

Performance of Broiler Chicks on Oral Administration of Ethanol Extracts of Scent Leaf and Alligator Pepper Seeds

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Abstract: The study aimed to assess the ability of scent leaf (*Ocimum gratissimum*) and alligator pepper seeds (*Aframomum melegueta*) ethanol extracts to be used as natural additives in broiler production as alternatives to antimicrobials, due to growing concerns about antimicrobial resistance and drug residues in poultry. This experiment involved 240 day-old chicks, arranged in 2 × 4 factorial in a completely randomized design, to measure growth performance, serum biochemistry and haematological indices after being fed 0, 10, 15 or 20 ml of each extract/l of drinking water. Scent leaf extract (SLE) significantly affected final weight (1021.40 g/b), daily gain (42.93 g/b/d), and feed intake (69.59 g/b/d) compared to alligator pepper seed extract (APSE) samples, and a significant interaction between herb type and dosage was found for final weight (1155.30 g/b), daily gain (49.23 g/b/d), and feed conversion ratio (FCR) (1.43). The serum biochemistry was generally not affected except for ALT which was found to be higher at 10ml/L dosage and haematological parameters were also not significantly affected (Haemoglobin was the highest in the control group 11.85g/dl). The overall results show that feeding broilers with scent leaf ethanol extract at 10 ml of water per litre shows superior growth promoting effects and improved feed efficiency, making it a potential phytogetic alternative to synthetic antibiotics in broiler starter phase.

Keywords: Alligator Pepper, Broiler Chickens, Growth Performance, Phytogetic Additives, Scent Leaf, Starter Phase.

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I. INTRODUCTION

The increasing world population has necessitated the production of more animal protein. To achieve this, the use of synthetic growth promoters, especially antibiotics, has been adopted in broiler production for decades. Nte *et al.* (2017) reported that antibiotics are not only used to prevent and treat poultry diseases, but they are also used to enhance feed utilization, improve meat (Ogle, 2013), and egg production

The occurrence of antimicrobial resistance in livestock pathogens and their human consumers is well documented (Afolabi and Eko, 2016). This has necessitated the possible adoption of herbs, spices, plant extracts, and derivatives as

organic feed supplements in livestock nutrition (Hernandez *et al.*, 2004; Bunyaphatsra, 2007; Owen, 2011; Ndelekwute *et al.*, 2015; Afolabi *et al.*, 2016; Wang *et al.*, 2024).

Herbs, spices, extracts and essential oils from plants have been used for centuries to improve food palatability and prolong food shelf life, and their health promoting properties are well known throughout the world (Nte *et al.*, 2017). These additives have been reported to increase the appetite, aid digestion and possess antimicrobial properties (Alcicek *et al.*, 2003). According to Odoemelam *et al.* (2013), today, herb and spice mixtures are added to approximately one-third of all commercial swine and poultry rations produced in Europe to enhance overall growth rate and health.

Afolabi et al. (2016), and Abd El-Hady, El-Ghalid and El Ashry (2020) have reported that phyto-genic supplementations are effective for improving broiler performance and carcass quality without causing any adverse effect on haematological parameters. For example, increased PCV and Hb have been correlated with improved feed conversion ratios (FCR) (Mitruka and Rawnsley, 1997; Afolabi et al., 2016; Abdul et al., 2020), while high levels of white blood cells (WBC), particularly lymphocytes, indicate good stress tolerance and adaptive capacity in chickens (Mitruka and Rawnsley, 1997; Afolabi et al., 2016; Abdul et al., 2020).

Some of the herbs used in Africa have shown promise in this regard such as ginger, garlic, alligator pepper, scent leaf, bitter leaf, and black pepper (*Piper nigrum*) etc. (Muhmmad et al., 2009; Ndelekute et al., 2015; Afolabi et al., 2016; Adebayo et al., 2022; Gutiérrez-Chávez et al., 2025). Alligator pepper has been used in diverse ways in Nigeria and elsewhere, including traditional ceremonies, religious rituals, pest control, and is reported to be effective (Ntonifor et al., 2006; 2010). The crude protein, ether extract, ash and crude fibre contents of the seed meal were found to be 9.70%, 6.50%, 6.80% and 29.60% respectively (Afolabi and Eko, 2016). Scent leaf contains high amounts of alkaloids, tannins, flavonoids, oligosaccharides, terpenoids, thymol, and saponins and has a low level of cyanogenic content (Gill, 1992; Nte et al., 2017). Its proximate composition were reported by Mensah et al. (2008) as 4.70% crude protein, 10.80% crude fibre and 12.24% ash. In addition, its essential oil component, eugenol is highly antimicrobial to pathogenic bacteria (both Gram-positive and Gram-negative) and pathogenic fungi (Matasyoh, 2007; Egbuomwan and Monday, 2020).

This research, therefore focuses on the use of alcoholic solvent like ethanol in extracting components of the herbal plants which can be used as an alternative to synthetic growth enhancers.

II. MATERIALS AND METHODS

➤ Research Location

The study was conducted at the Poultry section of the Federal Polytechnic, Ilaro, Ogun State, which lies approximately between Latitudes 6°37'46"N and 6°55'42"N, and Longitudes 2°47'24"E and 3°6'48"E (Weather Spark, 2017).

➤ Preparation of Experimental Herbs

Alligator pepper was purchased from locals in Ilaro; the seeds were extracted and air-dried for a day. Fresh scent leaves were harvested from the Polytechnic environment and dried at room temperature for 7 days. Both dried alligator pepper seed and dried scent leaves were ground into powder using a blender ("Pyramid® PM-B999") (Afolabi and Eko, 2016).

➤ Preparation of Ethanol Extract

Five hundred grams (500 g) each of Alligator pepper seed powder and Scent leaf powder were soaked in 1000 ml

of ethanol (99.9% purity), respectively for 24 hrs. The mixture was filtered using Whatman's filter paper (Hassan and Jaffer, 2019) after which twenty percent (20%) of the filtrate was prepared by aspirating 20 ml of the filtrate and adding 80 ml of distilled water to it (Enye *et al.*, 2022). The 20% solution was stored in the refrigerator and used for the experiment.

➤ Experimental Design

The experimental layout was a 2 (extracts of scent leaf and alligator pepper seed) by 4 (0, 10, 15 and 20 ml inclusion levels) factorial arrangement. The design of the experiment was a Completely Randomized Design. The treatment groups were as follows:

- Treatment 1: 0 ml Extract of Scent leaf (SLE) per litre of water but synthetic antibiotics (enrofloxacin) and medications was administered to the birds.
- Treatment 2: 10 ml SLE per litre of water,
- Treatment 3: 15 ml SLE per liter of drinking water,
- Treatment 4: 20 ml SLE per litre of SLE water
- Treatment 5: 0 ml Extract of Alligator Pepper seed (APSE) per litre of water but synthetic antibiotics (enrofloxacin) and medications was administered to the birds.
- Treatment 6: 10 ml APSE per litre of water.
- Treatment 7: 15 ml APSE per litre of water.
- Treatment 8: 20 ml APSE per litre of water.

➤ Data Collection

Records of feed intake and water intake was taken daily by subtracting the amount of leftovers from the amount offered Body weight gain was evaluated weekly while feed conversion was calculated by dividing the total feed consumed by total weight gained.

➤ Blood Collection

On the 21th day, two birds from each replicate was randomly selected, after 12 hours fasting period. 4ml of blood was collected from each chick with a sterile syringe via the brachial vein and kept into well labeled two (2 ml) samples bottles.

➤ Statistical Analysis.

The data collected were subjected to two-way analysis of variance (ANOVA) and the treatment means were separated using Turkey test as contained in Minitab version 17.1.0.

III. RESULTS

➤ Effect of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Growth Performance of Broiler Chicken at Starter Phase

The results of the growth performance of the starter broilers fed the scent leaf extract (SLE) and alligator pepper seed extract (APSE) under different dosages are summarized in Tables 1 and 2, respectively. The growth performance responses of the starter broilers fed oral doses of scent leaf extract (SLE) and alligator pepper seed extract (APSE) are

summarized in the Tables 1 and 2 respectively. The final body weight, average daily gain and daily feed consumption were significantly affected by herb type ($p < 0.05$). It is noteworthy that birds fed with SLE had superior values for final weight (1021.40 g) and for daily weight gain (42.93 g/b/d) than those fed with APSE. Feed intake (69.59 g/b/d) was superior for birds fed with SLE than with APSE. In contrast, dosage level alone did not result in any significant effect on any of the

measured parameters ($p > 0.05$). The final weight, daily weight gain and feed conversion ratio (FCR) showed significant interactive effects between herb type and dosage, however ($p < 0.05$). The group receiving drinking water of 10 ml/l with SLE gave the highest final weight (1155.30 g/b) and daily gain (49.23 g/b/d) as well as the best FCR (1.43), which showed better feed efficiency.

Table 1 Main Effects of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Growth Performance of Broiler Chicks

Factors		Initial weight (g/b)	Final weight (g/b)	Daily weight gain (g/b/d)	Feed intake (g/b/d)	Water intake (g/b/d)	Feed: Water	Feed Conversion Ratio
Herb type	SLE	119.76	1021.40 ^a	42.935 ^a	69.593 ^a	194.40	0.35	1.63
	APSE	119.32	950.60 ^b	39.583 ^b	67.577 ^b	189.35	0.35	1.71
	P-Value	0.838	0.013	0.016	0.041	0.281	0.964	0.116
	SEM	1.50	17.9	0.879	0.643	3.20	0.006	0.03
Dosage	0 ml/L	118.76	962.10	40.16	70.242	196.34	0.35	1.76
	10 ml/L	120.08	1037.90	43.70	68.729	189.24	0.36	1.59
	15 ml/L	119.44	970.50	40.52	68.261	190.83	0.35	1.68
	20 ml/L	119.95	973.50	40.64	67.107	191.09	0.35	1.65
	P-Value	0.966	0.171	0.198	0.149	0.711	0.823	0.101
	SEM	2.12	25.4	1.24	0.909	4.53	0.009	0.04

^{a,b,c}Means in the Same Column by Factor with Different Superscripts are Significantly ($P < 0.05$) Different.

Table 2 Interactive Effects of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Growth Performance of Broiler Chicks

Factors		Initial weight (g/b)	Final weight (g/b)	Daily weight gain (g/b/d)	Feed intake (g/b/d)	Water intake (g/b/d)	Feed: Water	Feed Conversion Ratio
Herb type * Dosage	SLE*0 ml/L	118.69	962.10 ^b	40.16 ^b	70.24	196.34	0.35	1.76 ^a
	SLE *10 ml/L	121.46	1155.30 ^a	49.23 ^a	70.80	196.01	0.36	1.43 ^b
	SLE *15 ml/L	118.94	998.50 ^{ab}	41.88 ^{ab}	69.50	196.34	0.35	1.66 ^{ab}
	SLE *20 ml/L	119.95	969.70 ^b	40.46 ^b	67.83	188.90	0.36	1.68 ^{ab}
	APSE* 0 ml/L	118.69	962.10 ^b	40.16 ^b	70.24	196.34	0.35	1.76 ^a
	APSE *10 ml/L	118.69	920.50 ^b	38.18 ^b	66.66	182.46	0.36	1.74 ^{ab}
	APSE *15 ml/L	119.95	942.40 ^b	39.17 ^b	67.02	185.31	0.36	1.71 ^{ab}
	APSE *20 ml/L	119.95	977.30 ^b	40.82 ^{ab}	66.39	193.28	0.34	1.62 ^{ab}
	P-Value	0.930	0.013	0.017	0.454	0.461	0.790	0.050
	SEM	3.0	35.9	1.76	1.29	6.40	0.01	0.06

➤ *Effects of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Serum Biochemistry of Broiler Chickens at Starter Phase*

Table 3 and 4 showed the effects of herb types, dosages and interaction between herb types and dosages of oral administration of Scent Leaf and Alligator Pepper seed

extracts on serum biochemistry of broiler chickens at starter phase. There were no significant ($p < 0.05$) differences in the parameters measured except the ALT. The dosage effect and the interaction effect show that birds on dosage 10 ml/L and those administered SLE 10ml/L had a higher value (46.0 and 47.5 U/L) of ALT, respectively.

Table 3 Main Effects of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Serum Biochemistry of Broiler Chicken at Starter Phase

Factors		T.PROT (g/dl)	ALB (g/dl)	GLOB (g/dl)	CREAT (mg/dl)	CHOL (mg/dl)	AST (U/L)	ALT (U/L)	ALP (U/L)
Herb type	SLE	6.7	4.0	2.66	0.591	141.92	139.0	38.00	29.0
	APSE	6.5	3.85	2.72	0.311	139.7	136.0	37.75	27.63
	P-Value	0.800	0.210	0.894	0.345	0.896	0.843	0.902	0.469
	SEM	0.338	0.097	0.322	0.197	11.9	9.52	1.39	1.28
Dosage	0 ml/L	7.8	3.95	3.85	0.370	145.6	155.5	35.0 ^b	27.5
	10 ml/L	6.2	3.87	2.35	0.830	134.4	143.3	46.0 ^a	29.0

	15 ml/L	5.9	4.02	1.87	0.180	142.4	123.3	33.75 ^b	29.50
	20 ml/L	6.6	3.92	2.70	0.425	140.8	128.5	36.75 ^b	27.25
	P-Value	0.094	0.889	0.073	0.457	0.970	0.377	0.009	0.774
	SEM	0.676	0.137	0.455	0.279	16.9	13.5	1.97	1.81

^{a,b,c} Means in the Same Column by Factor with Different Superscripts are Significantly (P<0.05) Different.

Table 4 Interactive Effects of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Serum Biochemistry of Broiler Chicken at Starter Phase

Factors		T.PROT (g/dl)	ALB (g/dl)	GLOB (g/dl)	CREAT (mg/dl)	CHOL (mg/dl)	AST (U/L)	ALT (U/L)	ALP (U/L)
Herb type * Dosage	SLE*0 ml/L	7.8	3.95	3.85	0.37	143.4	155.5	35.0 ^{ab}	27.5
	SLE *10 ml/L	6.3	3.90	2.45	1.26	148.2	145.0	47.5 ^a	30.0
	SLE *15 ml/L	6.1	4.30	1.80	0.15	122.6	124.0	31.5 ^b	30.5
	SLE *20 ml/L	6.5	4.00	2.55	0.585	153.5	131.5	38.0 ^{ab}	28.0
	APSE* 0 ml/L	7.8	3.95	3.85	0.37	147.8	155.5	35.0 ^{ab}	27.5
	APSE *10 ml/L	6.1	3.85	2.25	0.40	120.6	141.5	44.5 ^{ab}	28.0
	APSE *15 ml/L	5.7	3.75	1.95	0.21	162.3	122.5	36.0 ^{ab}	28.5
	APSE *20 ml/L	6.7	3.85	2.85	0.265	128.0	125.5	35.5 ^{ab}	26.5
	P-Value	0.976	0.517	0.982	0.651	0.492	0.999	0.548	0.975
	SEM	0.676	0.194	0.644	0.395	23.9	19.0	2.78	2.56

➤ *Effects of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Haematological Parameters of Broiler Chicken at Starter Phase*

The effects of herb types, dosages and interaction between herb types and dosages of oral administration of Scent Leaf and Alligator Pepper seed extracts on blood parameters of broiler chicken at starter phase are shown in Table 5 and 6. All parameters measured except the

haemoglobin concentration and monocytes were significantly influenced by the effect of herb types and dosages, respectively. Birds on received APSE had higher value (0.91 %) of monocytes while the control group had higher value (11.85 g/dl) of haemoglobin concentration. Interaction between herb types and dosages had no significant effect on the haematological parameters measured at the starter phase.

Table 5 Main Effects of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Haematological Parameters of Broiler Chickens at Starter Phase

Factors		PCV (%)	Hb (g/dl)	RBC×10 ¹² /L	WBC×10 ⁹ /L	NEUT (%)	LYM (%)
Herb type	SLE	32.00	10.73	2.81	13.18	29.29	69.00
	APSE	30.17	10.46	2.70	12.49	29.00	68.70
	P-Value	0.365	0.496	0.481	0.335	0.497	0.613
	SEM	1.35	0.269	0.108	0.477	0.290	0.392
Dosage	0 ml/L	35.50	11.85 ^a	2.95	13.90	29.83	68.50
	10 ml/L	27.25	9.467 ^b	2.57	11.47	28.75	69.58
	15 ml/L	31.83	11.00 ^{ab}	2.81	13.47	29.00	68.58
	20 ml/L	29.75	10.07 ^b	2.68	12.51	29.00	68.75
	P-Value	0.077	0.010	0.389	0.128	0.331	0.526
	SEM	1.91	0.380	0.152	0.675	0.410	0.554

^{a,b,c} Means in the Same Column by Factor with Different Superscripts are Significantly (P<0.05) Different

Table 6 Main Effects of Oral Administration of Scent Leaf and Alligator Pepper Seed Extracts on Haematological Parameters of Broiler Chickens at Starter Phase

Factors		PCV (%)	Hb (g/dl)	RBC×10 ¹² /L	WBC×10 ⁹ /L	NEUT (%)	LYM (%)
Herb type * Dosage	SLE*0 ml/L	35.50	11.85	2.95	13.90	29.83	68.50
	SLE *10 ml/L	26.17	9.08	2.53	10.96	29.50	69.16
	SLE *15 ml/L	34.00	11.26	2.90	14.10	28.66	69.83
	SLE *20 ml/L	32.33	10.73	2.86	13.78	29.16	68.50
	APSE* 0 ml/L	35.50	11.85	2.95	13.90	29.83	68.50
	APSE *10 ml/L	28.33	9.85	2.61	11.98	28.00	70.00
	APSE *15 ml/L	29.67	10.73	2.73	12.85	29.33	67.33
	APSE *20 ml/L	27.17	9.41	2.50	11.25	28.83	69.00
	P-Value	0.509	0.330	0.740	0.340	0.364	0.215
	SEM	2.70	0.538	0.215	0.954	0.580	0.784

IV. DISCUSSION

The findings of this study provide valuable insights into the potential of ethanol extracts of scent leaf (*Ocimum gratissimum*) and alligator pepper (*Aframomum melegueta*) as phytogetic feed additives in broiler production during the starter phase. The significant improvements in growth performance parameters observed in birds administered scent leaf extract, particularly at 10 ml/L inclusion level, align with previous research demonstrating the growth-enhancing properties of phytobiotics in poultry nutrition.

The higher final weight (1021.40 g/b), daily weight gain (42.93 g/b/d), and feed intake (69.59 g/b/d) recorded in birds administered SLE compared to those on APSE indicate that scent leaf extract possesses superior growth-promoting properties. This finding corroborates the reports of Nte *et al.* (2017), who documented that herbs and spices possess appetizing and digestion-stimulating properties. The presence of bioactive compounds such as alkaloids, tannins, flavonoids, terpenoids, thymol, and saponin in scent leaf, as reported by Gill (1992), Ijeh *et al.* (2004), and Nte *et al.* (2017), likely contributes to enhanced feed palatability and nutrient utilization.

The observation that birds on 10 ml SLE/L achieved the highest final weight (1155.30 g/b) and best FCR (1.43) suggests an optimal dosage threshold for growth promotion. This finding is consistent with the reports of Afolabi *et al.* (2016) and Afolabi and Eko (2016; Ravi *et al.*, 2025), who demonstrated that herbal supplements can improve broiler performance without adverse effects. The improved FCR at this dosage indicates better feed efficiency, which is economically advantageous for commercial broiler production. The lack of significant dosage effect on most parameters when considered independently suggests that the interaction between herb type and dosage is critical for achieving optimal results.

The lower growth performance observed in birds receiving APSE compared to SLE may be attributed to the higher crude fibre content (29.60%) of alligator pepper seeds as reported by Afolabi and Eko (2016). High fibre content can interfere with nutrient digestibility and absorption, particularly in young broiler chicks whose digestive systems are still developing. Additionally, the specific phytochemical profile of alligator pepper, while possessing antimicrobial properties as documented by Edeoga *et al.* (2005) and Doherty *et al.* (2010), may not be as effective in promoting growth during the starter phase.

The absence of significant differences ($p > 0.05$) in most serum biochemical parameters (total protein, albumin, globulin, creatinine, cholesterol, AST, and ALP) between treatment groups indicates that both herbal extracts at the tested dosages did not adversely affect liver and kidney functions. This finding supports the assertions of Afolabi *et al.* (2016) and Azodo *et al.*, (2021) that herbs can improve broiler performance without side effects. The normal range of these parameters suggests that the ethanol extracts were well-

tolerated by the birds and did not induce hepatotoxicity or nephrotoxicity.

However, the significantly higher ALT values observed at 10 ml/L dosage (46.0 U/L) and specifically in birds administered SLE 10 ml/L (47.5 U/L) warrants attention. Alanine aminotransferase is an enzyme predominantly found in the liver, and elevated levels may indicate hepatocellular damage or increased metabolic activity. While these values were elevated compared to other treatment groups, they remained within ranges that may not indicate pathological damage, especially given that other liver enzymes (AST and ALP) were not significantly different. This elevation might reflect increased amino acid metabolism associated with enhanced growth performance, as birds in these groups exhibited superior weight gain and feed conversion. Similar observations have been reported in studies where improved growth performance was accompanied by modest elevations in liver enzymes due to increased metabolic demands (Windisch *et al.*, 2007).

The lack of significant effects on cholesterol levels across treatments suggests that the herbal extracts did not interfere with lipid metabolism. This is noteworthy, as some phytogetic compounds have been reported to possess hypocholesterolemic properties (Sofowora, 1993). The creatinine levels, which remained within normal ranges, indicate normal kidney function and suggest that the ethanol extracts did not induce renal stress.

The haematological parameters measured in this study provide important information about the health and nutritional status of the experimental birds. The significant influence of herb types and dosages on haemoglobin concentration and monocytes, respectively, while other parameters (PCV, RBC, WBC, neutrophils, lymphocytes) remained largely unaffected, indicates that the herbal extracts had minimal adverse effects on the haematopoietic system.

The higher haemoglobin concentration (11.85 g/dl) observed in the control group compared to treatment groups may reflect the absence of any potential interfering effects of phytochemicals on erythrocyte production or function. However, all haemoglobin values recorded in this study fell within the normal range reported for healthy broiler chickens by Mitruka and Rawnsley (1997). The PCV values, which ranged from 27.25% to 35.50%, also remained within acceptable limits, indicating no anaemia or haemoconcentration.

The higher monocyte value (0.91%) recorded in birds receiving APSE suggests a potential immunomodulatory effect of alligator pepper extract. Monocytes are important components of the innate immune system, and their elevation may indicate enhanced immune surveillance. This finding aligns with the reports of Ntonifor *et al.* (2010) and Azeez *et al.*, 2022, who documented that alligator pepper seed extract invigorates the immune system against diseases. The presence of alkaloids, glycosides, tannins, flavonoids, and other phytochemicals in alligator pepper (Edeoga *et al.*, 2005;

Doherty *et al.*, 2010) may be responsible for this immunostimulatory effect.

The lack of significant effects on white blood cell counts and differentials in most treatment groups suggests that the herbal extracts did not induce inflammatory responses or immunosuppression. This is consistent with the findings of Hashemi *et al.* (2008) and Windisch *et al.* (2007), who reported that phyto-genic additives are safe and well-tolerated in livestock production. The lymphocyte values, which remained high across all treatments (68.50-70.00%), are indicative of the birds' ability to perform well under stressful conditions, as lymphocytes are associated with stress adaptation in chickens (Mitruka and Rawnsley, 1997).

The use of ethanol as an extraction solvent in this study represents an important methodological consideration. Research has shown that water-based extraction may not effectively extract non-polar phyto-genic compounds (Hassan and Jaffer, 2019; Enye *et al.*, 2022). The significant growth-promoting effects observed in this study, particularly with SLE at 10 ml/L, suggest that ethanol extraction successfully liberated bioactive compounds such as essential oils (eugenol), flavonoids, and terpenoids that contribute to the observed performance improvements. This finding underscores the importance of appropriate solvent selection in maximizing the efficacy of phyto-genic additives.

The results of this study contribute to the growing body of evidence supporting the use of phyto-genic additives as alternatives to synthetic antibiotics in poultry production. The improved growth performance and feed efficiency observed with SLE at 10 ml/L, coupled with the absence of significant adverse effects on serum biochemistry and haematological parameters, suggest that this treatment could serve as an effective natural growth promoter. This is particularly relevant given the global concerns about antibiotic resistance and drug residues in animal products, as highlighted by Afolabi and Eko (2016) and numerous other researchers (Hernandez *et al.*, 2004; Bunyapraphatsra, 2007; Owen, 2011; Ndelekwute *et al.*, 2015; Park *et al.*, 2025).

V. CONCLUSION

Overall, it could be concluded that the final body weight, average daily gain and feed conversion efficiency were significantly improved in the broiler starter phase with the use of scent leaf (*Ocimum gratissimum*) extract at 10 mL per litre of drinking water. The results indicate that the extract is a better phyto-genic supplement for broilers than the extract of alligator pepper, making it a good option in broiler nutrition for overcoming the necessity of using antibiotics as growth promoters.

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