

**CARCASS AND HAEMATOLOGY PARAMETERS
OF BROILER CHICKEN REARED ON SUN CURED
SESAME SUPPLEMENTED SESAME DIET.**

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INTRODUCTION

- Nigeria is known to be developed in poultry industry with about estimated 140million birds. Serving as one of the most significant sources of dietary quality protein and income to farmers. (Damoder *et al* 2008).
- Consumption of poultry meat is also increasing faster than that of other livestock with feed constituting about 70- 80% of the entire expenses in poultry production. (Adegbola, 1998).
- Most Nigeria manufacturer and farmers use soymeal or groundnut cake as part of dietary protein in animal diets which make the future of poultry production insecure as availability could not meet demand.
- The survival of poultry industry depends on finding a comprehensive solution to substitute protein in feedstuff of livestock.

MATERIALS AND METHOD

- **Study site:** This experiment was carried out at the poultry unit of Babcock University farm, Ilishan-Remo, Ogun State. Ilishan-Remo ogun state.
- **Collection of Raw Materials:** Sesame seed (*Sesamum indicum L.*) was purchased from Bodija Market in Ibadan Oyo state Nigeria. It was winnowed grounded and sun-cured .
- **Experimental Animal and Management:** One hundred and fifty day old broiler chicks were obtained from a commercial hatchery at Ibadan Oyo state. Initial body weight of each chick was taken. The study lasted for 8 weeks. The birds were randomly allotted to five treatments in groups of thirty chicks with three replicates of ten chicks. Each group received fresh clean drinking water ad-libitum daily for a period of 8weeks.
- **Experimental Diet:** Five diets were formulated such that protein and energy conformed to NRC (1994) recommendation as 0%, 10%, 20%, 30% and 40% of soyabean meal replaced with sesame meal weight/weight

Table 1: Composition of Broiler Starter Diet Containing Varying Level of Sun-Cured Sesame Meal

Ingredient	Diet 1 (0%)	Diet 2 (10%)	Diet 3 (20%)	Diet 4(30%)	Diet 5(40%)
Maize	54.00	54.00	54.00	54.00	54.00
Soyameal	37.00	33.30	29.60	25.90	22.20
Sesame meal	-	3.70	7.40	11.10	14.80
Limestone	0.50	0.50	0.50	0.50	0.50
Bone meal	3.30	3.30	3.30	3.30	3.30
Fish meal	2.00	2.00	2.00	2.00	2.00
Wheat offal	2.60	2.60	2.60	2.60	2.60
Methionine	0.05	0.05	0.05	0.05	0.05
Common Salt	0.30	0.30	0.30	0.30	0.30
Premix	0.25	0.25	0.25	0.25	0.25
Total	100.00	100.00	100.00	100.00	100.00
Calculated analysis					
Crude protein (%)	23.02	22.40	21.65	21.00	20.30
ME(kcal/kg)	2959	2944	2930	2915	2891
Crude fibre (%)	3.72	3.86	3.94	4.06	4.16
Ether extract (%)	3.76	5.33	6.90	8.47	10.03

Table 2 Composition of Finisher Diet Containing Varying Level of Sun- cure Sesame Meal

Ingredient	Diet 1(0%)	Diet2 (10%)	Diet 3(20%)	Diet 4(30%)	Diet 5 (40%)
Maize	57.50	57.50	57.50	57.50	57.50
Soyameal	35.00	31.50	28.00	24.50	21.00
Sesame	-	3.50	7.00	10.50	14.00
Limestone	0.50	0.50	0.50	0.50	0.50
Bone meal	3.40	3.40	3.40	3.40	3.40
Methionine	0.05	0.05	0.05	0.05	0.05
Common Salt	0.30	0.30	0.30	0.30	0.30
Premix	0.25	0.25	0.25	0.25	0.25
Wheat offal	3.00	3.00	3.00	3.00	3.00
Total	100.00	100.00	100.00	100.00	100.00
Calculated analysis					
Crude protein (%)	21.11	20.61	19.81	19.16	18.52
Crude fibre (%)	3.71	3.74	3.89	3.99	4.11
Ether extract (%)	4.70	6.30	7.59	8.97	10.39
Metabolisable energy (kcal/kg)	2976	2962	2948	2934	2920

• Carcass Characteristics of Broiler chickens

- Birds reared on 10% sesame supplemented diet had the highest mean final live weight (2100) followed by those on the control diet (2000).
- Variations in live weight, bled weight, eviscerated weight and dressed weight were not significant ($P > 0.05$).
- This suggested that the birds on the sesame performed similarly well with those of soya bean. In a similar trend treatment effect on the breast, thigh and drumstick were not significant ($P > 0.05$).

Carcass Characteristics of Broiler Chicken Fed Supplemented Sun-cured Sesame meal Diets

Parameter	T ₁ (0%)	T ₂ (10%)	T ₃ (20%)	T ₄ (30%)	T ₅ (40%)	SEM
Live weight (g)	2000.00	2100.00	1900.00	2000.00	1900.00	0.22
Bled weight(g)	1900.00	2000.00	1800.00	1900.00	1800.00	0.21
Defeathered weight (g)	1800.00	1900.00	1700.00	1800.00	1700.00	0.23
Eviscerated Weight (g)	1600.00	1700.00	1400.00	1600.00	1500.00	0.23
Dressed weight %	88.75	88.20	87.90	87.50	86.70	0.21
Drumstick %	16.00	16.00	17.90	17.90	17.50	2.4
Breast %	32.30	30.00	30.00	29.00	29.00	3.90
Thigh %	30.00	27.00	30.00	29.00	28.00	3.41
Back %	18.60 ^b	15.18 ^d	16.07 ^c	21.46 ^a	20.67 ^{ba}	3.03
Liver %	2.63 ^c	3.12 ^b	4.50 ^a	3.75 ^b	4.00 ^a	1.30
Gizzard %	3.13 ^c	3.53 ^b	4.88 ^{ba}	5.00 ^a	4.67 ^{ba}	0.75
Dressing (%)	81.00	79.40	75.00	74.20	78.00	1.80

a, b, c: means along the same row with any identical superscript are not significant (p>0.05). SEM = standard error of mean.

Table 5 Haematological Characteristics.

- White blood cell count in this study ranged from 15.66-17.50mm³ x 10³ and haemoglobin 6.02-7.68g/dl. Apparent variations were not significant. The values however fell within the ranged for healthy birds. Afolabi *et al* (2011).
- Treatment effects on PCV value were significant (p<0.05). Values ranged from 19.00-32.00. Lower value was recorded for diet T5 (40%). This might be as a result of lower protein in the feed.

- Red blood cell (RBC) differs significantly in this study ($p < 0.05$) with birds on T4 (30%) having the highest value. The value obtained in this study ranged from $(3.36-4.57 \text{mm}^3 \times 10^6)$. Kuka and kannkuka (2012). The higher value which was observed in this study showed that the birds are not anaemic.
- It can be concluded that birds could accept sun-cured sesame meal supplemented with soyabean meal up to 40% of replacement without any detrimental effect on the health of the animals.

Table 4: Haematological Characteristics of Broiler Chicken Fed Supplement

Parameters	T ₁ (0%)	T ₂ (10%)	T ₃ (20%)	T ₄ (30%)	T ₅ (40%)	SEM	STD
PCV (%)	21.50 ^{cb}	32.00 ^a	24.83 ^b	30.33 ^a	19.00 ^c	0.86	22-35
RBC(mm ³ x10 ⁶)	3.67 ^b	4.04 ^{ab}	4.16 ^{ab}	4.57 ^a	3.36 ^b	0.59	2-4.0
WBC(mm ³ x10 ³)	16.83	17.35	15.80	17.50	15.66	0.62	9.2-31
Lymphocytes (%)	61.67 ^b	69.67 ^a	68.33 ^a	67.17 ^a	59.33 ^b	0.43	47-81
Monocytes (%)	4.33 ^a	2.50 ^b	2.33 ^b	4.00 ^{ab}	5.33 ^a	2.45	3.3-9
Eosinophil's (%)	3.00	2.17	3.17	3.17	3.00	0.47	2.2-6
Basophils (%)	0.83	0.67	0.53	0.50	0.83	0.36	0.5-1
Heterocytes (%)	30.17 ^a	25.00 ^b	26.17 ^b	25.17 ^b	31.33 ^a	0.55	16-33
Haemoglobin (g/dl)	6.02	7.40	7.68	7.30	6.37	2.25	7-13

a, b, c: Means along the same row having any identical superscript are not significant (p>0.05) SEM =standard error of mean

Conclusion and Recommendation

- Composition of sun- cured sesame meal revealed its potential as an alternative protein source for soybean meal in poultry diet. It can be concluded that Sun- cured sesame seed can be included in broiler chicken ration up to 40% inclusion without any adverse effect on performance, carcass, haematology and meat quality of birds.
- More research should also be done on various alternatives that could help farmers to increase their production.

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