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Research Article

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Effects of adding crushed seeds of nigela sativa and leaves of thymus vulgaris on broiler performance

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Abstract

This study was conducted at the private poultry farm under name (ZIAR) farm. The present experiment was aimed to investigate the effect of adding Individual and combining crushed seeds of Nigela sativa and leaves of Thymus Vulgaris A total number of 200 one day old straight run broiler Ross-308 hybrid chicks were distributed to four dietary treatments each of treatment has 5 replicate each of replicate has 10chicks, the control group (C) without any supplement sources of any type seeds, treatment one (T1) adding 0.50% of crushed Nigela Sativa seeds, treatment two (T2) adding 0.50% of Thymus Vulgaris, treatment three (T3) adding mixing level 0.25%:0.25% of both T1+T2. The average live bodyweight (L.B.W) feed Consumption, main and secondary carcass weight, totally and daily weight access, feed conversation ratio (F.C.R) and edible parts weight were analyzed then compared finally. The results showed significant ($P \leq 0.05$) among all treatment with C but insignificant ($P \geq 0.05$) between T1 and T2, T3 observed higher value for all performance parameters while T1 and T2 showed higher value compared with C but less value than T3 for all characterized parameters performance.

Keywords: Nigela sativa, Thymus Vulgaris, Ross-308 and broiler performance.

Introduction

Modern science has proven beyond doubt that the kingdom is rich in plant secondary excellence of its products to its activity Dynamic physiological therapeutic effect against pain of incurable trauma that infect humans and animals .Thymus valgaris living (Alshahat,2000) One of these plants Thyme From the father of a scientific used in many areas on various organisms, including poultry. Thymol is around herbaceous plant belongs to the family oral (Elisabeth and Francisc, 2002) and is effective as containing Althaymul with other compounds in thyme tannins (Ramakrishna et al, 2003), which owns the effectiveness of anti-diarrhea (Dorman et al,. 2002)

Carvacrol, and thyme numerous medicinal properties, including analgesic and antispasmodic and antiseptic and helps Digestion and beneficial in the treatment of coughs further as antioxidant because has anti-bacterial effectiveness of inhibitory (El- Faham. 1994) by considered an antifungal (El- Maraphy, 1995) also an anti-parasitic (Perrucci et al. 1995) that in addition to the levels of thyme bush broiler chickens live body weight observed and increase the weight and feed consumption. Improvement in the rate of body weight. Nigela sativa as among these plants are black bean, where one of the herbal plants annuals It contains its oil on the effective substance called

Thymokinon (Ranunculaceae) which date back to the platoon Ponceau . Used of black bean powder in the diet leads to an increase in the rate of body weight and improvement in the rate of weight gain, feed conversion efficiency , immune response of broiler chickens and has effectively counter the growth of pathogenic bacteria (El- Kaiaty et al. 2002). The study was conducted in order to evaluate of broiler Ross-308 under environment of adding individual and combining of Nigela sativa and Thymus valgaris.

Materials and Methods

The experiment was conducted by cooperation of one private farm in closed Erbil city with 200one day old straight run broiler chicks (Ross-308) for 35 days period of breeding diet. The chicks were randomly divided into 4 equal treatments groups (C, T1, T2 and T3) each having 50 chicks. Each treatment was subjected to 5 equal replications of 10 chicks each. The diets were formulated with commonly available feed ingredients is shown in Table 1 for starter and Table 2 for grower and finisher diet. The dietary treatments were C (control diet) without any additive; T1, T2 and T3 were supplemented with herbs of 0.50 Nigela sativa, 0.50 Thymus valgaris.and 0.25 Nigela sativa, +0.25 Thymus valgaris respectively. Dry mash feed was supplied on *adlibitum* basis. Fresh clean drinking water was made at all the times. Adequate sanitary measures were taken during the experimental period. The birds were housed in cages of 120cm×76cm.

Feeding

The owner of farm depended on two period feeding, starter and grower with same finisher style as in table 1 and 2.

Table 1. The ingredients and chemical composition of starter (1-10 days) diet

control diet Ingredients	**Amount in the diet (%)**
Maize	51.30
Soybean meal	42.00
Soybean oil	4.00
Salt	0.25
Di- Calcium Phosphate	0.50
1Calcium premix	1.00
Vitamin-Mineral premix	0.75
DL-Methionine	0.15
Choline Chloride 60%	0.05
Chemical composition Amount (%)	
Dry matter	85.00
Crude protein	23.21
Crude fibre	5.88
Ether extract	1.76
Nitrogen free extract	48.41
Ash	6.96
ME(kcal/kg DM)	` * 3241.22

**Calculated according to (NRC, 1994)*

Table 2. The ingredients and chemical composition of grower and finisher (11-35 days) diet

control diet Ingredients	Amount in the diet (%)
Maize	37.53
Soybean meal	41.00
Soybean oil	18.70
Salt	0.25
Di- Calcium Phosphate	0.50
1Calcium premix	1.00
Vitamin-Mineral premix	0.75
DL-Methionine	0.22
Choline Chloride 60%	0.05
Chemical composition Amount (%)	
Dry matter	**85.6**
Crude protein	19.42
Crude fibre	6.67
Ether extract	1.75
Nitrogen free extract	48.22
Ash	6.74
ME(kcal/kg DM)	*2450.54

**Calculated according to (NRC,1994)*

[1] active substances per kilogram of premix: vitamin A 2 500 000 IU; vitamin E 50 000 mg; vitamin D3 800 000 IU; niacin 12 000 mg; d-pantothenic acid 3 000 mg; riboflavin 1 800 mg; pyridoxine 1200 mg; thiamine 600 mg; menadione 800 mg; ascorbic acid 50000 mg; folic acid 400 mg; biotin 40 mg; vitamin B12 10.0 mg; choline 100000 mg; betaine 50000 mg; Mn 20 000 mg; Zn 16 000 mg; Fe 14 000 mg; Cu 2 400 mg; Co 80 mg; I 200 mg; Se 50 mg

Processes of chemical analysis for Nigela sativa and Thymus valgaris done in medical university laboratory and estimated compared with measuring of AOAC. (1990) clear in table 3.

Table 3. Chemicals composition of Nigela sativa and Thymus valgaris

Organic compound %	Nigela sativa	Thymus valgaris
Moisture	5.58	6.34
Ash	1.88	2.79
Crude protein	21.16	13.86
Ether extract	31.97	4.08
Crude fiber	10.92	25.36
Soluble carbohydrate	22.94	46.55
Voltaic fatty acids	5.28	1.02
Total	100	100

Results and Discussion

Feed consumption, weight access and feed conversion ratio (FCR)

Table 4 clearly showed the effect of mixing two types of herbs (Nigela sativa and Thymus valgaris) for feed consumption and weight gain so harmonic made best value (3836, 2029.60 and 1.90) for feed intake , weight gain and FCR respectively that's means benefit for economic production (Mala et al,.2004).

Compared with C treatment is higher values (4157.20,1805.60 and 2.32) for feed intake , weight gain and FCR respectively**,** this result agree with obtaining study results on laying hen of (Bolukbasi, and Erhan; 2007).

Table 4: Means ± SD effect of adding Nigela sativa and Thymus valgaris on performance production parameters treatments for broiler Ross(308).

Treatments / Attribute/gram	Feed intake	Weight gain	F.C.R
C	4157.20±299.7 [b]	1805.60±138.73 [a*]	2.32±0.08 [b]
T1	4202.40±151.01 [b]	1962.8±177.9 [ab]	2012±0.08 [ab]
T2	4223.0±135.32 [b]	1871.40±216.3 [ab]	2.30±0.29 [b]
T3	3836.20±258.36 [a]	2029.60±46.4 [b]	1.90±0.16 [a]

*[a,b] means with different superscript within row are significantly different (P< 0.05) and values will increase from (a)to (b)value. Values mean ±S.D. Standard Deviation of 10 birds.

Live body weight and main carcass parts

Table 5 observed effect of adding Nigela sativa and Thymus valgaris to broiler Ross (308). The results showed significant value (p≤0.05) for live body weight and carcasses weight between C and T3 but insignificant T1, T2 with C, T3 respectively. this can be attribute that T3 mixing of both types herbs lead to increase of appetite of intake and also both type content higher percentage of protein (Hussam and Haitham ,2010).

For thigh and breast weight results showed T2 significant by T1 compared among other treatments, these results agree with results of Abaza et al.(2003) attributed that the role of Nigela sativa made less of fat in whole body and especially in legs.

Table 5: Means ±SD effect of adding Nigela sativa and Thymus valgaris on Live body weight and main carcasses parts of broiler Ross(308).

Treatments / Attribute/gram	live body weight	carcasses weight	Thigh weight	Breast weight
C	1805.60±13.87 [a*]	1650.60 ±13.87 [a]	454.60±38.40 [b]	491.60±27.32 [b]
T1	1962.80± 17.79 [ab]	1807.80±17.79 [ab]	363.04±52.55 [a]	389.06±46.40 [a]
T2	1871.40±21.63 [ab]	1716.40±21.63 [ab]	434.80±46.38 [b]	494.16±42.44 [b]
T3	2029.69±46.43 [b]	1874.60±46.40 [b]	451.24±36.26 [b]	492.78±31.14 [b]

*[a,b] means with different superscript within row are significantly different (P< 0.05) and values will increase from (a)to (b)value. Values mean ±S.D. Standard Deviation of 10 birds.

Secondary parts of carcasses

As been in table 6 observed the results that significant (p≤0.05) between T1 and T2 but insignificant (p≥0.05) with other treatment this results harmonic with weight of live body weight and these results agree with results of Akhtar et al. (2003). The same results applied on wings the high value was in T2 and differs significant (p≤0.05) with other treatments.

Table 6: Means ±SD effect of adding Nigela sativa and Thymus valgaris on secondary carcasses parts of broiler Ross(308).

Treatments / Attribute/gram	Back	Wing
C	294.00±32.63 [ab]	185.66±18.29 [a]
T1	255.52±22.57 [a]	179.88±14.39 [a]
T2	305.58±27.17 [b]	205.12±10.33 [b]
T3	276.00±36.00 [ab]	174.94±13.70 [a]

[a,b] means with different superscript within row are significantly different (P< 0.05) and values will increase from (a)to (b)value. Values mean ±S.D. Standard Deviation of 10 birds.

Edible carcasses parts

The analysis of edible parts done in anatomy laboratory of Shaqlawa technical institute Veterinary department.

Table 7 observed that for heart T3 is best value (16.72g) but for liver the best value for t1 and t2 that's mean if used individual herbs the effect for benefit is better than used mixing especially for liver while insignificant for gizzard. These results agree with results of Hussam and Haitham (2010).

Table 7: Means ±SD effect of adding Nigela sativa and Thymus valgaris on Edible carcasses parts of broiler Ross(308).

Treatments / Attribute/gram	Heart weight	Liver weight	Gizzard weight
C	13.38±0.46 [ab]	44.22±9.10 [b]	32.26±4.70
T1	12.20±1.41 [a]	48.00±6.80 [b]	34.16±4.75
T2	17.80±4.50 [bc]	47.42±6.23 [b]	36.11±9.18
T3	16.72±3.25 [c]	33.93±5.63 [a]	39.50±2.90

[a,b] means with different superscript within row are significantly different (P< 0.05) and values will increase from (a)to (b)value. Values mean ±S.D. Standard Deviation of 10 birds.

Conclusion

Utilization of herbs in poultry nutrition lead to improve digestibility and production performance, if used individual or mixing made increase for FCR and this very importance for economic production.

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