

GROWTH PERFORMANCE OF BROILER CHICKENS ON ORAL ADMINISTRATION OF *Parquetina nigrescens* EXTRACT

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ABSTRACT

This study evaluated the growth performance of broiler chickens on oral administration of *Parquetina nigrescens* extract. One hundred and twenty day-old broiler chicks of Arbor Acre strain were procured from a reputable hatchery and brooded for one week. Four different treatments, designated T1, T2, T3, and T4, were allotted and replicated thrice with ten birds per replicate. Birds on Treatment 1 (T1) acted as the control, while birds on Treatments 2, 3, and 4 drank water containing extract of *Parquetina nigrescens* (EPN). The broiler chickens were randomly allotted to four treatments identified as T1, T2, T3 and T4. Each treatment was replicated three times with ten birds per replicate. Birds on treatment one (T1) served as control those on T2 T3 and T4 received extract of *Parquetina nigrescens* (EPN) in their drinking water. (T2) received EPN for two consecutive days. (T3) received EPN for 3 consecutive days while (T4) received EPN for 5 consecutive days. Data on feed intake, water intake, weight gained and feed conversion ratio was collected. Using SPSS (version 26.0.0.0) package, the collected data were analyzed using one-way analysis of variance (ANOVA) procedures. There was no significant difference ($p < 0.05$) between the control group and the treatment groups. Treatment 4 had the highest weight gained value (1431.66 g) and final weight value of (2142.08 g), while treatment 3 had the least feed conversion ratio (FCR) value (1.49). It was concluded that administration of 400g of *Parquetina nigrescens*/4litre of drinking water enhanced the growth rate of broiler chickens.

Keywords: Broiler chicken, Extract, *Parquetina nigrescens*, Water

INTRODUCTION

Domesticated birds raised for their meat or eggs, such as chickens, turkeys, ducks, guinea pigs, peacocks, pigeons, and more lately, ostriches, are referred to as poultry production. (Getu, 2004; Muazu *et al.*, 2008; Ugwu, 2009). One of the most significant sources of protein for humans worldwide is now poultry products. (Ugwu, 2009). Due to the tremendous demand for animal protein, drastic expansion in broiler chicken farming have been experienced and sustained through fortified nutrition (use of synthetic antibiotics) and good management practice (Alkhalif *et al.*, 2010). Long-term use of antibiotics in poultry farming results in drug resistance in birds, and residues may be transmitted to people, posing a risk to the public's health. (Ripon *et al.*, 2019). As antibiotics are frequently used to treat infectious diseases or as growth promoters in chicken production, antibiotic resistance may occur leading to mutation of pathogen thereby compromising public health. Alternative growth boosters like phytobiotics are replacing synthetic antibiotics. (Alimohamadi *et al.*, 2014). In monogastric mammals, phytobiotics compounds derived from plants have antimicrobial, coccidiostat, or anthelmintic effects and can increase appetite and endogenous secretions like enzymes. (Wenk, 2003). Instead of using antibiotics, poultry producers should consider using phytobiotics to guarantee safe and profitable poultry production. *Parquetina nigrescens*, a notable herb in Nigeria has been reported to scavenge free radicals (Padma *et al.*, 2006) because it contains flavonoid which has antioxidant effects. Thus, it is necessary to investigate the performance of broiler chicken when given *Parquetina nigrescens* extract as a growth promoter in broiler chickens.

MATERIALS AND METHODS

Experimental site

The Federal Polytechnic Ilaro, Ogun State, Nigeria, houses the Poultry Unit of the Agricultural Technology Department, where the trial was conducted. It is situated in Yewa South Local Government area of Ogun State. Its locations are 6°37'46"N and 6°55'42"N, and 2°47'24"E and 3°6'48"E, respectively (Weather Spark, 2017).

Sources and preparation of *Parquetina nigrescens* extract.

Parquetina nigrescens whole plant was harvested from the Ilaro forest, Ogun State Nigeria. It was rinsed and reduced into smaller sizes afterwards 400g of the plant soaked in 4 liters of water for 72

hours and stir vigorously at 12 hours intervals. After 72 hours, it was filtered, the filtrate was stored in the refrigerator to avoid fermentation and made in batches when needed.

Experimental birds and management

A few days prior to the chicks' arrival, the brooder house was comprehensively cleaned and disinfected. Wood shaving was spread on the ground and was constantly changed at different interval during brooding to avoid dampness. Feeding troughs and drinkers were provided in the brooder house, the pen was pre heated and the temperature and relative humidity was monitored using a digital hygrometer. A reputable hatchery supplied 120 Arbor Acre strain broiler chicks at day old, they were administered the treatments after a week of their arrival. Commercial feeds, including broiler finisher and starter, were given to the birds. Feed and water/extract was provided *ad libitum*.

Experimental Design and treatments

Four different treatments, designated T1, T2, T3, and T4, were allotted and replicated thrice with ten birds per replicate in a Completely Randomized Design manner. Birds on Treatment 1 (T1) acted as the control, while birds on Treatments 2, 3, and 4 drank water containing extract of *Parquetina nigrescens* (EPN).

Treatment 1 (T1): received water and synthetic antibiotic when necessary (control).

Treatment 2 (T2): received extract of *Parquetina nigrescens* (EPN) for two consecutive days/ week.

Treatment 3 (T3): received EPN for three consecutive days/ week.

Treatment 4 (T4): received EPN for five consecutive days/ week.

Data Collection

Production performance

- Feed intake

In each replicate, the birds received a fixed amount of feed, and the remaining feed was weighed the next day. The feed intake was then calculated by deducting the weight of the leftover feed from the feed provided.

$$\text{Feed intake (g)} = \text{Feed given (g)} - \text{Feed leftover (g)}$$

- Water intake

Water offered and left over was recorded daily in order to calculate water intake.

$$\text{Water intake (l)} = \text{Water given (l)} - \text{Water leftover (l)}$$

- Weight gain

Initial weights of the birds were taken at day old, and the subsequent body weight was taken at the end of every week.

$$\text{Weight gain (g)} = \text{final weight (g)} - \text{initial weight (g)}$$

- Feed conversion ratio

This is the amount of feed consumed to produce 1kg of muscle by the birds.

$$FCR = \frac{\text{Feed intake}}{\text{Weight gain}}$$

Statistical Analysis

Using SPSS (version 26.0.0.0) package, the collected data were analyzed using one-way analysis of variance (ANOVA) procedures, and treatment means were compared using Duncan's Multiple Range Test.

Results and Discussion

Results

Effect of oral administration of *Parquetina nigrescens* on growth performance of broiler chickens

Treatment 4 had the highest weight gained value (1431.66 g), final weight value of (2142.08 g) and feed consumed per bird, while treatment 2 had the least FCR value (1.50) (Table 1).

Table 1. Effect of oral administration of *Parquetina nigrescens* on growth performance of broiler chicken

Treatment	Feed/bird (g)	Water/bird (ml)	Initial weight (g)	Live weight gained/bird (g)	Final Live weight (g)	FCR
1	2008.88	3673.99	713.88	1263.14	1977.03	1.59
2	2069.62	3911.51	686.11	1375.92	2062.03	1.50
3	1985.09	3832.10	712.50	1330.64	2043.14	1.49

4	2200.13	4097.08	710.41	1431.66	2142.08	1.55
SEM	37.90	77.10	7.97	37.83	35.15	0.03
P-Value	0.13	0.25	0.65	0.47	0.43	0.78

Discussion

The growth performance characteristics of broiler chicken fed *Parquetina nigrescens* extract was shown in table 1. Treatment 4 had the highest weight gained value (1431.66 g) and final weight value of (2142.08 g), while treatment 3 had the least FCR value (1.49). This means that, the birds given herbal treatment performed comparably with the control group. This outcome corroborates the findings of Ripon *et al.* (2019) the greatest weight gain and lowest feed conversion ratio could be achieved with a phytobiotic supplement. The stronger impact could be attributed to probiotics' stimulatory effects on feed consumption, digestibility, and gut microflora influence.

Conclusion and Recommendation

Conclusion

From this study, it was revealed that the tested plant materials competed comparably with the control group in growth promoting activity. It was concluded that administration of 400g of *Parquetina nigrescens*/ 4litre of drinking water enhanced the growth of broiler chickens.

Recommendation

The addition of *Parquetina nigrescens* extract at 400g/4litre of drinking water drinking water can be used as growth promoter in broiler chicken.

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