The effect of supplementing Ginger powder in ration on productive performance of broiler Ross 308

تأثير أضافة مسحوق نبات ألزنجبيل الى العليقة في ألاداء الانتاجي لفروج اللحم سلالة روز 308

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Abstract :

This study was approved out to inspect the effects of adding Ginger powder in dietary supplement on broiler productive performance. Two hundred and forty chicks of commercial strain Ross 308 one day old were wielded in this rummage the chicks were separately balanced and haphazardly spread to 4 treatments. Each treatment included three replicates (20 chicks/replicate).The treatments were as follows : control G0 free of Ginger powder, G1 adding 2.5g /kg of Ginger powder to the diet, G2 adding 5g /kg of Ginger powder to the diet, G3 adding 7.5g /kg of Ginger powder to the diet. The results discovered that associated to control, there was no significantly a difference for chicks fed Ginger powder such as body weights, weight improvement, consumption of feed and feed alteration portion during the experimental period. This study indicated that the dietary levels of Ginger powder did not have any benefit effect on growth and the digestibility of most nutrients .

Key words: Ginger, productive, broiler.

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المستخلص

تهدف هذه الدراسة الى معرفة تأثير أضافة مسحوق نبات ألزنجبيل الى العليقة في أداء فروج اللحم . تم تربية 240 طيرا من فروج اللحم التجاري و الغير مجنس بعمر يوم واحد سلالة روز Ross 308 حيث وزنت الافراخ ووزعت عشوائيا على 4 معاملات بواقع 3 مكررات لكل معاملة (20 طيرا/ مكرر) وكانت المعاملات كما يلي: المعاملة الاولى المقارنة خالية من الاضافة G0 ،المعاملة الثانية G1 أضافة المسحوق بنسبة 2.5 غم/كغم علف، المعاملة الثالثة G2 أضافة المسحوق بنسبة 5 غم/كغم علف، المعاملة الرابعة G3 أضافة المسحوق بنسبة 7.5 غم/كغم علف. وكانت النتائج كما يلي:عدم وجود فروق معنوية في وزن الجسم الحي و معدل الزيادة الوزنية وأستهلاك العلف و معامل التحويل الغذائي بين المعاملات التجريبية و معاملة المقارنة، أذ أظهرت الدراسة الحالية ان أضافة مسحوق الزنجبيل الى العلف لم يظهر نتائج جيدة للاستفادة من العناصر الغذائية المتناولة لتحسين ألاداء الانتاجي لفروج اللحم.

الكلمات الدالة: مسحوق نبات ألزنجبيل ،الاداء الانتاجي،فروج اللحم

Introduction

Several scientists' strategies have been skillful on feed supplements and feed additives to sustenance growth and performance. Antibiotics have danger for users for their remainders tolerate the onset of bacteria struggle; hence various countries forbidden using them as growth supporting [1]. The technologists are working to advance feed efficiency and growth level of livestock using suitable herbs. Normal feed additives are plant source and they mostly nontoxic, healthy and fewer themes to threats for humans and animals [2]. The motivating in use of natural herbs such as Ginger, Garlic, red and black pepper as feed additives in poultry diets in order to maximize their possible output [3].The effect of switch Ginger by antibiotic on growth sponsors is needed for greater productivity of poultry, augmented delectableness of feed, nutrient consumption, craving stimulus, increase in the flow of gastric juice and tastiness to tasteless food [4]. Also the Proximate conformation of using part of the Ginger is rhizome shows it content about 11.53% Crude protein, 15.35 % Crude fiber, 4.12 % Ether extract, 88.90 % Dry matter, 6.80% Ash [5]. Ginger roots are

regularly content active ingredients such as zingerone, Gingerdiol, zingibrene, Gingerols and shogaols produced antioxidant activity [6]. Ginger (*Zingiber officinale*) is a constant herb which is wielded extensively in many parts of the world for pickles, spice, sweeties, preservatives and many medicinal resolves. The plant follow Zingibeaceae family, aromatic herbs with ample, often have tuber bearing roots or non-tuberous rhizomes [7]. It have antimicrobial, antibacterial, antioxidant and antifungal properties, its oils are more vigorous against bacteria such as Gram-positive, more than Gram-negative, [8]. These possessions are also needed in the industry of food in order to reach accepted alternatives to artificial preservers. In the same way usage with 1 and 1.5 % Ginger powder displayed improved performance and carcass appearances and blood factors in broilers, and lowered total cholesterol level in layer and broiler [9 and 10]. However supplemented ginger extract to drinking water of broilers influenced the carcass yield [11] moreover ginger extract is proper for human health because there is no outstanding effect of medicine and also cost effective [12]. However adding 0.5% Ginger and thyme growing production proficiency and advance the growth and health of broiler it may due to the biological occupations of these herbal plants [13].

The target of this rummage was to investigate the affect using of Ginger powder in ration to increase the broilers productive performance.

Materials and Methods

This experiment was conducted at the poultry farm of Animal production Dept., Agricultural Faculty/ Kufa University during the period from 17/10/2015 to 20/11/2015, for a period of 5 weeks. A whole of 240 unsexed one-day old Ross 308 broiler chicks, with initial weight about 41 g, distributed randomly into four experimental Treatments, with three replicates of 20 chickens each. The first group was fed a control diet (G0) without addition of Ginger powder (GP) whiles the other groups (G1, G2 and G3), were fed diets supplemented with 2.5, 5 and 7.5 g/kg of dried (GP) (*Zingiber Officinale*) respectively. The Ginger powder used in this research was gained from the native shop in Kufa city, Najaf, Iraq. The Ginger was recently dehydrated by hot air oven, and grinded in chopper to be a powder type. Chicks were housed in flower cages and artificial lighting was provided 23 hours daily for the 5 weeks experimental period. Treatment diets of the birds fed on starter and finisher diets as shown in Table 1.

Table1.Composition of the basal diets %.

Feed staff	Diets	
	Starter	Finisher
	15 – 21	22 – 35
Yellow Corn	50	50
Wheat	3.5	18.5
Wheat bran	6.5	0
Soybean meal (48%)	31.5	23
Protein conc.	5	5
Limestone	0.7	0.7
Salt	0.3	0.3
Vegetable oil	2.5	2.5
Total	100	100
Calculated nutrient levels (N.R.C. 1994).		
ME,kcal/kg	2973	3219.5
Crude protein cp (%)	22.93	20.21
Methionine (%)	0.49	0.45
Cysteine (%)	0.35	0.31
Calcium (%)	0.38	0.35
Nonphytate P. (%)	0.40	0.38
C/P ratio	131	160

WAFI protein concentrates (Holland) content: 2150 Metab. Energy , Crude protein 40% , Crude Fiber 3% , Calcium 3 % , Nonphytate P. 5 % , Methionine 3.7 % , Lysine 3.9 % , Sodium 2.2 % ,Vitamin A 200000 IU, Vitamin D3 40,000 IU, Vitamin E 500 mg ,Vitamin K3 40 mg ,Vitamin B1 30 mg ,Vitamin B2 100 mg ,Vitamin B6 40 mg, Vitamin B12 0,5 mg, Vitamin PP(Nicotinic acid) 600mg, Folic acid 20 mg , Biotin 2 mg , Antioxidant / kg (Ethoxyquin) 1.000 mg

Methionine, lysine, vitamins and minerals mixture were added to cover the dietary necessities of chicks in consensus once with the Ross 308 broiler management guide. Diets and water were obtainable *ad libitum* over the investigational period; birds in all treatments were kept under the same management system, Diets expressed according to N.R.C. [14]. Mortality was documented daily, while live body weights and feed intake was recorded at 14, 21, 28 and 35 days of age. Body weight gain and feed conversion ratio were calculated. Data obtained from the study were tested for significance by one-way ANOVA using the GLM procedures of SAS [15]. Differences between treatments means were separated by Duncan's new multiple range test [16].

Results and Discussion

Mean live body weight (LBW) and body weight gain (BWG) of chicks during the experimental period are explicated in Table 2&3. No significant differences between dietary treatments at 15-21 days of age. Conversely, no significant differences were recorded between chicks given 50, 75 g/kg of Ginger and the control group at (22-28) and (29 - 35) days of age accept significant (P<0.05) differences were recorded between (G1) and (G0). In the same way Body Gain (g) did not had significant

Table 2. Effect of adding Ginger in broiler diets on Live Body weight (g).

Treatments	Body weight(g) in days of age		
	15 – 21	22 – 28	29 - 35
Control G0(0g/kg)	762.6±10.1	1305±2.88 a	1905±20.20 a
G1 (2.5 g/kg)	776.0±22.5	1185±31.75 b	1772±50.51 b
G2 (5 g/kg)	782.0±5.1	1290±11.54 a	1880±2.88 a
G3 (7.5 g/kg)	749.0±12.3	1255.0±23.0 a	1822±30.31 ab
Level of sig.	NS	*	*

* P<0.05 means with the same letters in the same column are not significantly differences

Table3. Effect of adding Ginger in broiler diets on Body weight gain (g).

Treatments	Body weight Gain(g) in days of age			
	15 - 21	22 – 28	29 – 35	15 - 35
Control G0(0g/kg)	430.6±4.33	542.3±12.99 a	600±23.09	1142 ±13.33
G1 (2.5 g/kg)	421.3±13.5	409±54.27 b	587.66±18.76	996 ±22.30
G2 (5 g/kg)	398.3±15.01	511.3±7.79 a	590±8.66	1098 ±10.83
G3 (7.5 g/kg)	397.6±8.87	506±11.71 a	567.66±7.21	1073 ±9.90
Level of sig.	NS	*	NS	NS

* P<0.05 means with the same letters in the same column are not significantly differences

differed for chicks fed diets supplemented with 50, 75 g / kg Ginger, at (22-28) and (29 - 35) or (15–35) days of age, while significant (P<0.05) differences were recorded between (G1) and (G0) during (22-28) days of age. The same considers could be documented in table 4 for feed consumption for birds of this groups during (15–21), (22-28) and (29-35) or over the entire experimental period (15-35) days of age compared to the control group, whereas G1 (2.5 g/kg) was significantly(P<0.05) decreasing in feed consumption.

Table 4. Effect of adding Ginger in broiler diets on Feed consumption (g)/bird/ week.

Treatments	Feed consumption(g) in days of age			
	15 - 21	22 - 28	29 – 35	15-35
Control G0 (0g/kg)	481±20.2 ab	889.3±45.3 a	1181.67±64.37	2556±48.5 a
G1 (2.5 g/kg)	455.6±0.33 b	765.3±42.43 b	1100±24.24	2320±34.1 b
G2 (5 g/kg)	527.3±14.1 a	830.6±6.06 ab	1114±1.73	2472±8.98 a
G3 (7.5 g/kg)	507.6±31.46 ab	828.3±7.21 ab	1127.67±60.33	2466±13.48 a
Level of sig.	*	*	NS	*

* P<0.05 means with the same letters in the same column are not significantly differences

The data in Table 5 indicated that feed conversion ratio(FCR)had no significant differences were observed among the experimental dietary treatments and the control group at (22-28) and (29 - 35) or over the entire experimental period (15-35) days of age compared to the control group, except significant (P<0.05) differences were recorded at (15-21) days of age between (G2,G3) and control (G0)(free of Ginger) however (G1) had no significant differences were observed with control group at (15-21) days of age.

Table 5. Effect of adding Ginger in broiler diets on Feed converge ratio.

Treatments	Feed converge ratio in days of age			
	15 - 21	22 - 28	29 – 35	15-35
Control G0(0g/kg)	1.11±0.05 b	1.64±0.12	1.96±0.03	1.56±0.21
G1 (2.5 g/kg)	1.08±0.03 b	1.91±0.15	1.87±0.10	1.61±0.11
G2 (5 g/kg)	1.32±0.01 a	1.62±0.01	1.88±0.02	1.60±0.05
G3 (7.5 g/kg)	1.26±0.04 a	1.63±0.05	1.98±0.07	1.62±0.01
Level of sig.	*	NS	NS	NS

* P<0.05 means with the same letters in the same column are not significantly differences

This means that adding Ginger in the dietary couldn't promote growth in broiler chicks, It agree with data reported by [17] that Live Body weight, Body gain have No significant differences were observed between treatments fed at 0.05% and 0.1% Ginger as compared to the no supplemented control group on growth performance of broilers, However [18] find significant decreased (P<0.05) when feeding diets having ranks about 0%, 0.5%, 1% and 1.5% of ginger root powder in Body weight, Body weight gain, feed conception among all dietary treatments supplement by 0.5% and 1% ginger root powder, this influence to related result of the feed ingredients of 0.5% and 1% levels of ginger root powder and the shrank of feed consumption resulted in conforming reduction in weight gain, while Feed conversion ratio were not considerably change between all groups, our outcomes agreed with the results of [10 and 19] whom reported that growing ranks of dietary ginger powder produced a significant reduction in food consumption and weight gain in broiler birds fed diets containing 0.5% or 1% ginger powder overall of rummage a greatest weight gain were regarded with ginger powder. Finest and poorest feed conversion was significantly associated to treatment with 1% ginger powder. Best all data for [10,17,18,19] have no significant differs in feed conversion ratio in ginger collections of broilers related to control.

It can conclude that no negative effect of the higher level of Ginger could be recognized with broiler performance.

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