduced in the commercial production system, mostly due to improve housing, hygiene and management operations (Yoriyo *et al.*, 2008). A large number of helminthes are still widely distributed throughout the world in free range poultry. In studies by Ruff (1999), 100% of the rural scavenging chicken examined in Cross River Nigeria, was positive for one or more helminthes parasites. In another study, Saidu *et al.* (1994) report 45% of *Ascaridia galli* and 35% *Heterakis gallinarum* (Yoriyo *et al.*, 2008; Okon and Enyechi, 1980; Gadzama, 2001) all reported high prevalence of multiple infections in their survey.

Management practices, level of bio-security, availability of intermediate hosts and possibly the game reservoir are key factors for high prevalence of helminthes infection in free range or rural scavenging system of poultry (Abebe *et al.*, 1997). In free range /backyard poultry production system, the species of helminthes involved are more or less the same, but different number were reported by different investigators. There cord of 29 species of helminthes reported to occur in scavenging chicken in the Morogoro area of Tanzania (Gadzama, 2001) is possibly the highest number recorded in any single study. Okon and Enyechi (1980) reported that the most commonly occurring helminthes species in free range poultry are *Ascaridia galli* and *Heterakis gallinarum*. The prevalence of *A. galli* and cestodes were within the range of 29-30% of free rangesystem in Switzerland (Nnadi, 2007). A wide range helminthes species in chicken (*Ascaridia galli*, *Heterakis gallinarum* and *Capillaria* spp) were reported by Ruff (1999) in the United States.

Materials and Methods

Study area

This study was conducted in Ahmadu Bello University, Samaru Zaria, Kaduna State. Samaru is located between Ahmadu Bello University, Basawa and Bomo It is a growing urban settlement within Zaria located approximately between latitudes 11° 10' and 11° 11' N of the Greenwich Meridian and longitude 7° 37' and 7° 40' E of the Equator. Samaru is a part of the Guinean savannah of Nigeria (Abbas *et al.*, 2011), and it lies at a height of over 200 feet (600 meter) above sea level (Dantanko, 2008).

Sample collection

The Faecal Sample of 150 intestine (75 male and 75 female) were collected directly from the intestine through transparent leather from the dressing unit of the Abubakar Musa Market Soba (LGA) Kaduna State Nigeria.

They were transported to Ahmadu Bello University Zaria, Faculty of Veterinary Medicine were the sample preserved in refrigerator at 5 – 10.

Laboratory analysis of intestinal parasite

Faecal samples obtained were examined using saturated concentrated sugar solution flotation and eggs or Oocysts

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using the light microscope at x100 objective. Parasites was examined and identified microscopically and by using references of Cheng (1973), Sousby (1982), Ruff (1984) and Ruprah *et al.* (1986)

Data analyses

Percentage was used to determine the prevalence of intestinal parasite in chickens. T- test was used to determine the significance difference in infection of intestinal parasite between sexes in Domestic Chicken.

Results and Discussion

Table 1: Prevalence of intestinal parasite in both sexes of the chicken

Parasites	No. examined	No. infected	% positive
Raillietina	150	8	5.33
Dispharynx	150	30	20
Coccidia	150	65	43
Ascaridia	150	32	21
Heterakis	150	38	25.33
Strongyloides	150	8	5.33
Hymenolepis	150	8	5.33
Capillaria	150	8	5.33
Syngamus	150	20	13.33
Total	1350	217	

Table 2: Prevalence of intestinal parasite in male chicken

Parasites	No. examined	No. infected	% positive
Raillietina	75	5	6.67
Dispharynx	75	8	10.66
Coccidia	75	30	40
Ascaridia	75	14	18.67
Heterakis	75	9	12
Strongyloides	75	9	12
Hymenolpis	75	9	12
Capillaria	75	9	12
Total	600	93	

Table 3: Prevalence of intestinal parasite in female chicken

Parasites	No. examined	No. infected	% Positive
Coccidia	75	28	37.33
Ascaridia	75	19	25.33
Heterakis	75	6	5.33
Singamus	75	8	10.66
Total	300	61	

Table 4: The prevalence of intestinal parasite in single and mixed infection of chicken slaughtered in Abubakar Musa Market Soba Local Government Area

Status of infestation	Frequency of occurrence	% Prevalence	X ²	p-value
Uninfected	54	36	46.47	0.04
Infected	51	34		
Single infection				
Mixed infection	45	30		
Double infection				
Total	150	100		

Table 5: Male and female significance different in infection T-test

Parasites	No. uninfected	No. infected	Mean	P-value

Male	24	51	0.58	0.280
Female	30	45	0.34	
Total	53	96		

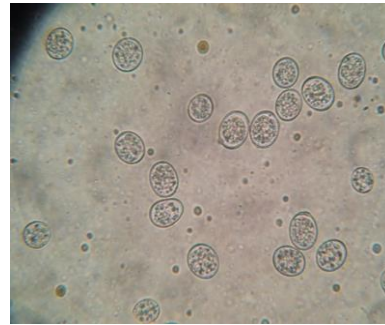


Fig. 1: Coccidia



Fig. 2: Ascaridia



Fig. 3: Capillaria



Fig. 4: Hymenolepis

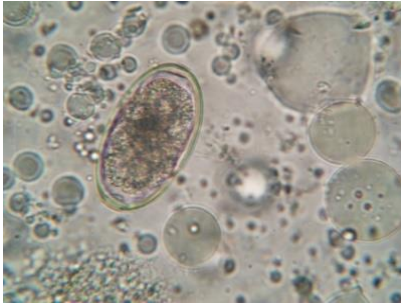


Fig. 5: *Syngamus*



Fig. 6: *Dispharynx*

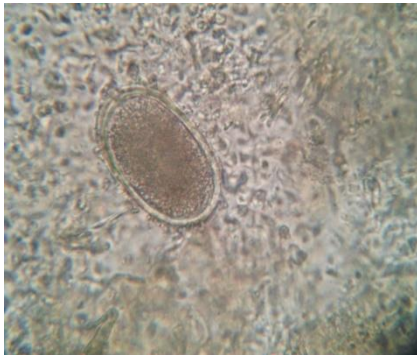


Fig. 7: *Heterakis*



Fig. 8: *Raillietina*

An overall prevalence of 43% of intestinal parasite was recorded in the sampled chicken. Total of 150 fecal sample with different intestinal parasite were used, the incidence of the infection agreed with the report of Okon and Enyechi (1980). Gadzama (2001) reported prevalence of (91%) in borno state of Nigeria. The present study is in contrary to the findings of Hussien *et al.* (2012) who reported 40.67%. The prominent feature of this study was the complete absence of

trematodes; this is in conformity with the work of Fabiyi (1972). The high incidence of different intestinal parasite was recorded in Coccidia has the highest infection prevalence representing 43%, followed by helminthes parasite as the second in the infection. The high prevalence of the coccidian infection might be due to the period of study which coincided with the rainy season that enabling factor of coccidian infection. The prevalence of intestinal helminthes in the present study might be as the result of continuous exposure of the chicken to the free range condition which facilitate infection as it may be attributed to that local chicken satisfy their nutrients by moving from one place to another, seeking their food in the superficial layer of the soil which is often contaminated with living organism of all kinds, including various insect or worms, human and animal wastes which serve as intermediate hosts for helminthes parasite that infect poultry and other animals as reported by Adebte *et al.* (1997) and Gadzama (2001).

Conclusion

The study being carried out on the prevalence of intestinal parasite *Gallus-gallus domesticus* slaughtered at Abubakar Musa Market Soba Local government showed that there is no significance difference in the infection between the sexes. The coccidian parasite are more distributed in the intestine of birds with 43% than helminthes parasite and Nematode (90%) are more prevalent than Cestode (10.66%).

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