



EFFECT OF THE ADDITION OF GREEN TEA TO THE AWASSI LAMBS RATIONS ON SOME BLOOD STANDARDS

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Abstract

This study was undertaken at the College of Agricultural Engineering sciences, University of Baghdad, Department of Animal Production / Animal field, for the period from 29/10/2017 to 8/1/2018 to study the effect of adding green tea (*Camellia sinensis*) to the diet at 30 and 50 gm in 15 sheep (each group having 5 animals). The results obtained showed no significant effect add green tea on the blood Calibrated, there was no significant effect on liver enzymes (ALT, GOT, GPT), Plasma glucose, Cholesterol, Urea, albumin, total protein (TP) The study summarized that it is possible to have the addition of green tea to the diet no significant effect.

Key words: Green tea, Blood Calibrated, Cholesterol.

Introduction

Green tea one of the Protein-rich commercial feedstuffs such as and alfalfa hay, soybean meal are often used in livestock production, but they are generally expensive (Yamamoto *et al.*, 1997; Hassan *et al.*, 2007) Interest in domestically produced protein-rich feeds forage is partially a consequence of the fluctuations in soy product price resulting from global climatic aberration in the world and increasing demand from China and other factors. Green tea Considered a popular drink in Asia, consumption of green tea in cans, packs and bottles has increased remarkably in recent years in Asia. Beverage companies manufacturing various tea drinks produce enormous quantities of tea leaf by-products. Tea leaves are rich in nitrogen compounds, tannins, amino acids, polyphenols and vitamins (Yamamoto *et al.*, 1997) and physiological functions have encouraged its application in research and livestock production systems add green tea, Modification of rumen fermentation was achieved by addition of tea saponins to heifer diets or to the substrates during *in vitro* fermentation (Liu *et al.*, 2003; Hu *et al.*, 2005, Alobeidi and Al-Samarrae, 2018). The addition of crushed green tea leaves improved the efficiency of food conversion and increase daily and total weight. But did not affect the rumen ferments of both pH and ammonia nitrogen Natural antioxidants extracted from tea have attracted interest as dietary supplements of small ruminants (Zhong *et al.*, 2009). Our objective was to determine effects of green tea on Blood standards.

Materials and Methods

This study was conducted in the Animal field of University of Baghdad, The study continued for 60 days in addition to 12 days as a preliminary period, from the period from 29/10/2017 to 8/1/2018 on 15 sheep The purpose of the study was to investigate the effect of green tea (*Camellia sinensis*) on Blood Calibrated 15 Awassi lambs were used in this experiment. They had an average initial weight of 27 ± 0.50 kg at the age of 5-7 months. Lambs were divided randomly into three equal groups (5 each) and then kept in individual pens (1.25 × 1.25 m) and numbered according to the transactions. All lambs fed individually on a unified concentrate mixture at 3% of Live Body Weight (LBW) while the roughage portion offered at *ad libitum* for animals of the two groups. The adaptation period amounted for 12 days where fodder was offered gradually. The roughages introduced separate concentrate diets at 10:00 am. Samples of concentrates and roughages collected for chemical analysis are shown in Table 1.

Table 1: The chemical composition of control (T1), the chemical composition of-T2- (30 gm) and -T3-(50gm) of The chemical composition of (% of dry matter)

Contents (%)	T1	T2	T3
DM	98.72	96.7	97.3
OM	94.78	92.91	92.91
CP	14.37	14.31	14.41
CF	9.16	6.74	7.38
EE	3.44	3.40	3.42
NEF	69.09	71.79	70.39
ME	12.92	13.15	13.01

ME(mj/kgDM)=CP*0.012+EE*0.031+CF*0.005 +NFE*0.014 (MAFF ,1975)

Blood Analysis

Blood was taken from the jugular vein blood (10 ml) of 3 sheep each feeding group into gel tube just 3 h after the morning meal on the last day of the test period. The samples were centrifuged at 1,200×g for 15 min. The plasma was separated and stored in a plastic tube and frozen at -80°C until analysis was performed. Plasma concentrations of liver enzymes (ALT, GOT, GPT), Plasma glucose, Cholesterol, Urea, albumin, total protein (TP).

Statistical Analysis

The experimental data analyzed applying a Complete Randomized Design (CRD) and compared the moral differences between averages by Duncan test multi – border (Duncan, 1955) using statistical program SAS (SAS, 2012).

Results and Discussion

The plasma urea N on the T2 and T3 treatments was no significantly than that on the control diet after feeding Urea N in Blood no significantly In the plasma reflects the dietary CP content, as excess ruminal ammonia enters the blood and is converted to urea in the liver, whereas the concentration of NH₃-N in the rumen was not different between the diets in this study and no significant differences were observed in plasma concentrations of glucose, liver enzymes between the treatments (Nishida *et al.*, 2006).

Liver Enzymes

Table 2 shows that treatment with green tea did not have any significant effect on the liver enzymes same result Nishida *et al.* (2006) were not significantly affected by feeding green tea waste silage to Holstein steers, As GOT and GPT are closely associated with the hepatic function, Where the same results were obtained when added tea saponins at levels of 0, 3 and 6 gm per day (Hu *et al.*, 2006).

Table 2: Effect of treatment with green tea on liver enzymes

(mean ± standard error)			
Treatment	GPT	GOT	ALK
T1	11.00±1.00	87.33±10.26	35.90±10.06
T2	13.66±1.20	117.66±6.48	21.63±0.96
T3	14.66±1.76	108.00±23.43	29.50±7.63
Significant	Ns	ns	ns

ns = non-significant

In table 3 Plasma glucose and cholesterol were not significantly affected by feeding green tea in this study. Serum total Plasma glucose and cholesterol levels in humans have been found to be inversely related to the

consumption of green tea, while no association was noted with Plasma glucose and cholesterol using cross-sectional data on males (Kono *et al.*, 1992). Studies have shown Epidemiological studies suggest that drinking multiple cups of green tea per day lowers cholesterol in mild to moderate hyper cholesterolemic adults (Maron *et al.*, 2003). We cannot conclude whether or not higher cholesterol in the plasma of cattle fed green tea waste silage is beneficial for the health of cattle, because their lifetime is too short for chronic cardiovascular disease and arteriosclerosis to be of concern. Most metabolic diseases occur during the periparturient period, consequently, more studies are needed to determine the effect feeding green tea the activity of lecithin: cholesterol acyltransferase, which are useful markers for early diagnoses of fatty liver and related diseases (Kato, 2002). In the experience Hu *et al.* (2006) The concentrations of plasma glucose, was not affected While cholesterol were lower in the added tea. Same results Aazami *et al.* (2013) when study effect saponins on Baluchi sheep Saponins were added at levels of 0, 100 and 200 mg/kg dry matter intake Plasma glucose not significantly but Cholesterol Decreased with a high concentration of tea, the same researcher experimented with effect saponins on Saanen kids Saponins were added at levels of 0, 36 and 54 mg/kg dry matter intake and obtained the same results. The absence of effect of green tea on plasma glucose in the present study might be due to the low levels of green tea administered. In our study, green tea is expected anticholesterol effect as reported by other (Potter, 1993 and Matsuura, 2001). One of the expected effects of green tea in this study was a reduction of plasma cholesterol concentration. This cholesterol lowering effect of saponins is attributed to their ability to form insoluble micelle complexes with sterols such as cholesterol in the intestine (Cheeke, 2000) expected which is in contrast with our results.

Table 3: Effect of treatment with green tea on Plasma glucose and Cholesterol

(Mean ± standard error)		
Treatment	Plasma glucose	Cholesterol
T1	75.16±0.91	68.76±2.92
T2	74.80±0.91	74.20±2.48
T3	73.33±0.88	68.80±2.23
Significant	Ns	ns

In the Table 4 Effect of treatment with green tea on Urea, Total protein and Albumin not significantly affected by feeding green tea in this study Same results Reach it Hu *et al.* (2006) experiments were conducted to investigate the effects of tea saponins on ruminal goats

The animals received the same basal diets, and added TS at levels of 0, 3 and 6 g per day Serum total protein, albumin, but whereas the blood urea nitrogen, creatinine were lower in the 6 g groups. Same results Aazami *et al.* (2013) when study effect saponins on Saanen kids Saponins were added at levels of 0, 36 and 54 mg/kg dry matter intake Urea not significantly, The same researcher experimented with effect saponins on Baluchi sheep Saponins were added at levels of 0, 100 and 200 mg/kg dry matter intake and obtained the same results.

Table 4: Effect of treatment with green tea on Urea, Total protein and Albumin

(mean ± standard error)			
Treatment	Urea	Total protein	Albumin
T1	31.20±1.37	61.50±6.06	29.36±3.53
T2	26.73±2.71	65.33±1.41	34.60±0.35
T3	28.53±1.84	60.96±7.29	30.33±3.56
Significant	Ns	ns	ns

Conclusions

Treatment with green tea any significant effect in the blood calibrated may be due to the percentage of tea added or due to the duration of the experiment

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