

Research Article

Prevalence of Gastro-Intestinal Parasites in Pigs in Jos South Local Government Area of Plateau State, Nigeria

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Abstract: This study was designed to determine the prevalence of gastrointestinal parasites of pigs within three district of Jos South Local Government area of Plateau state, Nigeria. A total of 200 pigs were sampled. Faecal samples were analyzed using the saturated sodium flotation method. A total prevalence of 31% was recorded; with *Ascaris suum* 12.5% followed by *Oesophagostomum* 12%, *Stroglyoid* Spp 3%, *Eimeria* Oocysts 3% and *Strongyle* Spp 2.5%. There was higher prevalence in female (58%) than males (42%), and also higher prevalence in adults pigs (35.7%) than young pigs (20%) which was significantly different ($P < 0.05$). There was also higher prevalence in Du district (32.5%) than Vwang and Kuru (30%) but was not significant ($P > 0.05$). This study therefore confirms the prevalence of gastrointestinal parasite in pigs and it was therefore recommended that farmers improve on their bio-security and also adhere to routine de-worming regimen.

Keywords: Gastrointestinal parasite, Pigs, Jos South Local Government, *Ascaris Suum*, Prevalence.

INTRODUCTION

Swine production is one of the fastest growing livestock sector worldwide and forms an integral part of the rural economy in many parts of the world by providing an additional animal protein sources for human consumption, generating employment and reducing poverty [1]. Pig production has a number of advantages over other livestock sectors. This includes higher and quicker returns on investment, early maturity and short generation interval [2,3].

Gastrointestinal parasites have been noted as one of the major constraint to swine production. These parasites are found within the gastro intestinal tract (GIT) of the animals [4]. The three major groups of parasites which affect the gastro-intestinal tract of pigs are nematodes, trematodes and the intestinal protozoan [5]. Some of these helminths can be transferred from pigs to man thereby causing a great problem to the producer himself [3]. Extensive production system of pigs for commercial purpose is widely practiced in Africa, because of availability of cost free feeds (house hold municipal garbage) and possibilities for the animals to get better nutrition through scavenging [6]. Poor Environmental hygiene coupled with extensive management is reported as risk factors of infection of pigs with gastrointestinal parasites [7]. The diagnosis of helminthosis is based on clinical signs, faecal analysis for helminth eggs, larval culture for confirmation of

helminth species. These parasites can cause serious economic loss to the producer in many ways including decrease in feed efficiency and conversion, increase time to market weight and decrease in carcass value. Information on the epidemiology of parasite of animals is very important in assisting farmers to develop preventive measures. Several reports exist on the prevalence of gastrointestinal parasites of pigs in Africa [8, 9]. However, there is paucity of information on the prevalence of these parasites within these three districts in Jos South Local Government Area. This study was therefore aimed at isolating and identifying the different gastrointestinal parasites of pigs in the three districts within Jos South Local Government area of Plateau State with the objective of determining the prevalence of parasitic infection.

MATERIAL AND METHODS

Study Area

This study was carried out in three districts within Jos South Local Government Area namely Du, Vwang and Kuru. It is located between latitude 8° 24'N longitude 8° 32'W with a mean of annual rainfall of 131.75cm with a total population of 306, 716 [10].

Sample Size, Collection and Processing.

Two hundred (200) faecal samples were collected from pigs kept under different systems of management. The pigs were restrained and faecal

samples were collected through the rectum using sterile disposable hand gloves, two fingers were inserted gently into the rectum to collect the faeces after which the faecal samples were transferred into a sterile sample bottle and labeled accordingly. The samples were then put in an ice pack and immediately taken to National Veterinary Research Institute, Parasitology laboratory for analysis.

Faecal samples were analyzed using the saturated sodium chloride flotation method as described by WHO (1991). Briefly, 5 grams of the sample was put into a clean test tube using the applicator stick; a saturated salt solution was added into it and stirred very well to mix the faeces with the saturated salt solution. The mixture was then sieved into a clean sieve to remove faecal debris. The filtrate was then poured into a labeled test tube and kept; this was done to all the samples. After which, the test tubes were then filled to the brim with the saturated salt solution and then cover slides were gently placed on top of them. The filtrate

was left on the tray for about 10-15 minutes before the slides were removed and observed under the microscope using x10 and x40 objective lens.

Data Analysis

The data obtained were expressed in percentages and presented in tables. Chi Square test using SPSS version 20 for windows was used to determine significant difference in the gastrointestinal parasites among the groups. Values of $p < 0.05$ were considered significant.

RESULT

Five gastrointestinal parasites of veterinary importance were identified from a total of 200 faecal samples collected, with an overall prevalence of 31%. *Ascaris suum* had the highest prevalence of 12.5%, followed by *Oesophagostomum* Spp (11%), *Strongyloides* Spp (2.5%), *Strongyles* Spp (2%) and *Eimeria oocyst* (3%) as shown table 1. There was significant difference ($P < 0.05$) among the different species identified.

Table-1: Prevalence of gastro intestinal parasite of pig.

| Species of parasite | Number positive | % prevalence |
|--------------------------|-----------------|--------------|
| <i>Ascaris</i> | 25 | 12.5 |
| <i>Oesophagostomum</i> | 22 | 11 |
| <i>Strongyloides Spp</i> | 5 | 2.5 |
| <i>Strongyles Spp</i> | 4 | 2 |
| <i>Eimeria Spp</i> | 6 | 3 |
| Total | 62 | 31 |

There was also higher prevalence of gastrointestinal parasite in female pigs (53%) than male pigs (43%) but there was no significant difference ($P > 0.05$) (Table 2). Similarly, in relation to age, there was higher prevalence of gastro intestinal parasites in the adult pigs (35.7%), than in young pigs (20%) which

was significantly different ($P < 0.05$) (Table 3). The prevalence of gastro-intestinal parasites in relation to location revealed a higher prevalence in Du District (32.5%), while Vwang and Kuru had 30% respectively but was not significant ($P > 0.05$) (table 4).

Table-2: Prevalence of Gastro-intestinal parasites of pig in relation to Sex.

| Sex | Number sampled | Number positive | % prevalence |
|--------|----------------|-----------------|--------------|
| Male | 100 | 36 | 36 |
| Female | 100 | 26 | 26 |
| Total | 200 | 62 | |

Table-3: Prevalence of Gastro intestinal parasite of pig in relation to Age.

| Age | Number sampled | Number positive | % prevalence |
|-------|----------------|-----------------|--------------|
| Adult | 140 | 50 | 35.7 |
| Young | 60 | 12 | 12 |
| Total | 200 | 62 | 10 |

Table-4: Prevalence of gastrointestinal parasite in relation to location.

| District | Sample size | Number positive | Over all prevalence |
|----------|-------------|-----------------|---------------------|
| Du | 80 | 26 | 32.5 |
| Vwang | 60 | 18 | 30 |
| Kuru | 60 | 18 | 30 |
| Total | 200 | 62 | 62.5 |

DISCUSSION

The presence of five gastrointestinal parasites observed in the sampled pigs reveals a high prevalence of these parasites within the study area. This could be attributed to the extensive system of management widely practiced within the study area and also lack of veterinary services. This finding agrees with the reports of [8, 11] who also reported high prevalence of similar gastrointestinal parasites in pigs in Nigeria.

The higher prevalence of gastrointestinal parasites observed in female pigs (53%) than the male ($P>0.05$), was possibly due to the fact that female pigs are kept much longer for breeding purposes as compared to the male pigs, which are usually fattened and sold off [8]. Meanwhile, the lower prevalence in younger pigs compared to adults ($P>0.05$) can be attributed to the fact that piglets and growers pigs are most times confined in the pens which tend to reduce their chances of contact with the disease agents. It could also be because of the developing immunity of younger pigs at that age due to the maternal immunity at birth. This finding also agrees with the report of Atawalna *et al* [12]. Who also reported higher prevalence in adults than younger pigs.

The higher prevalence observed in Du district (32.5%) as compared to Vwang and Kuru (30%) could possibly be because of the higher number of samples collected from this region, as more pig farms were located within this region.

CONCLUSION AND RECOMMENDATIONS

This study has confirmed the presence of five gastrointestinal parasites within the study area with a total prevalence of 31%. *Ascaris suum* (12.5%), *Oesophagostomum spp* (11%), *Strongyles Spp*(2%), *Strongyloides spp* (2.5%) and *Eimeria Oocysts* (3%). It was therefore recommended that farmers should adopt good management practices and bio-security so as to reduce the risk of infection in their farms and also adopt good de-worming procedures in their farms

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