

GROWTH PERFORMANCE OF BROILER CHICKENS FED DIETARY SESAME SEED (*Sesamum indicum*) MEAL BASED DIETS SUPPLEMENTED WITH YIDUOZYME®

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ABSTRACT

A study was conducted to determine the growth performance of broiler chicken fed dietary Sesame (*Sesamum indicum*) seed meal diets supplemented with Yiduozyme®. Ninety-six-day-old broiler chickens were distributed into four treatments (24 birds per treatment), each treatment was replicated three times with eight birds per replicate, in a completely randomized design. The birds were randomly assigned to four dietary treatments consisting of 0, 5, 10 and 15% of sesame seed meal for T₁, T₂, T₃ and T₄ respectively. T₂, T₃ and T₄ were supplemented with Yiduozyme at 0.5g/100kg per treatment. The chickens were raised on a deep liter floor and all necessary management practices were adhered to strictly throughout the trial. The study lasted for 28 days and all the data collected were subjected to analysis of variance (ANOVA) and the significant means were separated using the Duncan's Multiple Range test. Parameters recorded were initial weight, final weight, daily weight gain, daily feed intake feed conversion ratio and mortality. Results showed that T₁ and T₂ were significantly higher ($p < 0.05$) than T₃ and T₄ in average final live weight, and daily weight gain. The outstanding performance of the broiler chicken in this study can be attributed to the contribution of Yiduozyme which promoted nutrient utilization and subsequent improvement of body weight gain. The supplementation of Yiduozyme enhanced better nutrient utilization in broiler finisher chickens, inclusion is therefore recommended at 0.50g per 100kg diet.

Keywords: Broiler Chickens, Growth Performance, Sesame Seed Meal, Yiduozyme®

Description of Problem

Sesame seeds are highly valued for their high content of sesame oil which is very resistant to rancidity. The protein of sesame seed, though deficient in lysine, is rich in sulphur amino acids such as methionine and cystine which make it an appropriate supplement in diets with ingredients like groundnut, soyabean and certain some cereals, all of which tend to be deficient in the sulphur amino acids [6]. Sesame seed meal being a protein source has higher content of methionine than most protein supplements. When used in the right proportions with

soyabean meal, which has a higher content of lysine; a balanced diet with respect to lysine and methionine is achieved [5]. The protein is rich in essential amino acids, which include leucine, arginine and methionine but is low in lysine when compared with soybean. Sesame seeds are also good sources of minerals and vitamins such as manganese, copper, calcium, vitamin B1 and vitamin E [3]. In poultry nutrition, sesame seed has been used to supplement synthetic methionine in laying hens and broilers [1]. It has been reported to partially replace soybean meal in the diet as a source

of plant protein for chicks, broiler and laying hen [4]. Sesame seed meal has also been used to substitute soybean meal at 25% in broiler diet [4].

Enzymes are introduced in poultry diets to improve digestibility of feed ingredients thereby improving the growth performance. The addition of multi-enzymes into broiler diets improves the bioavailability and digestibility of the diet, which can increase carcass weight due to improved nutrient utilization [8]. Yiduozyme® is a multi-enzyme developed by Guangdong VTR Biotechnology, it was designed for animal nutrition, especially poultry and swine. It is a concentrated acid protease that breaks down proteins into peptides and amino acids to enhance digestion and absorption of proteins. They allow broader use of protein sources while reducing overall protein levels and feed cost. Reduces hindgut fermentation and lowers nitrogen excretion into the environment.

There are many studies on the value of sesame seed meal in the diet of broiler chicken and its effect on broiler growth performance [2]; [9]. In a study to determine the growth performance and apparent nutrient digestibility of broiler chicken fed sesame (*sesamum indicum*) seed meal diets it was discovered that higher inclusion of sesame seed meal beyond 5% could depress growth performance of broiler chicken. It therefore became necessary to investigate the growth performance of broiler chicken fed with same inclusion levels of sesame seed meal and supplemented with Yiduozyme® in order to maximize its potential

Materials and Methods

Experimental Site

The experiment was conducted at the Poultry and Research unit of the Department of Animal Science, Akwa Ibom State

University, Obio Akpa Campus, Akwa Ibom State. The area lies between latitude 4°30'N and 50.00 and longitudes 70°30'E [7].

Experiment Bird and Management

Ninety-six day-old broiler chickens (ROSS 308) were purchased from a reputable local vendor for the experiment, within Akwa Ibom State. The birds were distributed into four treatment groups of 24 birds per treatment. Each treatment was replicated 3 times with 8 birds per replicate. Each group was randomly allotted to T₁ T₂ T₃ and T₄ respectively in a completely randomized design. Feed and water were provided *ad libitum*, routine vaccination was given as at when due. Good sanitation and other management practices for broiler birds in deep litter management system were adhered to strictly. Wood shaving was used as litter materials, the experiment lasted 56 days.

Experimental Diets

The sesame seed meal and (Yiduozyme)® were purchased from a local dealer at, Agro Services, Owerri, Imo State for the experiment. Four experimental broiler diets were formulated as presented in Table 1.

RESULTS AND DISCUSSION

Growth Performance of Broiler Finisher Chicken Fed Dietary Sesame Seed Meal Supplemented with Yiduozyme®

The effect of dietary sesame seed meal supplemented with Yiduozyme on the performance of broiler finisher chicken is presented in Table 2. Results showed that there were significant ($p < 0.05$) differences in the final weight gain among the treatment groups. T₁ and T₂ were significantly ($p < 0.05$) higher in final body weight than T₃ and T₄. The non significantly higher growth performance (weight gain) by chickens in T₂ compared to T₁ and T₃ indicate that the multi enzyme supplementation enhanced better nutrient utilization [9] in their study on growth performance of broiler chickens fed

diets containing sesame seed meal had the final weight ranged between 2108.33g (15%) inclusion and 2591.67g at 5% level of inclusion. The performance of the chickens in this experiment shows that the multi

enzyme promoted nutrient utilization and subsequent improvement of body weight gain. This is also seen by the values of the feed conversion ratio indicating that the diets were maximally utilized.

Table 1: Composition of broiler finisher diet

Ingredients	T ₁ (0%)	T ₂ (5%)	T ₃ (10%)	T ₄ (15%)
Maize	52.00	52.00	52.00	52.00
Soyabean meal	20.00	15.00	10.00	5.00
Groundnut cake	10.00	10.00	10.00	10.00
Sesame seed meal	-	5.00	10.00	15.00
Fish meal	3.00	3.00	3.00	3.00
Wheat offal	11.20	11.20	11.20	11.20
Bone meal	3.00	3.00	3.00	3.00
Common salt	0.25	0.25	0.25	0.25
Lysine	0.20	0.20	0.20	0.20
L-methionine	0.10	0.10	0.10	0.10
Vitamin premix	0.25	0.25	0.25	0.25
Total	100.00	100.00	100.00	100.00
Calculated Composition				
Crude protein	22.05	21.90	21.75	21.60
Crude fibre	3.80	3.73	3.65	3.58
Calcium.	1.13	1.13	1.13	1.13
Phosphorus	0.76	0.75	0.74	0.74
Metabolized energy (Kcal/kg)	2866.88	2884.34	2901.88	2919.38

Table 2: Growth Performance of Broiler Finisher Chicken Fed Dietary Sesame Seed Meal Supplemented with (Yiduozyne)

Parameters	T ₁ (control	T ₂ (5%)	T ₃ (10%)	T ₄ (15%)	SEM
Initial weight(g)	600.00	610.00	600.00	610.00	4.52
Final weight. (g)	2866.67 ^a	2900.00 ^a	2400.00 ^{ab}	2233.33 ^b	110.78
Daily weight gain(g)	51.19 ^a	51.78 ^a	42.86 ^{ab}	39.88 ^b	1.98
Daily feed intake (g)	63.83 ^a	57.23 ^{ab}	60.85 ^{ab}	52.13 ^b	2.15
Feed conversion ratio	1.25 ^{ab}	1.11 ^b	1.42 ^{ab}	1.31 ^a	0.09
Mortality	0	0	0	0	0

abc: means on the same row with different superscript are significantly ($p < 0.05$) different.

Conclusion and Application

The study showed that the inclusion of the multi enzyme to the diets numerically improved the growth performance of the birds in T₂ compared to the control group. Yiduozyne is therefore recommended for inclusion at 0.50g per 100kg diet.

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