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## Prevalence of endoparasites in the intestine of pigs slaughtered for consumption in selected areas of Ijebu-Igbo, Ogun state

**Oluwabiya BA****Abstract**

The prevalence of intestinal parasites of pigs slaughtered for consumption in Ijebu-Igbo in Ijebu-North Local Government Area of Ogun state was investigated. Post-mortem examination of intestinal content from 36 pigs was done using floatation technique. Of the 36 pigs examined for intestinal parasites, 30 (83.3%) were found to be infected with one or more parasite species. Eggs of five types of parasite species were identified, which include *Ascaris suum*, *Trichuris suis*, hookworm, *Taenia solium* and *Strongyloides ransonii*. Hookworm was found to have the highest prevalence of 72.2% (n=26) followed by *Ascaris suum* with a prevalence of 52.7% (n=19). Prevalence of intestinal parasite was significantly higher in male than in female pigs ( $p < 0.05$ ). The result of this study shows that intestinal helminth parasites are present in pigs slaughtered for consumption in Ijebu-Igbo Ogun State and more studies need to be carried out to investigate the awareness level of small holder farmers about the dangers of human contamination by animal parasite.

**Keywords:** contamination, helminth, *Ascaris suum*, floatation techniques, post mortem

**Introduction**

The continual drive to increase meat production for the protein needs of the ever increasing World population has some parasitological problems attached [1]. Nigeria is located in tropical Africa, an area that is described as "Parasites Paradise" [2]. Parasites live at the expense of the host and may cause illness [3]. defined parasites as any living organism (plant or animal) which lives inside or on the surface of another organism (the host) and from which it gains its food supply. Environmental factors and vector abundance have been incriminated in the distribution of most parasitic diseases [1].

Pigs also known as hogs or swine are ungulates which have been domesticated as a source of food, leather and similar products since ancient times [4]. Pigs collectively grouped under the genus *suis* within the *Suidae* family are one of the domesticated animals found throughout the tropical and temperate region of the world [4]. Domesticated pigs are commonly raised as livestock by farmers for meat (called pork), as well as leather. Their bristly hairs are used for brushes. Some breeds of pigs, such as Asian pot bellied pigs, are kept as pet [4]. The sustainable development of the swine industry is faced with a number of constraints, prominent among which is the diseases caused by intestinal parasites [5].

Gastrointestinal parasites are responsible for a substantial loss of productivity in swine and other livestock. It affects swine's performance in terms of efficient feed conversion, poor growth rate, reduced weight gain and the condemnation of affected organs after slaughter [6]. In Nigeria, livestock production sector is vital not only because of its economical benefits but because over 80% of the population are involved in one way or the other in Agriculture [7]. Several studies on gastrointestinal parasites affecting pigs have been conducted in Nigeria and other parts of the World [8]. reported a prevalence of 35.8% (97) among 271 pig faecal samples examined with a higher prevalence in male pigs than in female pigs. In another study, among 383 pigs examined for parasite infection [9] reported that 91% of the pigs were infected with one or more parasites with *Ascaris suum* having the most prevalent of 40%. Water-borne transmission of intestinal parasites has been linked to domestic livestock and farming practices. The danger of human becoming infected with protozoa of animal origin is higher than with helminths [10]. This study was undertaken to investigate intestinal parasite of pig, to know what parasites can be transmitted to human on consumption of pork (pig meat) and on

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handling pig waste products. The study also aims at investigating the prevalence of intestinal parasites in pigs slaughtered in Ijebu-North L.G.A.

### Materials And Methods

The study was carried out in Ijebu-Igbo situated in Ijebu North Local Government Area of Ogun State, Nigeria. The average annual temperature ranges from 23 °C to 28 °C and average annual rainfall of 36mm. Its geographical coordinates are latitude 6° 58' North and longitude 4° East. Three slaughter pens located at Oke-Agbo, Ojowo and Oke-sopen area of Ijebu-Igbo were visited between 6:30am and 8:00am daily for sample collection.

### Sample Collection and Preservation

Faecal sample of pigs owned and slaughtered by small holder farmers in Ijebu-Igbo were collected and examined in the laboratory for intestinal parasites. An estimate of 1-2 pigs is being slaughtered per day per location. Faecal samples were collected from the large intestine of pigs and were dispatched as soon as possible to the biology laboratory of Olabisi Onabanjo University in sterile containers. Each sample was preserved in formalin and was labelled with animal identification (sex), date and location of collection.

### Sample Analysis

The preserved faecal sample was processed using simple test tube floatation method and later examined under the light microscope at x10 objective lens for the presence of helminth eggs. Parasites were identified based on structures and morphology according to [11].

### Statistical Analysis

Data were analysed using descriptive and inferential statistics. Descriptive statistics was used to analyse overall prevalence and specie prevalence. Difference in parasite infection prevalence in relation to sex was tested using the Chi-square ( $X^2$ ) test.

### Results

A total number of 36 pigs faecal sample were examined for intestinal parasite. 83.3% (n=30) were found to be infected with one or more intestinal parasite (Table 1). Of the 36 pigs examined, 55.6% (n=20) of the male (Boar) were found to be infected with one or more parasite while 27.7% (n=10) of the female (sow) were positive for intestinal parasite (Table 1).

**Table 1:** Prevalence of infection in relation to sex of pigs examined

Sex	Number examined (%)	Number infected (%)	Number not infected (%)
Male (Boar)	22 (61.1%)	20 (55.6%)	2 (5.6%)
Female (Sow)	14 (38.9%)	10 (27.7%)	4 (11.1%)
Total	36 (100%)	30 (83.3%)	6 (16.7%)

Prevalence of parasite in slaughtered pigs in the three location differs with Oke-sopen having the highest prevalence of 100% (n=13) (Table 2).

**Table 2:** Prevalence of infection in relation to sample location

Location	Number examined	Number infected	Prevalence (%)
Oke-Agbo	18	14	77.8
Ojowo	5	3	60
Oke-Sopen	13	13	100
Total	36	30	

Six types of intestinal parasites were identified. These include *Ascaris suum*, hookworm, *Taenia solium*, *Strongyloides sp.*, *Trichuris suis*, and *Fasciola sp.* hookworm has the highest prevalence of 38% (n=28) occurring more in male than in females in the study population followed by *Ascaris suum* with a prevalence of 26% (n=19), then *Trichuris suis* having a prevalence of 23% (n=17) (Table 3). *Strongyloides sp.* has a low prevalence 5(7%) in the study population it occurred more in female than in males (Table 3).

**Table 3:** frequency of intestinal parasites in relation to sex of animal examined

Type of parasite	No. of occurrence in sample population	Infected male (N=22)	Infected female (N=14)
<i>Ascaris suum</i>	19	13	6
<i>Trichuris suis</i>	17	12	5
<i>Hookworm</i>	27	18	9
<i>Taenia sp.</i>	3	2	1
<i>Strongyloide sp.</i>	5	2	3
<i>Fasciola sp.</i>	3	2	1

The result of the study also showed that *Ascaris suum* has preference for the colon (Part of the large intestine) than the caecums (Part of the large intestine) while the reverse is the case for hookworm (Table 4).

**Table 4:** Parasite preference for different part of the Large intestine

Type of parasite	Caecum	Colon
<i>Ascaris suum</i>	9	10
<i>Trichuris suis</i>	9	8
<i>Hookworm</i>	13	12
<i>Taenia sp.</i>	2	1
<i>Strongyloide sp.</i>	2	3
<i>Fasciola sp.</i>	1	2

### Discussion and Conclusion

The prevalence of 83.3% reported in this study is higher than 80.4% reported by [8] in a study carried out in Ibadan, Oyo State, and 40% prevalence from the study conducted in Burkina Faso by [12]. The higher prevalence of intestinal parasites recorded in this study could be as a result of poor management practices in the farm, such as inadequate daily cleaning and disinfectants of pens, giving low quality feeds, allowing pigs to freely scavenge in search of food, lack of anti-helminthic drugs at the right time and limited sample size.

In this study, six types of intestinal parasites were identified as compared to 15 species of helminths reported from 450 pigs in Jos, Plateau, Nigeria [13]. Out of the seven nematode species listed as helminths of veterinary importance by [14], three (3) were observed in this study and they include *Ascaris suum*, *Trichuris suis* and *strongyloides sp.* The study revealed that hookworm egg were the most prevalent parasite followed by *Ascaris suum*. It has been reported that *Ascaris suum* is among the causes of visceral larva migrans in humans [15]. In this study, the prevalence of intestinal parasites was higher among male pigs than in females, which is in line with the findings of [8] where male pigs also have higher prevalence than females. High prevalence of hookworm eggs was observed in this study and [16] had reported that there is the possibility of pigs acting as transport host for human parasites and this may pose health risk for humans especially farm

workers and butchers. *Taenia sp.* and *Fasciola sp.* both has a low prevalence in the study population as was also reported from Ontario, Canada by [5].

In conclusion, the result of this study revealed that pig faeces could be an important reservoir of some parasites capable of infecting humans. In a community like Ijebu-Igbo, where pigs are reared and pork (pig meat) is consumed by a large part of the population, pigs could be involved in zoonotic helminthosis.

### Recommendation

Further studies could be carried out to investigate the possible impact of parasitic infection of pigs on public health in Nigeria.

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