

Effect of Adding *Cinnamomum cassia* Powder to the Ration in Some Blood Traits of Broiler Ross 308

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Abstract

This study was conducted at Poultry Farm of Animal Resources Dept., College of Agriculture, University of AL-Qasim Green to investigate the effect of adding *Cinnamomum cassia* powder to the ration in some blood traits of broiler Ross 308. Use the 90 broiler chicks Ross 308 day-old were randomly assigned to three treatments (by 3 replicates per treatment 10 chicks per replicate), and treatments were as follows : (first treatment) without adding *Cinnamomum cassia* powder to the diet, add *Cinnamomum cassia* powder by 2000 mg / kg feed (second treatment) and add *Cinnamomum cassia* powder by 2500 mg / kg feed (Third treatment) . Blood traits included in this study were Red blood cell counts, PCV and Hemoglobin concentration .The results indicated that the addition of *Cinnamomum cassia* powder by 2000 and 2500 mg / kg feed to broiler diet led to a significant improvement ($p < 0.05$) in Red blood cell counts, PCV and Hemoglobin concentration. It concluded from this experience, that the addition of *Cinnamomum cassia* powder by 2000 and 2500 mg / kg feed to the ration can lead to improve in some blood traits of the broiler .

Keywords: *Cinnamomum cassia* powder , blood traits , broiler

Introduction

Characterized by commercial hybrids for broiler chickens weights high body at marketing as a result of genetic improvement and development of poultry housing equipment (Jackie, 2003), which reflected negatively in the lower body's immunity and resistance to avian diseases and various stress where it was noted there is a negative correlation between body weight and immune response in broiler chickens (Qureshi and Havenstein, 1994) that Alone producers of chicken meat to use medical drugs through education period to reduce the incidence of pathological injuries and reduce the proportion of mortality, which made the researchers are looking for ways to raise the body's immunity and reduce the chances of bacterial infections disease in broiler chickens, It is this means the use of medicinal herbs as additives in feed rations of broiler chickens .

Studies are the bark of a tropical evergreen plant permanent dense tree can reach a height of ten to forty meters. Native to Sri Lanka, but also grown in Southeast Asia, South America and western India. yellow flowers and a small, small fruit resembling cloves. Peel studying the volatile oils containing terms of up to 4%, and the scientific name for learners is *Cinnamomum zeylanicum* and there are other labels such as Aldarchina or cinnamon and colloquially students and powder scholars considered a medicinal herb, which is marked by many of the active compounds, containing scholars oil on a compound known as (cinnamaldehyde) which is attributable to more pharmacological effects as well as the compound (eugenol), which is the second compound in the oil, which accounts for tranquilizing effect (Kim et al., 2006), each containing 100 grams of students, according to the Ministry of Agriculture American food on the following information:

Calories: 247%, fat: 1.24%, saturated fat: 0.34%, carbohydrates: 80.59%, Fiber: 53.1%, proteins: 3.99%, cholesterol: 0%. As Cinnamon scholars contain phenolic and Filafinuh compounds that have an effect counter to the growth of the bacteria causing the corruption of food (Friedman et al., 2000) and appeared through chemical diagnosis of powder scholars fit on 14 types of volatile oils-effective antimicrobial, especially turbines, ketones and hydrocarbons and other vehicles (Takizawa et al., 2001) as the scholars contain contain a substance, Polyphenol and characterized by so doing, similar to the reaction of insulin and the therapeutic referred to as an anti-bacterial and fungi and effectiveness of antioxidant (Anderson, 2004) and indicates a number of studies to its role as an antioxidant and sink to the image of fat in the blood of poultry, including Chicken meat in order to usability to curb free radicals (Ciftci et al., 2010) and contain the students on what is known as (Insulin potentiating Factors) which plays an important role in reducing the level of glucose in the blood (Khan et al., 1990) as the learners role in influencing the number of blood cells White (Koh et al., 1998). So it was the aim of this study was to determine the effect of *Cinnamomum cassia* powder in addition to ration broiler in some bloody qualities.

Materials and methods

This study was carried out at the poultry farm of Animal Resource college of Agriculture, University of AL-Qasim Green from 14/3/2015 to 18/4/2015. Use the 90 chick broiler chickens Ross and an average weight of 43 g . Been raising chicks in cages ground dimensions (2 × 2) m, and chicks were distributed randomly on three treatments (by 3 replicates per treatment 10 chicks per replicate), It has been providing feed for the birds freely and fed the birds on a ration (Table 1). Treatments were as follows :(first treatment) without adding

Cinnamomum cassia powder to the ration, add *Cinnamomum cassia* powder by 2000 mg / kg feed (second treatment) and add *Cinnamomum cassia* powder by 2500 mg / kg feed (Third treatment) . The experiment included a study of the following characteristics: The red blood cells count, PCV and hemoglobin concentration as was the blood collection in weeks 3 and 5 of 9 birds of each treatment (3 birds from each replicate) wildy as the collection of blood from a vein brachial where the use of pipeline container blocker Potassium EDTA anticoagulant to prevent blood clotting PCV been calculated using the lattice tubes at a private container mind clotting by the way in which he referred Archer (1965). Hemoglobin concentration was estimated by turning it into a complex compound Cyanomethemoglobin using reagent Drabkins reagent and by the way in which it pointed (Varley et al. 1980) and as the red blood cells count according to the method referred to by Natt and Herrick (1952).

Data were subjected to an ANOVA using the General Linear Models (GLM) procedures of SAS (2010). Significant treatment means were separated by using the multiple range test of Duncan (Duncan, 1955) .

Table 1. Composition of experimental ration.

Ingredients (%)	Starter	Grower
	1 – 21 days of age	22 – 35 days of age
Yellow corn	59	35
Wheat	-	32.5
Soybean meal	30	20
Protein concentaverage ⁽¹⁾	10	10
Sunflower oil	-	1.5
Limestone	0.7	0.7
Salt	0.3	0.3
Total	100	100
Calculated chemical structure ⁽²⁾ (%)		
Crude protein	23.12	20.42
ME, Kcal / Kg feed	2936	3068
Lysine	1.30	1.07
Methionine	0.53	0.48
Calcium	0.92	0.91
Available phosphorus	0.55	0.46

⁽¹⁾ Protein concentaverage used was Golden which imported from Jordan. However, this concentaverage provided per Kg: 49% crude protein; 2900 ME K cal / Kg; 15% crude fat; 20% Ash; 5.6% calcium; 3.1% available phosphorus; 3.4% lysine; 2.4% methionine; and 3.2% methioinine + cystine.

⁽²⁾ Chemical structure was calculated according to the analysis of diet material found in NRC (1994).

Results and discussion

Table (2) that the use of *Cinnamomum cassia* powder in ration for broiler chickens has led to increasing the red blood cells count significance (P<0.05). The nature of this increase was in sync with the increase in the concentration of *Cinnamomum cassia* powder in the feed and in the third and fifth weeks where the third-treatment recorded the highest level, reaching 2.29 million cells / mm³ of blood in the third week and 2.33 million cells / mm³ of blood in the fifth week and then followed by treatment The second treatment recorded 2.25 and 2.28 million cells / mm³ of blood for two weeks, third and fifth, respectively, then the control treatment came and the lowest recorded level of red blood cells count, reaching 2.17 million cells / mm³ of blood in the third week and 2.19 million cells / mm³ of blood in the fifth week This increase was attributed of red blood cells count as a result of the body's need to meet the new requirements for the transfer of nutrients and oxygen to cells because of the increased metabolic rate of birds that dealt with *Cinnamomum cassia* powder added to the diet, may be the reason for the high red blood cells count in *Cinnamomum cassia* powder treatments being an antioxidant effective where It helps protect blood cells from damage that may occur as a result of oxidation (Koh et al., 1998).

Table (2) Effect of *Cinnamomum cassia* powder in addition to the ration on the red blood cells count (million / mm³)

Age (week)		Treatments
5	3	
c 2.19± 0.25	c 2.17± 0.21	first treatment
b 2.28± 0.09	b 2.25± 0.13	second treatment
a 2.33± 0.17	a 2.29± 0.11	Third treatment
*	*	Level of significance

* : P<0.05

The table (3) indicates that the (PCV) values were taken almost to changes in the preparation of red blood cells in the third and fifth week trend is identical, and is associated with PCV measure of the number of red blood cells, where the greater the number of red blood cells lead to an increase in the PCV scale (Sturkie, 1986). It was to concentration *Cinnamomum cassia* powder significant impact on the PCV scale where note of the table (3) that whenever the concentration of *Cinnamomum cassia* powder increased in the diet increased blood hematocrit values (PCV), was the third treatment recorded (2500 mg *Cinnamomum cassia* powder / kg feed) the highest level to measure hematocrit reaching 31.18% in the third week and 33.61% in the fifth week and a difference of moral (P<0.05) compared treatment first and second, followed by a second treatment (2000 mg *Cinnamomum cassia* powder / kg feed) recorded a 28.23% in the third week and 30.82% in the fifth week has excelled significance (P<0.05) on the first treatment, which came in ranked last in terms it fell behind significantly (P<0.05) for the second and third treatments amounted to 23.64% and 26.25% in the third and fifth weeks in a row.

Table (3) Effect of *Cinnamomum cassia* powder in addition to the ration on PCV (%)

Age (week)		Treatments
5	3	
c 26.25± 0.10	c 23.64± 0.33	first treatment
b 30.82± 0.13	b 28.23± 0.42	second treatment
a 33.61± 0.16	a 31.18± 0.25	Third treatment
*	*	Level of significance

* : P<0.05

Table (4) Indicates to that the increase in hemoglobin concentration similar to those obtained for the preparation of red blood cells, where the concentration of hemoglobin that is directly linked to the number of red blood cells (Sturkie, 1986). Therefore, the nature of this increase in hemoglobin concentration was associated with strong links to a concentration of *Cinnamomum cassia* powder in the feed and in the third and fifth weeks of age where outperformed the third treatment, has registered 8.53 and 8.77 (g / 100 ml) respectively and significance (P<0.05) on the first treatment and second, The second treatment was also significantly outperformed ahead of the first treatment, with the lowest concentration of hemoglobin and stood at 7.64 and 8.21 (g / 100 ml) the third and fifth, respectively for two weeks, from here to show that the concentration of an important role in increasing the concentration of hemoglobin.

Table (4) Effect of *Cinnamomum cassia* powder in addition to the ration on Hemoglobin concentration (g / 100 ml)

Age (week)		Treatments
5	3	
c 8.21± 0.33	c 7.64± 0.31	first treatment
b 8.36± 0.51	b 8.22± 0.62	second treatment
a 8.77± 0.18	a 8.53± 0.11	Third treatment
*	*	Level of significance

* : P<0.05

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