



# Performance and Haematology of Broiler Starter Birds Fed Graded Levels of *Gongronema latifolium* (Utazi) Leaf Extract

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## Introduction

The use of ethno-pharmacological plants as growth promoters in livestock has become necessary as a result of the problems of resistant strains and residue from antibiotic growth promoters. *Gongronema latifolium* has shown both bacteriocidal and bacteriostatic effects on microorganisms and this has necessitated the intention to investigate the effect of *Gongronema latifolium* extract on growth performance and hematology of broiler birds.

The vegetable being considered in the present study is *Gongronema latifolium*. Commonly called 'utazi' and 'arokeke' in the south east and south west geopolitical zone of Nigeria, respectively *Gongronema latifolium* is a perennial edible shrub of the family, Asclepiadaceae widely employed in Nigeria for various medicinal and nutritional purposes (Ugochukwu et al., 2003; Morebise et al., 2002). The crop also has been identified to be nutritionally high in iron, zinc, vitamins, protein and amino acids (Agbo et al., 2009). The high cost of supplementary sources of vitamins in broiler feed, motivated this research. It was against this background that an experiment was designed to study the effect of inclusion of *G. latifolia* leaf extract (GLLE) as a supplementary source of vitamins and minerals on growth performance and the hematology of broiler birds.

## Materials and Methods

Fresh leaves of *G. Latifolia* were procured from Abakpa market Abakaliki. The leaves were washed with clean water to remove dirt and sand. The leaves were dried in a shade (air dried) for 10 days and grounded, and then 100g of the leaf meal was mixed in 1 liter of cold water. The extract is then decanted and diluted in a liter of water according to the level of inclusion in the various treatments. Treatments, 1, 2, 3, 4 have 0, 10, 20 and 30ml inclusion levels respectively, of the leaf extract.

Seventy two (72) day-old chicks (DOC) were used for the study. The experimental animals were obtained from agric-international technology trade (AGRITED). The experiment was conducted using a completely randomized design (CRD). There were four treatments, each replicated three times. Each replicate contained six birds making a total of seventy-two birds in all. Treatment one (T<sub>1</sub>) which was the control had 0ml of *G. latifolium* (utazi) extract, treatment two (T<sub>2</sub>) had 10ml *G. latifolium*, treatment three (T<sub>3</sub>) had 20ml *G. latifolium* and treatment four (T<sub>4</sub>) had 30ml *G. latifolium* extract.

The data collected was subjected to one-way analysis of variance (ANOVA) according to the method of Steel and Torrie (1980). Where significant differences were observed, means were separated using Duncan's New Multiple Range Test as outlined by Obi (2002).

**Table 1: Growth Performance and Hematological Indices of Starter Broiler Fed *G. latifolium* Leaf Extract**

Parameter	T1 (Control) (0ml)	T2 (10ml)	T3 (20ml)	T4 (30ml)	SEM
Initial Body wt(g)	90.67	91.33	90.33	90.33	1.13
Final Body wt (g)	856.60 <sup>b</sup>	923.27 <sup>a</sup>	864.98 <sup>b</sup>	907.92 <sup>a</sup>	14.06
Daily Wt gain (g)	27.35 <sup>b</sup>	29.76 <sup>a</sup>	27.67 <sup>b</sup>	29.2 <sup>a</sup>	0.54
Daily Feed intake (g)	47.66 <sup>c</sup>	50.89 <sup>b</sup>	52.2 <sup>ab</sup>	54.35 <sup>a</sup>	1.20
Daily Water intake (ml)	155.59	155.59	149.33	151.97	5.66
Feed Conversion ratio	1.74	1.71	1.89	1.88	0.07
Packed Cell Volume (%)	24.33	24.0	27.33	27.67	1.98
Hb count (g/dl)	7.87	7.17	8.07	8.97	0.63
Red Blood cell x 10 <sup>12</sup> /l	2.30	2.00	2.57	2.83	0.24
White blood cell x10 <sup>9</sup> /l	19.87	19.03	21.37	24.47	1.51
Mean corpuscular vol (Fl)	107.0	120.67	106.67	96.0	5.89

## Results and Discussion

Table 1 shows the growth performance and hematological indices of broiler starter fed *G. latifolium* leaf extract.

The body weight gain of T<sub>2</sub> (29.76g) is superior (P<0.05) to those of T<sub>3</sub> (27.6g), and T<sub>1</sub> (27.35g), respectively. Birds on T<sub>4</sub> consumed significantly more feed (1521.71g) than those on T<sub>2</sub> (1424.83g) and T<sub>1</sub> (1334.48g), respectively during the experimental period. Daily feed intake of birds on T<sub>4</sub> (54.35g) was superior to those of birds on T<sub>2</sub> (50.89g) and T<sub>1</sub> (47.66g), respectively. The daily water intake on all treatments did not differ statistically. The feed conversion ratio of birds on all treatments were not significantly (P>0.05) different even though there were marginal differences. Birds fed T<sub>2</sub> (GL10ml) gained significantly higher body weight gain than those in other treatments. The positive effect of *G. latifolium* on growth performance of the test groups suggest that the inclusion of *Gongronema latifolium* extracts in the broiler diet was quite beneficial. Okafor (1983), Okafor (2005) and Kubmarawa et al. (2001) had reported that *G. latifolium* is one of the cheapest and most available sources of important proteins, vitamins, mineral and essential amino acids that can boost the physiological status of birds and promote their growth. The hematological parameters showed that the birds on T<sub>4</sub> (27.67%) had a marginal increase in packed cell volume compared to T<sub>3</sub> (27.33%), T<sub>1</sub> (24.33%) and T<sub>2</sub> (24.00%) among treatment means. Hemoglobin count of birds fed T<sub>4</sub>, T<sub>1</sub>, and T<sub>2</sub> are (8.07g/dl), (7.87g/dl) and (7.17g/dl), respectively. The red blood cell (RBC) on T<sub>4</sub> (2.83x10<sup>12</sup>/l) increased numerically compared to T<sub>3</sub> (2.57x10<sup>12</sup>/l), T<sub>1</sub> (2.30x10<sup>12</sup>/l) and T<sub>2</sub> (2.00x10<sup>12</sup>/l) which recorded the lowest. The white blood cell (WBC) of T<sub>4</sub> (24.47x10<sup>9</sup>/l) showed a marginal increase compared to T<sub>3</sub> (21.37x10<sup>9</sup>/l), T<sub>1</sub> and T<sub>2</sub> (19.3x10<sup>9</sup>/l) among treatment groups. The mean corpuscular hemoglobin of T<sub>2</sub> (36.43pg), had the highest numerical value compared to T<sub>1</sub> (35.47pg), T<sub>3</sub> (31.57pg) and T<sub>4</sub> (31.50pg), respectively. There were non-significant differences (P>0.05) in all hematological parameters evaluated. The normal values of the birds among the treatment suggest that, the nutritional status and immune system of the birds were adequate and the non-significant differences observed in this present result, indicated that the presence of *Gongronema latifolium* leaf extracts helped to stabilize the blood component.

## Conclusion

This study has revealed the positive effect of *Gongronema latifolium* leaves extract in poultry production. However, the results presented revealed that up to 10ml of *Gongronema latifolium* leaf extract can be included in broiler starter diet to enhance growth performance and hematological status without adverse effect. It can therefore, be recommended as alternative growth promoter in broiler diet but more research should be carried out to ascertain the appropriate inclusion levels and processing methods needed for better performance.

## References

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