
EFFECT OF DIETARY SUPPLEMENTATION OF DRY GUINEA HEN WEED LEAF (*PETIVERIA ALLIACEA*) ON PERFORMANCE OF GROWING PIGS

^{*1}Mafimidiwo, A.N., ²Williams, G.A., ³Obadimu, A.O. and ¹Oluloro, A.O.

^{*1}Department. of Animal Production Technology, Yaba College of Technology, Lagos. Nigeria.

²School of Agriculture, Lagos State University, Lagos Nigeria.

³Department. of Animal Nutrition, Federal University of Agriculture, Abeokuta, Nigeria.

^{*}Correspondence Author: ayotunde.mafimidiwo@yabatech.edu.ng. Tel: +2348023024349.

ABSTRACT:

This experiment was conducted to determine the effect of supplementing growing pig diets with graded levels dry leaves of Guinea Hen Weed (GHW) (*Petiveria alliacea*). Thirty-six unsexed (Large white X Landrace) pigs of about 23-24kg body weight were randomly allotted on weight equalization basis into four dietary treatments. Each treatment has nine pigs and each treatment has three replicates of three pigs each. The pigs were fed for ten weeks with four formulated diets in which GHW was incorporated at 0, 0.5, 0.75 and 1.0%. The growth performance parameters were measured after a week of stabilization and were statistically analyzed in a completely randomized design. The significant difference was separated using Duncan multiple range test at 99.5% level of significance. The result revealed an increased final weight, weekly weight, daily weight gain and better feed conversion ratio on the pigs fed with diet supplemented with 0.5% GHW. However, pigs fed the 0% GHW supplemented diet has the highest feed intake while the 0.75% and 1.0% GHW supplemented diets have the least feed consumption and lowest daily weight gain too. The experiment concluded the 0.5% *Petiveria alliacea* is the best level of Guinea hen weed leaf incorporation in grower pigs' diet for optimum performance.

Keywords: Performance, Pig, Guinea hen weed, Supplementation

INTRODUCTION

The current global economic trend especially in the developing countries of the world, Nigeria inclusive has encouraged the increased consumption of pork whilst that of beef and mutton are declining considerably. This is as a result that the cost per kilogram of pork is reduced when compared to that of other meat sources. The initial bias against pork consumption has hitherto been economically eroded by the disposable income of the working populace. Beef price is being dictated by the increased demand for cattle without a commensurate increase in its supply (Oladimeji, 2017). In Nigeria today, the prevailing importation of cattle from other African countries have not even brought the succor anticipated sequel to the higher dollar to naira exchange rate. Pig's high dressing percentage when compared to other livestock is an advantage for its production (Gillespe and Van den Bold, 2017). However, a major setback to increased pork consumption aside from religion is the production of increased carcass weight within a short period of time. The feeding of in-organic growth promoters to boost carcass yield in growing pigs has increased its cost of production. The implications of this then is the sourcing for plant parts in place of the in-organic growth promoters. Various plants and parts have been used as growth promoters for livestock and these includes *Morinda lucida* (Olayemi *et al.*, 2016), Pawpaw leaf extract (Omidwura, 2017), Bitter leaf extract (Mafimidiwo *et al.*, 2021). Guinea hen weed (*Petiveria alliacea*) is a known antimicrobial growth promoter with high contents of phytochemicals rich in saponins, alkaloid, flavonoids and antioxidants (Ayodele *et al.*, 2015). Guinea hen weed (*Petiveria alliacea*) leaf have been reported to improve dressed weight, drumstick weight and reduced abdominal fat in broiler chicken fed with its dry leaves (Sobayo *et al.*, 2018). *Petiveria alliacea* leaf extract have also proved to reduces faecal worm egg count by 55.6% in West African dwarf goats as well as bring about a higher nitrogen retention in the WAD goats (Adebayo *et al.*, 2022). However, information on the uses of *Petiveria alliacea* leaf (meal or extract) in pigs remains vague. Therefore, this research work determined the effect of dried leaves of *Petiveria alliacea* on the growth performance of growing pigs.

Preparation of Test Ingredients and Experimental diets

Fresh leaves of Guinea Hen Weed (GHW) were collected from Otedola area of Odoragunshin, Epe and were brought to the Teaching and Research Farm of the School of Agriculture, Yaba College of Technology where the experiment was carried out and air-dried for 3 days and later oven-dried at 65°C for 30 minutes. The leaves were milled using 2mm sieve and bagged until usage. Yaba College of Technology Epe, Lagos State was situated on latitude 6.65°N, longitude 3.99°E (Google Earth 2023). 20g of the dried Guinea hen weed leaf sample were sent to the laboratory for proximate and fiber fractions analysis. Growing pigs' diets (Table 1) were formulated (NRC, 2012) and fed to the pigs for ten weeks *ad-libitum*. Cool clean water was offered also liberally. The diets were supplemented with 0%, (T1), 0.5% (T2), 0.75% (T3) and 1.0% (T4) Guinea Hen Weed.

Experimental Animal and Management

A total of thirty-six unsexed (Large white X Landrace) grower pigs of about 23kg-24kg body weight were allotted in a completely randomized design into four dietary treatment having three pigs per replicate and three replicates in a treatment on weight equalization basis after a week of stabilization and fulfilment of all veterinary procedures. The pigs were fed for ten weeks and data collected on the growth performance were subjected to One-way Analysis of Variance (ANOVA) in a Completely Randomized Design using statistical software (SAS 2002) while the significant differences were separated using Duncan Multiple Range Test (1995).

Table 1: Gross Composition of Experimental Diet (g/100g DM)

Ingredient	Control(T1)	T2(0.5%)	T3(7.5%)	T4(1.0%)
Maize	30	30	30	30
Soyabean meal	12	12	12	12
Palm kernel cake	15	15	15	15
Wheat offal	39	38.50	38.25	38.00
Guinea hen weed	0	0.50	0.75	1.0
Bone meal	2.0	2.0	2.0	2.0
Limestone	1.4	1.4	1.4	1.4
Premix	0.1	0.1	0.1	0.1
Common salt	0.3	0.3	0.3	0.3
Lysine	0.1	0.1	0.1	0.1
Methionine	0.1	0.1	0.1	0.1
Total	100	100	100	100
Calculated Analysis				
Crude protein	17.67	17.52	17.43	17.28
Crude fibre	14.43	14.22	14.16	14.10
Ether Extract	4.77	4.74	4.72	4.68
Ash	3.22	3.17	3.14	3.09
Energy kcal/kg	2550	2548	2544	2540

RESULTS AND DISCUSSION

There were significant ($p < 0.05$) difference across all the parameters measured in the growth performance. The best feed conversion ratio (FCR) and the highest final weight, total weight gain and daily weight gain was observed in diet formulated with 0.5% supplementation with GHW despite that the feed intake falls in-between the other diets. The highest feed intake was seen in the control diet. The high weight gain recorded in T2 is in tandem with the findings of Sobayo *et al.* (2018) who recorded a higher dressing percentage, breast meat and drumstick in finishing broiler chicken fed with 500ppm of *Petiveria alliacea* leaf meal. This finding however contradicts the report of Adebayo *et al.* (2022) who noticed that the dry matter intake, weight gain and dry matter digestibility of West African Dwarf goat were not significantly ($p > 0.05$) affected with the administration of 2% *Petiveria alliacea* leaf extract. One could infer that the improved weight gain on these (T2) experimental pigs could be a result of improved gut health in the swine thus improved nutrient digestibility with the incorporation of the Guinea hen weed leaf which corroborate the reports of Bindelle *et al.* (2008) and Ayodele *et al.* (2015) who opined the effect as being the result of higher saponin and alkaloid in GHW. One could

also be tempted to attribute the improved weight gain to the possibility of checkering down of worms in the pigs in line with the report of Adebayo *et al.* (2022).

Table 2: Growth performance of growing pigs fed GHW supplemented diets.

Parameters	T1 (Control)	T2	T3	T4
Initial body weight (kg)	23.28	24.23	24.31	24.30
Final body weight (kg)	30.44 ^{ab}	35.98 ^a	29.25 ^b	29.24 ^b
Total body weight gain (kg)	7.16 ^{ab}	11.75 ^a	4.94 ^b	4.94 ^b
Daily body weight gain (kg)	0.10 ^{ab}	0.17 ^a	0.07 ^b	0.07 ^b
Total feed intake (kg)	19.33 ^a	18.72 ^b	18.58	18.58 ^c
Daily feed intake (kg)	0.28 ^a	0.27 ^b	0.27 ^b	0.27 ^b
Feed conversion ratio	2.80	1.59	3.86	3.86

CONCLUSION AND RECOMMENDATION

This research concluded that 5% Guinea Hen Weed leaf meal can be incorporated into growing pig diets for improve weight gain and reduced feed intake thereby lowering the cost per kilogram of pork and it is hereby recommended.

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