



EFFECT OF USE OF DIFFERENT CONCENTRATIONS OF *CINNAMOMUM CASSIA* POWDER IN SOME CARCASS AND BLOOD CHEMICAL TRAITS OF BROILERS

Adnan Shakor Ahmed Al-perkhdrī* and Rekawt Majeed Muhammed

Department of Animal Production, College of Agriculture, University of Kirkuk, Kirkuk, Iraq.

*Corresponding author: dradnan@uokirkuk.edu.iq

Abstract

Experiment conducted in Farm of Animal Production Department, College of Agriculture, University of Kirkuk, to investigate the effect of cinnamon (*Cinnamomum cassia*) Powder in productive performance and some blood Characteristics for Broiler. And use of the 90 chick chicken meat type Ross 308, Where distributed chick randomly on the three treatments by 3 replicates per treatment of each duplicate 10 bird. Continued to provide the water and feed birds and freely (Ad libitum) within a period of experience on the basal diet the initiator and growth was transactions as follows: Treatment of the first (T1): Compatible comparison of free add Second treatment (T2): Add 0.25 kg/tons Cinnamon Cassia to the antique Treatment of the third (T3): Add 0.5kg/tons Cinnamon Cassia to the antique. Results of the experiment showed that the addition of cinnamon to the diet has led to a significant ($P < 0.05$) increase for in the body weights and feed conversion efficiency compared with control. The treatment showed Add cinnamon significant decrease in cholesterol in the blood serum, compared with the control treatment, while its impact was not significant to the total protein and uric acid level in serum of birds.

Keywords: Broiler, Cinnamon, Productivity, Blood Characteristics.

Introduction

The great interest for researchers in recent herbal medical through the purification of its components effective, Cinnamaldehyde that give Cinnamon flavor and smell (Tipu *et al.*, 2006) contain peel and cinnamon on the essential oils up increase to 4% called Cinnamon aldehyde which have a many biological effects, also its contents eugenol, Cinnamyl acetate, Cinnamyl alcohol, Methyl cinnamaldehyde and have an acid called cinnamic acid (Anderson, 2008. Mohamed & Shanoon, 2012), its used as a natural additive to keep a good health of chicken and to avoid diseases, now it's have more attention in feeding and breeding of poultry (Tipu *et al.*, 2006, Suriya *et al.*, 2012). Cinnamon consider from the important herbal medicine because It content a Chemical

compound has in effect like insulin called Insulin Potentiating Factors (IPF) (Ciftci *et al.*, 2010).

Materials and Methods

The experiment Carried out in the field of poultry, Department of Animal Production, College of Agriculture University of Kirkuk, in the period 12 /3 to 28 / 4/ 2019. And use of the 90 chick chicken meat type Ross 308, Where distributed chick randomly on the three treatments by 3 replicates per treatment of each 10 bird. Continued to provide the water and feed(table 1) birds and Ad libitum within a period of experience on the basal diet the treatments as follows: the first treatment (T1) comparison without any additive, Second and third treatment (T2, T3) add of 0.25 and 0.5 kg/tons Cinnamon Cassia.

Table 1: The scales of the relevant materials in the formation of the factor used in the experiment with its combined chemical installation

Ingredient, %	Starter 1-21 day	Grower 22-35day
Corn	54	63.5
Soybean meal(44%)	36.5	31
Premix ⁽¹⁾	5	2.5
Sun flower oil	2.6	3
Stone Clea	1.5	0
Dicalcium phosphate	0.4	0
Total	100	100
Chemical composition ²		
ME, kcal/kg	2966	3153.65
CP, %	22.65	20.28
Ca, %	0.93	0.70
Pb, %	0.48	0.77
Met, %	0.51	0.53
Met + Cys, %	0.87	0.83
Lysine, %	1.31	1.33

¹ The use of the Centre protease Brocon-5 product of the Company WAFI Hollander containing the 40 kg/tons CP, 3.85 kg/tons Lysine, 3.7 Met, 4.12 kg/tons Met + Cys, 2183.7 kcal ME/kg, 5 kg/tons CF, 2.26 kg/tons Crude Fiber, 3.53 kg/tons Ca, 5.35 kg/tons Pb, 2.4 kg/tons Na, 200000 ul/kg Vit A, 6000 ul/kg Vit D3, 600 mg/kg Vit E, 50 mg/kg Vit K3, 60 mg/kg Vit B1, 140 mg/kg Vit B2, 700 mg/kg Vit B12, 80 mg/kg Vit B6, 800 mg/kg Niacin, 20 mg/kg of folic acid, 2 mg/kg biotin and 6073.20 mg/kg colin-chloride. ² by the chemical composition according to analyses silo contained in the NRC (1994)

Qualities of the Carcass measurements

Included the measurement of dressing percentage, proportion of the thigh, breast, back, wings, neck were analyzed data experience according to design random full were compared to the differences of the moral between the averages by choosing Duncan (1955) polynomial Use the statistical program ready –SAS of 2004 in the statistical analysis.

Blood biochemical characteristic

The used of crews solutions processed from the company Biolabo French to measure the concentration of Got, Gpt, Uric acid, Cholesterol, Sugar and protein

Results and Discussion

Results of carcass showed in table 2 to the absence of significant effect as a result of start a two different levels of cinnamon powder to the diets of Chicken meat in the qualities of the carcass (parts of the major and minor).

Table 2 : Effects of adding *Cinnamomum cassia* on carcass and parts percentage (means \pm standard error)

Treatment ¹	T1	T2	T3
Dressing percentage	89.51 \pm 13.08 ²	70.20 \pm 2.76	64.85 \pm 5.45
Back percentage	15.21 \pm 0.31	15.11 \pm 0.05	14.92 \pm 0.48
Drumstick percentage	7.57 \pm 0.32	8.30 \pm 0.23	8.29 \pm 0.26
Thaw percentage	7.14 \pm 0.19	6.63 \pm 0.15	6.71 \pm 0.22
percentage breast	30.53 \pm 1.49	26.69 \pm 2.63	29.74 \pm 2.01
Thigh percentage	22.19 \pm 1.96	22.51 \pm 0.82	21.87 \pm 0.43
percentage wings	5.24 \pm 0.20	5.14 \pm 0.23	5.59 \pm 0.22
Neck percentage	6.90 \pm 0.57	6.73 \pm 0.87	6.57 \pm 0.67

1 – T1:The treatment of control, T2,T3 Added to him cinnamon by 0.25 ,0.5 kg/tons respectively

2 – a,b the characters different within the row indicates the differences moral between the treatment and control at the level ($p \leq 0.05$) according to test Duncan

3 – Average \pm the standard error

In table 3 the results for the Internal entrained percentage note presence of differences moral between the treatments in terms of the proportion of gizzard where have a

Moral superiority in the treatment T3 compared to the treatment of control, followed by treatment T2 that have not vary significantly with the treatment control.

Table 3 : Effects of adding *Cinnamomum cassia* on internal entrained percentage (means \pm standard error)

Treatment ¹	T1	T2	T3
Heart	0.702 \pm 0.040	0.866 \pm 0.069 ³	0.844 \pm 0.082
Liver	3.864 \pm 0.306	4.919 \pm 0.491	4.007 \pm 0.329
Gizzard	2.488 \pm 0.202 b ²	ab 2.879 \pm 0.249	a 3.273 \pm 0.204
Spleen	0.217 \pm 0.031	0.281 \pm 0.056	0.262 \pm 0.011
Abdominal fat	1.060 \pm 0.257	0.588 \pm 0.220	0.660 \pm 0.235

1 – T1:The treatment of control, T2,T3 Added to him cinnamon by 0.25 ,0.5 kg/tons respectively

2 – a ,b the characters different within the row indicates the differences moral between the treatment and control at the level ($p \leq 0.05$) according to test Duncan

3 – Average \pm the standard error

The result in table 4 that significantly reduction in the enzyme activity GOT (AST) in the blood plasma for birds of the treatment with cinnamon powder in the treatment T3, compared to the two treatment T1 & T2. Came to the results of our study in accordance with (Shanoon *et al.*, 2019) in terms of the qualities of the sacrifice which use the cinnamon

powder 0.4,0.8, 1.2 % as well as in the qualities biochemical blood except cholesterol. He noted (Mohamed and Shanoon, 2012) that the start a cinnamon powder to the bush a bird comfort Japanese and by 0.1 , 0.2 % led to the significant reduction in the level of glucose, cholesterol and uric acid the absence of significant differences in the level of protein.

Table 4 : Effects of adding *Cinnamomum cassia* on Blood biochemical characteristic (means \pm standard error)

Treatment ¹	T1	T2	T3
Got	a137.57 \pm 10.81	ab 118.00 \pm 2.00 ³	b ² 113.00 \pm 5.06
Gpt	10.50 \pm 1.50	8.25 \pm 1.43	8.25 \pm 1.88
Protein	4.35 \pm 0.90	3.40 \pm 0.16	3.60 \pm 0.30
Uric acid	6.85 \pm 2.17	5.92 \pm 0.39	3.77 \pm 0.74
Cholesterol	150.00 \pm 9.63	105.75 \pm 6.01	120.25 \pm 20.53
Sugar	163.50 \pm 14.45	167.75 \pm 23.93	174.75 \pm 10.85

1 – T1:The treatment of control, T2,T3 Added to him cinnamon by 0.25 ,0.5 kg/tons respectively

2 – a ,b the characters different within the row indicates the differences moral between the treatment and control at the level ($p \leq 0.05$) according to test Duncan

3 – Average \pm the standard error

References

- Anderson, R.A. (2008). Chromium and polyphenols from cinnamon improve insulin sensitivity. *Proc. Nutr. Soc.* 67(1): 48-53.
- Arliss, J.O. and Ciftci, W.M.; Simsek, U.G.; Yuce, A.; Yilmaz, O. and Dalkilic, B. (2010). Effects of dietary antibiotic and cinnamon oil supplementation on antioxidant enzyme activities, cholesterol levels and fatty acid compositions of serum and meat. in broiler chickens. *Acta Veterinaria Brno.* 79(1): 33-40.
- Duncan, D.B. (1955). Multiple Range and Multiple F test. *Biometrics.* 11:1-42.
- Huff, G.R.; Huff, W.E.; Farnell, M.B.; Rath, N.C.; Solis de los santos, F. and Donoghue, A.M. (2010). Bacterial clearance, hetrophil function, and hematological parameters of transport-stressed turkey Poult supplemented with dietary yeast extract. *Poult. Sci.* 89: 447-456.
- Manwar, S.J.; Thirumurugan, P.; Konwar, D.; Chidanandaiah, Karna, D.K. (2005). Effect of *Azadirachta indica* leaf powder supplementation on broiler performance. *Indian Veterinary Journal.* 84: 159-162.
- Mohammed, A.B. and Shanoon, A.Q. (2012). Effects of adding of *Cinnamomum cassia* in diet on eggs quality and some blood parameters for Japanese quail. *Journal of Dayala agriculture sciences* 4(1): 64-75.
- SAS Institute (2001). *SAS User's Guide: Statistics Version 6.12ed*. SAS Inst. Inc., Cary, NC., USA.
- Suriya, R.; Zulkifli, I. and Alimon, A.R. (2012). The effect of dietary inclusion of herbs as growth promoter in broiler chickens. *J. Anim. Vet. Advan.* 11: 346-350.
- Tipu, L.A.; Pasha, T.N. and AIL, Z. (2006). Comparative efficacy of salinomycin sodium and Neem fruit (*Azadirachta indica*) as feed additive anticoccidials in broilers. *Int. J. Poult. Sci.* 1(4): 91-93.