

**NSAP****47th Annual
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PREVALENCE OF HELMINTH PARASITES IN SELECTED LOCATIONS IN GARKAWA COMMUNITY, MIKANG L.G.A., PLATEAU STATE, NIGERIA

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ABSTRACT

*The study aimed at isolating helminth parasites and to determine the prevalence rate in Pigs in selected locations namely (Lamba, Samiya, Wai and Soshall) in Garkawa Community, Mikang Local Government Area, Plateau State. A total of 200 faecal samples were collected in March, 2021 from pigs with 50 from each location. Samples were immediately sent to Parasitology Department of National Veterinary Research Institute Vom, Plateau State for laboratory screening using floatation and sedimentation techniques for GIT Parasites isolation. The result shows a prevalence rate of 21.0% parasitic burden. The female pigs have the highest infestation rate 23.0% which is significantly ($p < 0.005$) higher than the male pigs 17.8%. Infestation by location indicated that Lamba, Samiya, Wai and Soshall had 26.0%, 24.0%, 18.0% and 16.0% respectively. There was no significant difference ($P > 0.05$) in infestation rate according to location. Species of GIT Parasites identified included: *Oesophagostomum dentatus*, *Necator* SPP, *Stephenurus dentatus fasciolopsis buski*, *Eimeria* SPP. Proper husbandry practice with timely administration of suitable anthelmintic and anti-coccidial preparation is suggested for improved production of pigs in the study area.*

keywords: pigs, Gastro-intestinal, parasite, fecal sample, isolation.

INTRODUCTION:

The pig industry in Nigeria is an important arm of the livestock sub-sector in the whole agricultural sector, this is because the swine production, among other species has a high potential to contribute to high economic gains (Chinwe and Chinekwu, 2020). It has been reported that pigs have high fecundity, feed conversion efficiency, early maturation, short generation intervals and relatively small space requirements giving it more advantages over other domestic animals. (Ezeibe, 2009; Ogugunniyi and Omoteso, 2011). The pigs are multi-purpose animals providing about 40% of meat in the world market and very important for agro-based industries providing feed mills for provisions of bone and blood meal which are good source of calcium in animal nutrition (Ezeibe, 2009). The pig can produce under so many production systems, because it displays a unique ability to adapt, ranging from simple back yard piggery, living on garbage belts to family operated farms or largescale integrated pig management systems owing to their high survival ability (Ezeibe, 2009, Onyekuru, *et al*, 2020). Pig production is reported to have the capacity of ameliorating the hunger problem and safe guarding the future of a nation's food supply and serving as veritable tool for curbing the increasing unemployment and considered as a tool to fight poverty in the tropics (Amadi, *et al*, 2018). Unfortunately, the sustainable development of the pig production industry is being threatened by some factors among which is gastro-intestinal helminthosis, a disease complex caused by multi-cellular endo-parasitic trematodes, cestodes and nematodes within the gastro-intestinal tract (GIT) of the animals (Sowemino, *et al.*, 2012; Adenaike, 2020). They also reported a prevalence of 7.92% in pigs due to helminth infestation while Sowemino, *et al.* (2012) obtained prevalence of 35.8% due to helminths infestation in pigs which was high in the females (52%) than the males 45%. Adenaike (2020) reported a high helminths infestation in the males 38 (24.68%) than the females 18 (11.69%). On age basis, Sowemino, *et al.* (2020) reported a high prevalence rate in the young pigs (37.2%) than the adult (35.7%). Gael *et al.* (2019)

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reported that hormonal changes at late pregnancy can lower the resistance of the female pigs to helminths infestation. Sowemino, *et al.* (2012) conducted a research on pigs in Ibadan and reported that pigs were infested with five types of helminth parasites which included: *Trichuris suis*, *Ascaris suum* (human hook worm), *stephanurus dentatus* and *Isospora suis*. Parasitism is crucial in livestock production but often over looked due to the fact that clinical signs are not obvious however, emaciation, stunted growth and prolonged fertility are often associated with helminthiasis. The study aimed at isolating helminth parasites from fecal Samples of animals (pigs) in the study area to determine the prevalent rate.

MATERIALS AND METHODS.

Study Area:

The study was conducted in four (4) selected locations namely (Lamba, Samiya, Wai, Soshall) in Garkawa community, Mikang L.G.A of Plateau State. Mikang L.G.A is located on latitude 9°N and longitude 9.6°E within the Northern guinea Savannah in North Central Nigeria. It has an elevation of 27.8 metres (912 feet) with an average temperature of 26°C. Mikang witness two distinct seasons – dry and rainy season with total precipitation estimate of 14.50mm per annum. They usually experience their rain between late may and October. (Man power Nigeria, 2021).

Ageing of Animals.

Ageing of animals was done using available record of date of birth obtained from farm records according to Amudayi (2019).

Pregnancy diagnosis.

Pregnancy diagnosis was undertaken using history and physical examination – detecting for the presence or absence of an enlarge uterus, breast changes or softening and enlargement of the cervix using the Hegar sign- (gateway, 2015).

Sample collection.

A total of 200 faecal samples were randomly collected in March, 2021 from pigs in the selected locations. Namely: (Lamba, Samiya, Wai and Soshall) in Garkawa Community. 50 pigs were sampled from each of the selected location. The animals were first restrained, age, sex and reproductive status were determined with the aid of sterile Polythene sheet, two fingers were carefully inserted into the rectum and the feces scooped out, tied, labelled using makers and adhesive tape according to sex, age, reproductive status and locations and kept in a plastic flask containing ice pack, and taken to the Parasitology Department of National Veterinary Research Institute, Vom for parasitological screening.

Sample Processing

Direct microscopic examination and sodium chloride floatation and sedimentation techniques were used to process the fecal samples as described by (Adejinmi, 1994, ILRAD, 2015). Identification of the helminth eggs was made on the basis of their morphology and size as described by (Soulsby, 1982, ILRAD, 1994 and Adejinmi, *et al.*, 2005).

Data Analysis

The results from fecal sample screening was subjected to statistical analysis using chi-square analysis and simple percentages were used to determine the prevalence rate of helminth parasites.

RESULTS AND DISCUSSION

The study on the prevalence of helminth parasites in pigs in selected locations in Garkawa community, , shows the presence of gastro-intestinal parasites with an overall prevalence of 21.0% which is higher than the findings of Adenaike, *et al.* (2020) who reported a prevalence of 7.92%.

The result based on location (Table 1). Shows that Lamba had the highest infection rate (26.0%), followed by Samiya 24.0% and the least in Soshall 16.0%. There was no significant difference ($P > 0.05$) in infestation rate according to location signifying that pigs in the selected locations are prone to infestation, this agrees with the findings of (Sowemino, *et al.*, 2012, Adenaike, 2020) who reported that the pig industry is being threatened by G.I.T parasites irrespective of location



Table 1: Prevalence of Helminth parasites among Pigs in Garkawa community

Variables	No. Examined	(%)	No. Positive	(%)	No. Negative	(%)	Chi- square	P-value
Location								
Lamba	50(100.0)		13(26.0)		37(74.0)		2.047	0.562
Samiya	50(100.0)		12(24.0)		38(76.0)			
Wai	50(100.0)		9(18.0)		41(82.0)			
Soshall	50(100.0)		8(16.0)		42(84.0)			
Total	200(100.0)		42(21.0)		158(79.0)			
Sex								
Male	90(100.0)		16(17.8)		74(82.2)		1.024	0.312
Female	110(100.0)		26(23.6)		84(76.4)			
Total	200(100.0)		42(21.0)		158(79.0)			
Age								
Adult	138(100.0)		30(21.7)		108(78.3)		0.147	0.702
Young	62(100.0)		12(21.0)		158(79.0)			
Total	200(100.0)		42(21.0)		158(79.0)			
Reproductive Status								
Pregnant	48(100.0)		10(20.8)		38(79.2)		0.371	0.543
Not Pregnant	62(100.0)		16(25.8)		46(74.2)			
Total	110(100.0)		26(23.6)		84(76.4)			

P – value < 0.05 is significant

Table 2: Prevalence of Helminth parasite among Pigs in Garkawa community based on Type

Parasite	Prevalence	Percentage Prevalence
Round worm	16	38.1
Flat Worm	2	4.8
Eimeria	24	57.1
Total	42	100.0

$$\chi^2 = 17.714 \quad df = 2 \quad p - value = 0.000$$

From the total of 200 fecal samples collected from pigs and examined 42 (21.0%) were positive (Table1) On sex bases, 90 (100.0%) were males while 110 (110.0%) females. 16 (17.8%) of the males and 26 (23.6%) of females were positive for helminth parasites (table1). On age bases, 138 (100.0%) were adult while 62 (100.0%) young. The adult 30 (21.7%) and young 12 (21.0%) were positive for helminth parasites, table 1.

On sex basis, the females has the highest infestation (23.0%) than the males (17.8%), this agrees with the findings of Somemino, *et al.* (2012) who reported a high prevalence in the females 52.0% than the male pigs 45.0%. There was a significant difference ($P < 0.05$) in infestation rate according to sex. The high prevalence in the females could be due to hormonal changes during late pregnancy that lowers their resistance to helminth infestation as reported by Gael *et al.* (2019).

Prevalence according to age shows that the adult pigs had infestation 21.7% while the young had 19.1%. There was no significant difference ($P > 0.05$) in infestation on age basis, this result does not agree with the findings of sowemino, *e tal.* (2019) who reported a high prevalent rate in the young 37.2% than the adult 35.7%. On reproductive status basis, the non pregnant animals had infestation rate of 25.8% while the pregnant had 20.8%. there was no significant difference ($P > 0.05$) infestation rate between the non pregnant and the pregnant female pigs.

(Table 2) shows class of gastro- intestinal parasites (helminths and *Eimeria* spp) infesting pigs in the study area. *Eimeria* spp had the highest prevalent rate 57.1% followed by round worms 38.1% and the least flat worms

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4.8%. The species of G.I.T parasite identified were *Oesophagostomum dentatum*, *Ascarops strongylina*, *Necator spp*, *Fasciolopsis Buski*, *Stephanurus Dentatus*, *Eimeria Spp*

CONCLUSION AND RECOMMENDATION:

The Study shows the presence of G.I.T parasites in pigs in the selected locations in Garkawa Community of Mikang L.G A., Plateau State with a total prevalence rate of 21.0%, signifying some level of infestation. Common species of gastro -intestinal parasites identified were *Oesophagostomum dentatum*, *Ascarops Strongylina*, *Necator Spp*, *Fasciolopsis buski*, *stephanurus dentatus*, *Eimeria Spp*. Gastro-intestinal parasites infestation is influenced by sex in the area. Proper husbandry practice with timely administration of suitable anthelmintic and anti-coccidial preparation is hereby suggested for improved production in the area.

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