

Sudan University of Science and Technology

College of Animal Production Science and Technology

Title

Effect of Feeding Graded Levels of BaobabSeed (ADANSONIA DIGITATA) On the productiveBroiler Finisher Performance

أثراضافةمستوياتمتدرجةمنبذورالقنقليزعليالاداء الانتاجي للدجاج للاحم(الناهي)

A desertion Submitted in Partial Fulfillment

Of the Requirement, for the Degree of BSCof

Science (Honors) In Animal Production Science and Technology

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October 2017

Dedication

To our Parents

Supervisor,

Teachers,

Family

Friends and gave help, We

dedicate this work,

Acknowledgement

We are grateful almost to Allah who gave us the health

And patience to complete this work. Our wish as express

Special appreciation and gratitude to our supervisor

Dr. Elfadil Ahmed Adam for his suggestions, guidance and

supervision.

Our thanks are extended to our families for their

Encouragement during the study and special thanks are

due to our colleagues.

Finally, we thank all people who help us throughout our

Study.

Abstract

The study was conducted at the college of Animal Production Science and Technology, Sudan University of Science and Technology to evaluate the effect of feeding graded Levels (0, 10, 15 and 20,) of seeds Baobab on Broiler Finisher performance. A total of 96 Three weeks old broiler chicks (Rose 308) were randomly distributed into four dietary treatments (A, B, C and D). each treatment contained three replicates (8 bird/replicate), Each experimental group was fed its signed diet for (21 days) as experimental periodThe results of present study showed that there is significant difference (P≤0.05) in feed intake, group (D) which fed 20%was recorded the highest feed intake(2060.00±198.57) followed by group (B) and (C) respectively. There were no significant differences in body weight, feed conversion ratio and weight gain among the experimental groups. The result also showed a significant difference (P≤0.05) in gizzard weight group (C) fed is 15% baobab recorded high gizzard weight (3.01±0.27) compared to the other groups fed 0,10,20% There is significant improvement (P≤0.05) in dressing percent when the bird fed baobab compared to the control group. There were no significant differences in liver, abdominal fat,heart and carcass weight. The present study concluded that baobab seeds can be used in broiler Finisher diet up to 20 % without any negative effect and some internal organs (Liver, gizzard, heart and abdominal fat) weight and performance.

المستخلص

اجريت هذه الدراسة في كلية الإنتاج الحيواني بجامعة السودان للعلوم والتكنولوجيا لتقيم اثر اضافة مستويات مختلفة (0% , 10% , 15% , 20%) من مسحوق نواة القنقليز علي الاداء الانتاجي للدجاج اللاحم في مرحلة الناهي .تم استخدام 96 كتكوت (سلالة رووس 308) عمر ثلاثة اسابيع حيث تم توزيع الكتاكيت عشوائيا علي اربع معاملات (ا,ب,ج,د) تحتوي كل معاملة علي ثلاثة تكرارات وثمانية كتاكيت بكل مجموعة تم تغذية كل مجموعة بالعليقة المعينة خلال فترة التجربة (21يوم) . حيث اظهرت النتائج وجود فروق معنوية ($p\leq0.05$) في العلف المستهلك حيث سجلت المجموعة (د) التي غذيت ب 20%من مسحوق نوي القنقليز اعلي نتيجة (2060.00±198.57)متبوعة بالمجموعة (ب) و(ج) على التوالي . ولاتوجد فروق معنوية في وزن الجسم ومعدل التحويل الغذائي والوزن المكتسب بين مجموعات التجربة. كما اوضحت النتائج وجود فروق معنوية ($p\leq0.05$) في وزن القانصة حيث سجلت المجموعة (ج) التي غذيت علي(10%) من مسحوق القنقليز أعلي نسبة (3.01±0.27) متبوعة بالمجموعة (أ,ب,د) على التوالي . وأوضحت النتائج وجود فروق معنوية في نسبة التصافي حيث ان المجموعات التي تم تغذيتها بمسحوق نوى القنقليز سجلت اعلى نسب تصافي مقارنة مع المجموع الضابطة. وأوضحت النتائج انه لا توجد فروق معنوية في وزن الكبد, الدهن الداخلي , القلب , وزن جسد الذبيحة بين مجموعات التجربة . خلصت هذه الدراسة على إمكانية استخدام مسحوق نوى القنقليز في علائق الدواجن حتي20 % من دون أي اثار سالبة واحيانا علي بعد اعضاء الجسم الداخلي (الكبد , القانصة , القلب , والدهن الداخلي) على أداء الانتاجي للدجج اللاحم .

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Chapter One

1.0 Introduction

Nutrition and diseases are the major limiting factors in poultry production, as the cost of feed alone accounts for about 70-80% of the total cost of producing commercial poultry in the world (Aduku, 1993; Adegbola, 2004). Shortage of feed resources in developing countries and Sudan in particular is worsened by its competition with humans and growing livestock production in the tropics, this has resulted in increased prices of conventional sources of poultry feed, especially that of protein. One of the alternative ways of solving this problem is perhaps the use of nonconventional sources of protein to supplement the diets of poultry and reduce cost of production (Robinson and Singh, 2001). Poultry production is generally accepted as the fastest way of increasing animal protein consumption in developing countries of the world (Ogundipe, 1999). In the world, poultry meat is popular and well accepted across all religious. Studies on baobab seeds in Sudan and elsewhere in the world have shown its potentials in supplying good quality food proteins for humans and livestock (Osman, 2004; Nkafamiya et al., 2007). The seeds are rich in protein (18-36% CP), therefore, can be used as source of protein in poultry diets (Salami and Okezie, 1994; Murray et al., 2001). The limited usage of baobab seed in Sudan made it a non-conventional feedstuff of choice for poultry industry and other farm animals. According to (Mwale et al. ,2008) baobab seed cake has been included in guinea fowl keets diets up to 5% without compromising growth performance. In Sudan, little or no information is available on the use ofbaobabseed in broiler chicken diets. The purpose of this study was, to determine the effect of feeding graded levels of baobab seed on the productivee broiler finisher performance.

Chapter Two

2.0 Literature Review

2.1. Poultry production in the world:

According to the national chicken poultry is defined as any type of domesticated fowl raised for meat and or egg (Guerrero et al, 2010). Chicken and turkey are among the most commonly consumed types of poultry currently worldwide in particular the United states, China, the European union and Brazil,Sudanese Ministry of Animal Resources Livestock Fisheries and Rangelands (2011), estimated the poultry count at 2010 about 43316000 head and chickens' meat reach about 30000-ton year.

2.2. Broiler chickens:

Broiler is a term that defines a market category of poultry that can apply to species however, it is commonly taken, unless otherwise specified to refer to young chicken. Broilers are young chicken that are grown to 5-7 weeks of age, and reach about 1.5-2.5 kilogram at which time they are marketed for human consumption (NRC 1994). It is a fast growing rapid feathering bird which makes economic gains and dresses out as quality bird that satisfies the consumer. It is young meat chicken of either sex of meat type breeds tender – meted. Roasters are another type of chicken for meat is big than broilers, suitable time for marketing at age 10.5-16 weeks by weight 2.7-3.6 k/g (Saeed ,2000) 50years ago it took 98 days for a chicken to grow to 1.6 kg .by 1986 due to selective breeding, it only took 37 days'broiler type of chicken breeds, and it have characteristic of meat acquirement by high rates, broilers (Ezat,2001).

2.3. Poultry nutrition:

Poultry nutrition is not only providing available feed to your birds, but more than that concept. Market poultry broilers and turkeys require proper nutrition to grow and finish out. Breeding poultry require nutrition to reproduce at the same time Laying flocks require correct nutrition to be productive. As humans, adequate or balanced nutrients supply is needed in food (meats, vegetables, dairy products, and fruits) on a daily basis. Similarly, adequate rations needed by poultry out the five classes of nutrients (proteins, carbohydrates, fats and oils, vitamins, mineral and water) for optimum maintenance and other activities including growth, finishing, work, reproduction, and production. The knowledge about the nutritional requirements of the bird's function; either egg production or meat production. Is necessary having the nutritional requirements, the poultry producer and managers should Consider the availability and hence the cost of appropriate feedstuffs. It is also very critical that the nutritionist know the percentages associated with each ingredient. Some feedstuffs may contain anti-nutritional factors that limit their usage in poultry diets, (Baker,.2000).

2.4. Energy Requirement:

The largest single dietary need of an Animal is for a source of energy. Energy is required for all physiological processes in the animal-movement, respiration, circulation, absorption, excretion, the nervous system, reproduction, temperature regulation-in short, all the processes of life requirement of energy in finisher diet needed 3200/Kg. (Malden, etal., 1979).

2.5. Protein Requirement:

Protein needs for maintenance are relatively low, and therefore the requirement depends primarily on the amounts needed for productive purposes. To meet the protein requirement, the essential amino acid must be supplied in the proper amounts, and the total level of nitrogen in the diet must be high enough and in the proper form to permit synthesis of the nonessential amino acids. Once the minimum amount of protein required to support maximum growth rate or egg production is supplied, additional protein is oxidized for energy. Protein is not stored in the body in appreciable amounts. Since protein is usuallythe most expensive component of ration, it is not economical to feed excess protein to animal. For this reason, protein levels in rations for animals are usually kept closer to the minimum requirement than are other nutrients, requirement of protein in finisher diet we needed 21%. (Malden,el al., 1979).

2.6 Sources of protein:

2.7 Conventional sources of protein:

These are the proteins of grains the residues of the mills the green fodder, other plant source, which is usually poor in one or more essential amino acid.Therefore, it is difficult for poultry to rely on these Proteins of plant origin are generally used to feed poultry on the basis of their protein requirements. Whenin the feed, it is important to use more than one source so that the proteins can complement each other and partially the essential amino acid contents. (Mcdonald at el., 2011).Proteins such as milk, eggs, meat, blood, fish and other animal protein sources.are usually nutritious in the senesce that they contain all the entail amino acids (unless their preparation methods, especially those with high temperatures

and pressure) on one or more of these essential amino acid and plant protein such as Soybean, Legumes,(Mcdonald etal., 2011).

2.8 Unconventional sourceofprotein:

To overcome the high cost of production with low profit margin in the poultry industry farmers resorted to the use of Nonconventional feeds formulated by substituting or supplementing industrial organic byproducts for maize as the prime calorie source poultry feed. Because these material are not consumed as human food, they are expected to reduce competition between man and the poultry industry over the use of maize, of the farms use Nonconventional feeds although only 12.5% of the farms produce these Nonconventional. (Udedibie, et al., 1993) thatNonconventionalSuh as(Balannitesaegyptiaca seeds kernel – water melon seeds- ad baobab seeds

2.9 Baobab (Adansoniadigitata):

Scientific classification:

Kingdom: Plantae

(unranked): Angiosperms

(unranked): Eudicots

(unranked): Rosids

Order: Malvales

Family: Malvaceae

Genus: Adansonia

Species: A. digitata(Grove, 2011).

2.10Medicine use of*Baobab*:

The bark, roots, leaves, fruits and seeds of Baobab are widely used by indigenous peoples for human and animal medicines. Leaves and fruit pulp are used in folk medicine as an antipyretic or febrifuge to overcome fevers. The powdered leaves can be used as anti-stress. They are variously used to treat fatigue, as a tonic and for insect bites, guinea worm and internal pains and to treat dysentery (Wickens.2008). The fruit pulp and powdered seeds are used in cases of dysentery and to promote perspiration. Seeds are also used in cases of hiccough. Oil extracted from seeds is used for inflamed gums and to ease diseased teeth(Wickens.2008).The widest use in folk medicine is the use of the bark as a substitute for quinine in cases of fever or as a prophylactic. of the bark decomposes rapidly due to the mucilaginous substances present. In Malawi, hangovers and constipation are treated with a traditional drink known as dambedza made by soaking fruit pulp in water (Wickens.2008).

2.11Food uses and nutrition:

The baobab is a traditional food plant in Africa, but is little-known elsewhere. The vegetable has been suggested to have the potential to improve nutrition, boost food security, foster rural development, and support sustainable land care.(National Research council, 2006).The dry pulp is either eaten fresh or dissolved inmilk or water to make a drink. The leaves can be eaten as fresh. Young fresh leaves are cooked in a sauce and sometimes are dried and powdered. The powder is called Lalo in Mali and sold in many village markets in Western Africa. Oil extracted by pounding the seeds can be used for cooking but this is not widespread. (Sidibe.et al.,2002)In Sudanwhere the tree is called Tebaldipeople make tab by soaking and

dissolving the dry pulp of the fruit, locally knownof Baobab(Spring.com Retrieved ,2015)

In 2008, the European Union approved the use and consumption of baobab fruit as an ingredient in smoothies and cereal bars (Advisory Committeeon Navel Foods and Processes, 2008). The United States Food and Drug Administration granted generally recognized as safe status to baobab dried fruit pulp as a food ingredient (Lauram. Tarantion, 2009).Baobableaves are sometimes used as forage for ruminants in dry season. The oil meal which is a byproduct of oil extraction can also be used as animal feed.(Heuzem.Et al.,2013). In times of drought elephants consume the juicy wood below its bark (Sheehan, 2004).

2.12 Chemical Composition ofBaobab:

The chemical composition ofBaobab with the high crude protein were (33.7%) and crude fiber (16.9%) and crud fat were (30.6%) and water (8.1%) and content oil were (29.7%), and carbohydrate (4.8%) and ash (5.9%)It contains 50% more calcium than spinach, itis high in antioxidants, and has three times the vitamin C of an orange, andBaobab mineral, iron,zinc and copper , the principal fatty acid inBaobab oil are linoleic and oleic acid. (Parkouda,et al, 2012).

Effect offeeding Baobab on broiler performance:

Feeding trial was conducted to determine the effect of feeding graded levels of Baobabproduction. Baobab seed meal was included in the broiler chicken diets at 0, 10, 20, 30 and 40% levels designated as diets 1, 2, 3, 4 and 5, respectively for both the starter and finisher phases. At the starter phase, feed intake (65.18-71.73 g), daily weight gain (30.36-36.16 g) and feed conversion ratio (1.96-2.39) were not significantly ($P>0.05$) affected by the dietary treatments. However, at finisher phase, the daily feed intake (133.40-148.40 g) and weight gain (37.23-55.00 g)

were significantly affected at (P<0.001) and (P<0.05) respectively. Feed conversion ratio was not significantly (P>0.05) different among all the treatments means. The overall performance showed significant difference at (P<0.001 and p<0.01) for daily feed intake and daily weight gain. The birds fed 20% diet had the highest daily weight gain (44.55 g) and lowest weight (33.80 g) was recorded for bird fed (5%). It was therefore concluded that baobab seed meal can be incorporated into broiler chicken diets up to 30% without any deleterious effect on performance with comitant reduction in feed cost. (Jerry et al., 2013).

Law (2017).conductedastudy to evaluate the performance of broiler chickens fed graded levels of baobab (Adansoniadigitata) Pulp-seed meal. The study was carried during the starter and finisher phases of growth; each phase was lasting for four weeks. Three hundred Anak broiler chicks were allotted to five treatments replicated with 20 birds. The inclusion levels of the test material in the diets were 0, 10, 20, 30, and 40% baobab pulp-seed meal for treatment 1 (Control), 2, 3, 4 and 5. The results of experiment during the starter phase showed significantly (P<0.05) higher feed intake of 46.03g in birds fed 40% BSPM. Higher (P<0.05) average daily weight gain (24.89g and 25.01g) were recorded in birds fed 10% and 20% BPSM and birds fed 10% and 20% BPSM were more efficient in feed utilization than other groups. During the finisher phase, significantly (P<0.05) higher average daily feed intake of 144.95g was recorded in birds fed 40% BSPM while significantly (P<0.05) higher daily weight gain of 52.25g was recorded in birds fed 20% BSPM. Birds fed the test diet were more efficient in feed utilization compared to 0% BPSM, 30% and 40% BSPM. The best (P<0.05) carcass characteristics were recorded among birds fed 20% BSPM. The result of the study showed that BPSM is a suitable alternative feed ingredient for broiler chickens and that the optimum level of inclusion is 20%BSPM.

Chapter Three

3.0 Materials and Methods

3-1 The experimental site and duration:

This study was carried out at the poultry farm, College of Animal Production Science and Technology, Sudan University of Science and Technology, during the period from 23 December to 2 February 2017

3.2 Experimental House:

The experiment was conducted in an open sided house in gabled by 8*3 dimensionally. The long axis of the house extended east-west facing the wind direction for efficient ventilation, the house was divided into experimental sections (replicates) of equal size 1*1 m. The pen and equipment were cleaned and disinfected three days before the arrival of birds and then wood shaving as litter was spread in the floor 5cm depth.

3.3 Experimental birds:

A total of Ninety-six (96) Three weeks old unsexed broiler chicks

(Ross 308) purchased from OMMAT. The chicks were weighed by digital balance and the mean of initial weight was determined. chicks were kept in one groups for Three weeks and they were kept under the same environmental conditions until the experiment started

3-4 Management:

3-4-1 Feeders and Drinker:

Onetubular feeding and one Fountain drinker were provided in each replicate

3.4.2 Lightening:

The house had sufficient light. Lamps were lighted during night to complete the day hours, the duration of light needed was 24 hours.

3-4-3 Watering:

Fresh and clean water was provided all the day around throughout the period.

3.4.4 Prophylactic measures:

Multi-vitamins plus antibiotic were provided in water during the first seven days, in addition to sugar upon arrival. The birds were vaccinated against infectious bronchitis (I.B) and New castle disease (ND) at7 day as. At the day 14 they were vaccinated against Gambaro disease. the second does were repeated at day 21 and 28 respectively.

3-5 Experimental design:

Chicks were divided randomly into Four groups a control (A) and treated groups (B), (C), (D), each group was replicated three times with 8 chicks each
Group(A)fed with zero (0%), (B)group fed with (10%), (C)group fed with (15%) and (D)group fed with (20%) baobab seeds.

Table (1) Chemical composition of Baobab seeds:

*ME MJ/KG	Crude protein%	Crude fiber%	Moisture%	Crude fat%	Ash%
12.71	17.63	14.93	7.33	13.32	4.81

*ME: Metabolic energy was Calculated according to the equation of Lodhi(1976).

3.6 experimental diets:

Baobab seed were purchased from local market of Omdrman then Soaked and dried under the shade, ground and analysesed (AOAC year, table (1). Four rations were formulated to be approximately iso-caloric and iso-nitrogenous to meet the nutrient requirements for broiler finisher chicks as out lined by National Research Council (NRC 1994).

3.7 Performance data collection:

3.7.1 Feed intake (g/bird):

Weekly feed intake of each replicate was calculated by subtracting weekly residual feed from weekly offered feed.

3.7.2Body weight (g/bird):

Chicks on each replicate were weighed weekly at the end of each weekby digital balance to determine weekly body weight.

3.7.3Weight gain (g/bird):

Weekly weight gain of each replicate were calculated by subtracting initial weight from the prenous body weight.

3.7.4Feed conversion ratio (FCR) (g feed/ g gain):

Weekly feed conversion ratio was calculated as (feed intake ÷ weight gain)

3.7.5Mortality:

Mortality was recorded when occurred.

3.7.6 Internal organs weight:

After slaughtering three birdfrom each replicate were chosen eviscerated andsome internalorgans (Liver, heart, gizzard, and abdominal fat weights) were recorded their carcasses were weighed and dressing percent was calculated.

Dressing percent= weight after slaughter ÷ weight beforeslaughter

Table (2):Experimental Broiler Finisher diet:

Baobab inclusion (%)				
Treatment **Ingredient**	**0%**	**10%**	**15%**	**20%**
Sorghum	**68.9**	**60.1**	**55.4**	**50.8**
G.N.C	**22.2**	**20.5**	**20**	**19.4**
Concenrate	**5**	**5**	**5**	**5**
Baobab	**0**	**10**	**15**	**20**
D.C. P	**0.7**	**0.7**	**0.7**	**0.7**
Lime stone	**0.9**	**0.9**	**0.9**	**0.8**
Salt	**0.3**	**0.3**	**0.3**	**0.3**
Antifungal	**0.1**	**0.1**	**0.1**	**0.1**
Lysine	**0.5**	**0.5**	**0.5**	**0.5**
Oil	**1.6**	**1.9**	**2.1**	**2.3**
Total	**100%**	**100%**	**100%**	**100%**
Calculated analysis				
ME/ MJ/kg	**13.4264**	**13.3981**	**13.3908**	**13.38612**
CP%	**21.0637**	**20.9813**	**21.0127**	**21.0124**
CF%	**3.3155**	**4.485**	**5.0795**	**5.6696**
CA%	**0.8883**	**0.8827**	**0.88016**	**0.87748**
AVP%	**0.4426**	**0.4355**	**0.43262**	**0.42944**
LY%	**1.0571**	**1.0144**	**0.9959**	**0.97628**
Meth.	**0.5221**	**0.4996**	**0.48918**	**0.47836**

***Concentrate:** chemical composition of the super concentrateproduced (ME: 8.78% 40%CPCf1.5% Ca6.4% Avp4.6% Ly 1.5% and Meth5.9%)

3-8Dressing percent:

At the end of the sixth week the birds were fasted for 10 hours before being slaughtered. weighted were recorded**.**

3-19 Statistical analysis:

Statistical analysis was performed using Statistical Analysis Program (SPSS,16). And the Analysis of variance one way (ANOVA) and least significant difference (LSD) were used to determine differences between treatments means at significant rate of ($P \leq 0.05$).

Chapter Four

4.0Results:

4.1 Effect of feeding Baobab (Adansoniadigitata) on weekly broiler Finisher performance

4.1.1Effect of feeding graded levels ofBaobab on weekly feed intake:

Table (3) revealed that no significant ($p \leq 0.05$) differences were observed in weekly feed intake in week (1 and 3), but feed intake significant($p \leq 0.05$) increased in week two for birds fed Baobab compared to the control group.

4.1.2 Effect of feeding graded levels of Baobab on weekly weight gain:

Table (4) showed no significant ($p \leq 0.05$) differences in the, 2nd and 3thweeks but a significant ($p \leq 0.05$)differences were reported inweek 1.The birds fed 10% baobabwas obtained higher weight gain but statistically no differentes whereno fed when the birds fed differentes levels ofBaobab (10% 15% or 20%).

4.1.3 Effect feeding graded levels ofBaobabon weekly feed conversion ratio (FCR):

No significant ($P \leq 0.05$) differences were recorded during week (1,2 and 3) in FCR between all treatment (Table ,5).

4.1.4 Effect of feeding graded levels ofBaobabon weekly body weight:

Feeding graded levels of Baobab resulted in no significant (P≤0.05) differences during the whole period experimental, duration (Table 6)

4.1.5 Effect of feeding graded levels of Baobab on the overall broiler Finisher performance:

Table (7) revealed that feeding graded levels of Baobab resulted in significant difference in the total feed intake, thebird fed Baobab recorded higher values compared to the control treatment, On the Other hand, significant differences between tested groups. feedingBaobabfinal body weight and feed conversion ratio were indicating that is no significant differences.

4.1.6 Effect of feeding graded levels of Baobab on some internal organs weight:

Table (8) showed no significant (p≤ 0.05) differences in liver, abdominal fatheart and carcass weights but a significant (p≤0.05)improvement was reported in gizzard weight and dressing percent when the level of inclusion of Baobab was increased.

Table (3): Effect of feedingBaobab seeds powder on weekly feed intake (g/bird):

treatment week	Baobab rate of inclusion				Sig
	0.0% M+Std.d	10% M+Std.d	15% M+Std.d	20% M+Std.d	
1	668.75±12.50	760.41±34.42	700±39.03	747.92±65.64	NS
2	750.00±28.64[b]	852.08±35.53[a]	866.04±83.81[a]	841.66±14.43[a]	*
3	389.79±95.96	311.25±81.72	299.16±92.67	470.42±122.73	NS

a,b,c : mean within the same column followed by different superscripts are significantly different

(P<0.05)

***: significant (P≤0.05)**

NS: NoT Significant (P>0.05)

Table (4): Effect of feddingBaobab seeds powder on weekly weight gain (g/bird):

Treatment / Week	Baobab rata				Sig
	0.0% M+Std.d	10% M+Std.d	15% M+Std.d	20% M+Std.d	
1	350.00±21.65[b]	397.91±9.54[a]	370.83±38.19[ab]	370.83±19.09[ab]	*
2	402.08±59.07	350.75±119.24	408.33±68.56	341.66±158.89	NS
3	291.66±241.77	387.5±138.21	256.25±81.97	347.92±50.52	NS

a,b,c : mean within the same column followed by different superscripts are significantly different

(P<0.05)

***: significant (P≤0.05)**

NS: NoT Significant (P>0.05)

Table (5): ***Effect of feedingBaobab seeds powder on weekly Finisher Feed Conversion Ratio (FCR):***

Treatment / week	Baobab rate				Sig
	0.0% M+Std.d	**10% M+Std.d**	**15% M+Std.d**	**20% M+Std.d**	
1	**1.92±0.12**	**1.91±0.04**	**1.90±0.12**	**2.03±0.28**	NS
2	**1.88±0.23**	**2.59±0.80**	**2.15±0.37**	**2.77±1.00**	NS
3	**1.04±0.47**	**0.82±0.10**	**1.19±0.32**	**1.40±0.64**	NS

NS: NoT Significant (P>0.05)

Table (6):*Effect of feedingBaobab seeds powder on weekly Finisher live body weight (g/bird):*

Treatment / Week	*Baobab rate*				Sig
	Control M+Std.d	10% M+Std.d	15% M+Std.d	20% M+Std.d	
1	939.58±59.40	966.66±2830.83	943.75±34.79	966.66±19.09	NS
2	1341.66±20.09	1316.66±134.82	1352.08±46.91	1308.33±144.47	NS
3	1633.33±243.77	1704.17±144.20	1608.33±75.61	1656.25±98.23	NS

NS: NoT Significant (P>0.05)

Table (7): **effect of feedingBaobab in the overall broiler Finisher performance:**

Treatment / Parameters	Baobab rate				sig
	Control M+Std.d	10 %M+Std.d	15 % M+Std.d	20% M+Std.d	
Initial weight(e/bird)	589.58±41.61	568.75±22.53	572.92±25.25	595.83±19.09	NS
Feed Intake (g/bird)	1808.54±84.47^{b}	1905.00±130.89^{ab}	1865.2±189.52^{ab}	2060.00±198.57^{a}	*
Weight gain (g/bird)	1043.75±203.19	1135.49±126.44	1202.08±298.19	1060.41±98.88	NS
Feed conversation ratio (g feed /g weight)	1.78±0.39	1.68±0.12	1.62±0.42	1.94±0.12	NS
Final live body weight (g/bird)	1633.33±243.77	1704.16±144.20	1608.33±75.60	1656.25±98.22	NS

a,b,c : mean within the same column followed by different superscripts are significantly different

(P<0.05)

***: significant (P≤0.05)**

NS:NOTsignificant

Table (8): Effect of feedingBaobab seeds powder in broiler internal organs weight:

Treatment Parameters	Baobab seeds powder rate				sig
	0.0% M+Std.d	10 % M+Std.d	15 % M+Std.d	20 M+Std.d	
Liver %	3.4±0.58	3.21±0.55	2.87±0.23	3.25±0.39	NS
Abdominal fat%	1.22±0.77	2.32±0.93	2.29±0.45	2.27±0.78	NS
heart%	0.84±0.09	0.69±0.19	0.64±0.17	0.64±0.22	NS
Gizzard%	1.80 ± 0.32^{b}	2.37 ± 0.40^{b}	3.01 ± 0.27^{a}	2.32 ± 0.27^{b}	*
Carcass weight (g/bird)	1186.66±120.96	1180.00±131.15	1283.33±187.23	1290.00±115.33	NS
Dressing %	73.016 ± 4.13^{b}	85.227 ± 5.46^{a}	86.95 ± 5.03^{a}	86.39 ± 4.53^{a}	*

a,b,c : mean within the same column followed by different superscripts are significantly different

(P<0.05)

*** significant (P≤0.05)**

NS: NoT Significant (P>0.05)

Chapter five

Discussion

The results the present study showed that there is significant difference (P≤0.05) in feed intake, birds which feed 20%Baobab was recorded highest feed intake (2060.00±198.57) followed by those 10% and 15%Baobab respectively. This result was similar to those of Jerry et .al (2013)who reported that birds fed Baobab recorded higher feed intake compered to control group (0,0). And it is similar to those of Lawan et al (2017)who stated that birds fedBaobab record higher feed intake.

The results showed that there are no significant differences in body weight, feed conversion ratio and weight gain between the experimental groups, this result contradicted with that obtained by Jerry et .al (2013) andLawan et al (2017) whorecorded a significantdifference in weight gain at the finishingstage between groups fed graded levels of Baobab seeds powder and the control group.

The result showed that there is significant difference (p≤0.05) in gizzard weight, birds fedBaobab recorded high gizzard weight (3.01±0.27) followed 10%and 20% that might be due to high fiber content inBaobab? By this fed because fiber inclusion reduced gizzard PH improved digs tiue juices secretion gizzard francium and digest flow and might modify microbiota in GIT of the birds (Gonzalez al., 2010).

A significantdifference (P≤0.05) in dressing present were observed,the groups fed 20%Baobabshowed higher dressing % compared to control group. This results were in linewith those of Lawan et al (2017)who found that the birds fed 20%Baobab recorded best carcass characteristic.

The results showed no significant difference in liver, abdominal fat,heart,carcass, weights and mortality weight between the experimental groups. That might be due the fact that vitamin C improve bird immunity which intern lead to healthy bird.

Chapter six

6. Conclusion and recommendations

6.1 conclusion:

Based on the result of this study the following can be withdrawn:

1- Baobab can be used in broiler diet up to 20 % without any negative effect on broiler finisher performance.

2-Feeding baobab seed improve may bird health.

3- Baobab had no effect on some internal organs weight except the gizzard.

6.2 recommendation:

- Further study should be carried to determine the effect of feeding baobab on blood cholesterol level and immunity response of broiler chickens.

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