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EFFECT OF ADDITION OF IRAQI PROBIOTIC ON BLOOD PARAMETERS IN AWASSI LAMBS FEEDING BARLEY STRAW

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ABSTRACT
24 Awassi lambs aged 5 months and with average live weight 28±0.5 kg divided into four groups at randomly at 6 lambs each group and fed individually on concentrated ration by protein 12% and fed barley straw treated with Iraqi Probiotic (IP) as follows the first group (T1) were fed on barley straw treated with 0.25% IP the second group (T2) were fed on barley straw treated with 0.50% IP the third group (T3) fed barley straw with 0.75% IP, while the fourth group (T4) control group fed barley straw untreated .The barley straw feed *Ad libitum*, experiment lasted nine weeks (growth experiment). Blood samples were withdrawn three times in the beginning, middle and end of the experiment. The results showed some recipes blood cell having a high moral ($P < 0.05$) in treatments 1, 2, 3 in the numbers of red blood cells compared with a control, while there were no significant differences in the numbers of white blood cells for the periods first and second and appeared high moral in numbers in the third period only treatments 1, 2, 3 compared with the control group. The results indicate significant increase ($P < 0.05$) in the concentration of hemoglobin the second and third periods of each treatments, and appeared a significant rise in the volume of blood cells stacked for the third period of the three compared to the control group. Results indicated some blood hemoglobin recipes to get a significant reduction ($P < 0.05$) in the concentration of cholesterol in the three groups compared with the control group. Hence the treatment with Iraqi Probiotic gave the best results and the different proportion of Iraqi Probiotic significantly affected by treatment.

KEYWORDS: Awassi lambs, barley straw, Probiotic, blood hemoglobin.

INTRODUCTION

Occupies feed additives to animals farm diets of great importance as a cheap and easy to use and give good returns for educators (Center for Development of performance and development 2009) has stated Al-Sayegh and Alkas (1992) the most important obstacles that limit the expansion of livestock is scarce concentrated feed for ruminants as well as poor quality of roughage, in addition to the prohibitive costs of feed in some areas or seasons. That raise productivity of animal has become necessary because of the decline of the number of animals and increasing numbers of the population which requires the provision of quantities and qualities of local feed and few pricey, so tended attention to add some types of microorganisms to agricultural and industrial waste industrial. Al-Ghazali (2009) added Iraqi probiotic (IP) and baker's yeast to fattening diets for awassi lambs with different sources of agricultural wastes (corn cobs, and wasted dates and date stones) at the best response with date stones which have enhanced pobiotic and baker's yeast. Mehnaa, (2007) select the best percentages added to corn cobs from enhanced Iraqi probiotic and baker's yeast. Judy (2010) got on the significant decrease ($p < 0.05$) in the blood urea concentration, while the concentrations of cholesterol and glucose levels were not significant in Awassi lambs fed different ratios of date stones (20.50,75%) added Iraqi probiotic with baker's yeast was the best performance at 50% of the date stones.
All studies previously used Iraqi probiotic as fed additives (Saarela *et al*., 2000, Aldana *et al*., 2009, and Ghalibi, 2010). While the aims of current study were to find the effect of treatment of barley straw with Iraqi probiotic in different proportions in some blood parameters.

MATERIALS & METHODS

This study was conducted at the sheep station of Abu Ghraib / Public Authority for livestock / Ministry of Agriculture for the period from 28/4/2010 to 28/6/2010 to see the impact of barley straw treatment with Iraqi Probiotic (IP) in different proportions (0.25, 0.50, 0.75 % of DM) on blood measurements (the number of red and white blood cell, size packed blood cells, cholesterol and hemoglobin concentration).
Treatment of barley straw with Iraqi probiotic. Every 1 g of Iraqi Probiotic provides 10^8 CFU of the following components (Al-Dhanqi, 2003):

1-Lactobacilli bacteria
2-*Lactobacilus acidophilus* bacteria
3-*Bacillus subtilis* bacteria
4 –Baker s yeast (*Sacchromyces cerevisae*) (S.C.)

Barley straw put on nylon and sprayed with water and covered ,with stirring to ensure homogeneity distribution humidity on all straw for the purpose of providing humidity 70% then divided into three equal parts, first part treated with 0.25% and the second with 50% and third with 0.75% of Iraqi Probiotic sprayed on the straw with continuous stirring for homogeneity in the distribution of IP on all straw , then was covered with nylon from all

sides to provide anaerobic as possible and close the store to attend store very dark condition, after fifteen days opened and air dried beyond put straw in special bags fodder until use. The air temperature during the treatment was 28-30°C, which is the best score for the growth of most fungi

Preparation of diets used

The components of concentrate diet shown in table (1) and offered 3% of live body weight and use straw barley offered at 1kg / head /day which is much more than animal needed after treatment with Iraqi Probiotic.

TABLE 1: Components of concentrate diet

Ingredients	%
Barley	37
Wheat bran	35
SBM	5
Corn	20

TABLE 2: Chemical composition of experimental diet

Article	DM	Ash	CP	CF
Concentrate diet	93.60	6.04	13.68	5.27
Barley Straw without treatment	96.26	13.45	3.44	44.98
Barley straw treated with 0.25% IP	95.69	9.78	6.47	33.34
Barley straw treated with 0.50% IP	95.45	11.65	5.86	35.22
Barley straw treated with 0.75% IP	96.04	11.25	5.81	35.76

Experimental animals

24 lambs 5 months old with average body weight 28±0.5kg were used and animal were dosage against internal and external parasites and all the animals were in good health and free from diseases. Animals were divided into four random groups, and by 6 animals per each group, and put the animals in individual pens. The animal was divided according to the following:

1. Control group : fed diet Cocentrate +Barley Straw without treated.
2. Group A (T1): fed diet Cocentrate+ Barley Straw treated by 0.25% IP.
3. Group B (T2): fed diet Cocentrate+ Barley Straw treated by 0.50% IP.
4. Group C (T3): fed diet Cocentrate+ Barley Straw treated by 0.75% IP

Animals fed experimental diets for two weeks as adaptation period the purpose with the availability of clean water continuously .

Analysis of blood samples

It was withdrawn 5 ml of blood jugular vein on the first day of the start of the experiment and the thirty day, while another pull sample after sixty-day from the start of the experiment and was drawing blood in the early morning before feeding and has put 2 ml of blood drawn tubes blood collection containing material of anti coagulation (EDTA) and preserved in pipes at 4c. until tests while been put the rest of the blood (3 ml) in tubes free of any anti-clotting at room temperature and put forward slop for two hours and then separated clot formed by the centrifuge speed 3000 r/min and serum was withdrawn by Pastuer pipette and placed in tightly closed plastic tubes kept freezing degree until then all samples sent to the lab station for the purpose of conducting laboratory tests. The results were analyzed using the statistical software ready SAS (2004).

RESULTS & DISCUSSION

The results showed in table 3 were significant difference ($p < 0.05$) in the number of red blood cells (RBC) for all periods when measured at 30 and 60 day as increased numbers in animals that dealt with treatments (2, 3 and 4) were prepared for the second period of each treatment 11.83, 10.86,10.98 million cell / ml compared with control, which was 7.47 million cells / ml either the third period of each treatment were 11.69, 12.68,11.78 million cells / ml, compared with the third period for the diet control 7.76 million cells / ml The reason for this is due to the weight increase that occurred in experimental animals fed on diets treatment as a result of increasing the nutritive value of the straw and its palatability and thus increase the amount of feed intake and this is consistent with the findings, Wysong (2003), Safaa and *et al*. (2004),Hassan and *et al*. (2008).

TABLE 3: Effect of feeding barley straw treated in the number of red blood cells (million cells / ml)

Treatment	Periods		
	P1	P2	P3
Control	7.55±0.335	7.47 ± 0. 120 b	7.76 ± 0.298 b
T1	7.74± 0.364	11.83 ± 0.102 a	12.68 ± 0.127 a
T2	7.83 ± 0.864	10.86 ± 0.159 a	11.78 ± 0.128 a
T3	7.68 ± 0.297	10.98 ± 0.133 a	11.69 ± 0.100 a
Level of significance	N.S	*	*

(P1, P2, P3,) P means Period 1 = first day, 2 = 30 day, 3 = 60 dayVarious characters within the same column indicate the presence of significant differences N.S not significant * differences significant at a probability level of 0.05

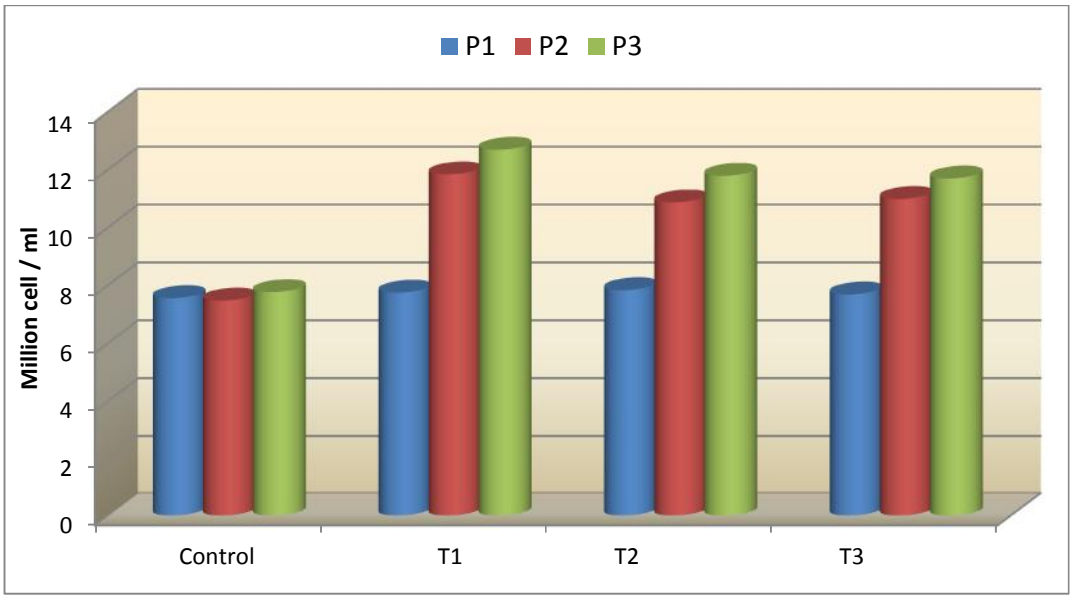

FIGURE 1: Effect of feeding barley straw treated in No. of RBC

As noted in the table (4) there is highly ($p < 0.05$) in the number of white blood cells for the third period from the experimental animals fed barley straw treated, the cause of increased numbers of white blood cells could be due to the positive role of enhanced increase immunity body as these findings are consistent with the findings of the, Wysong, (2003) and Naji and *et al*. (2011)and Ali (2005),were no significant difference in the No. of W.B.C. for the treatment at P1and P2 period.

TABLE 4: Effect of feeding barley straw treated in the number of white blood cells (cells / ml).

Treatment	Periods		
	P1	P2	P3
control	7325.5 ± 1.350	7453.7 ± 1.780	7245.0 ± 0.726 b
T1	757.8 ± 0.876	828.6 ± 0.573	10567.0 ±0.987 a
T2	786.6 ± 0.456	887.5 ± 0.098	9766.9 ± 1.264 a
T3	745.9 ± 0.745	878.4 ± 0.034	9898.3 ± 0.234 a
Level of significance	N.S	N.S	*

Various characters within the same column indicate the presence of significant differences.
N.S. not significant * differences significant at a probability level of 0.05

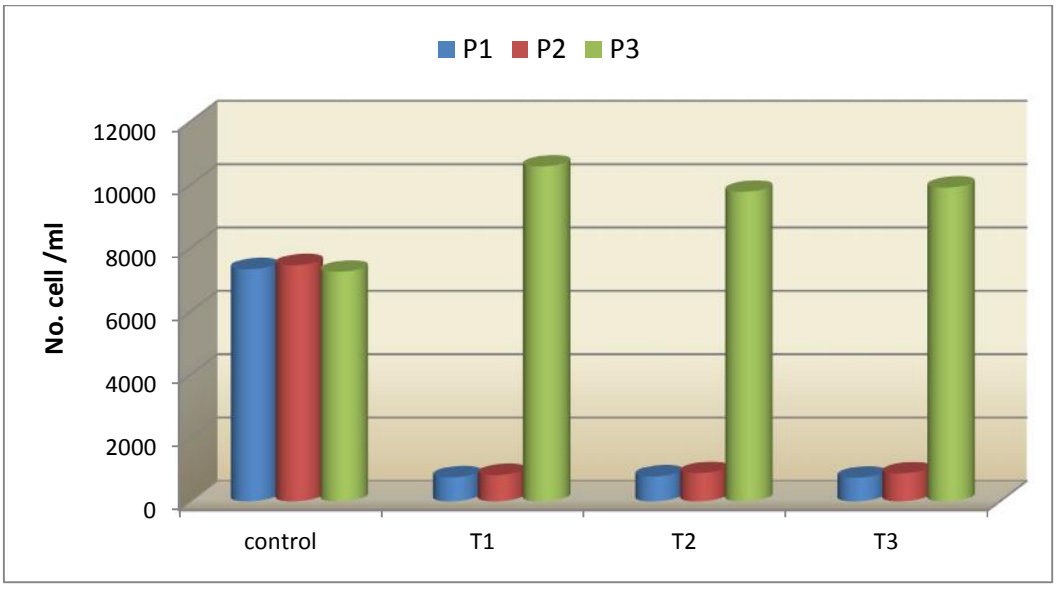

FIGURE 2: Effect of feeding barley straw treated in No. of WBC.

Results indicated in table 5 to the existence of significant differences (P <0.05) in the concentration of hemoglobin for periods p2 and p3 of the treatment (3,2,1) as surpassed totals fed on barley straw treated and was compared with the control group (11.872, 11.265,10.943 comparison with control group 7.870 g / 100 ml while it was the third period of each treatment 12.346,11.346,12.423 , compared with the control group, her T1,T2,T3, was 7.564 g / 100 ml. increase hemoglobin concentration belong to winning superiority in numbers of red blood cells in animals fed on barley straw treated Al- Saadi, 2009, Al- Qassimi, 2010. Hassan & Hassan 2010, and Al-Salmani (2011).There is no significant difference for P1at all treatments

TABLE 5: Effect of feeding barley straw treated in hemoglobin concentration (100ml/gm)

Treatment	Periods		
	P1	P2	P3
Control	7.456 ±0.823 b	7.870 ± 0.342 b	7.564 ± 1.291 b
T1	8.493 ± 0.736 b	11.872 ± 1.065 a	12.346 ± 0.012 a
T2	8.298 ± 0.176 b	11.265 ± 0.547 a	11.879 ± 0.210 a
T3	8.921 ± 2.200 b	10.943 ± 1.544 a	12.423 ± 0.008 a
Level of significance	N.S	*	*

Various characters within the same column indicate the presence of significant differences.
N.S not significant,* significant differences at the 0.05 level of probability.

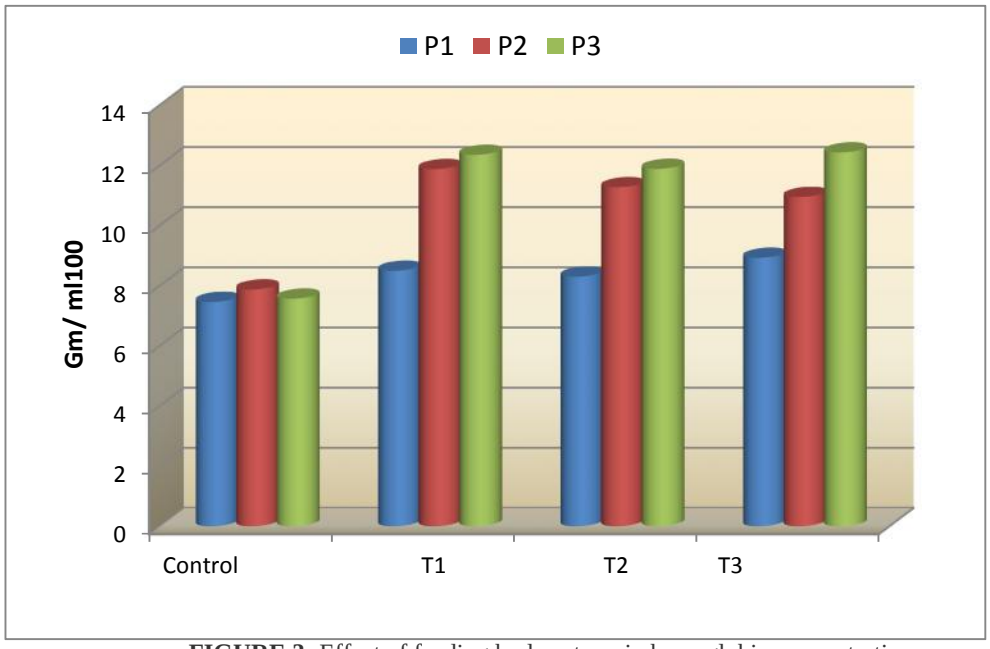

FIGURE 3: Effect of feeding barley straw in hemoglobin concentration.

Evident from the table 6 show no significant differences to the size of blood cells stacked (P.C.V.) in the first and second periods, while significant difference (p <0.05) in the third period for at treatment in the volume of blood cells it was a reflection of the numbers of blood cells (Hassan and et.al 2009, Riddell and et.al 2010).

TABLE 6: Effect of feeding barley straw treated in the size of blood cells stacked (%).

Treatment	Periods		
	P1	P2	P3
Control	28.887 ± 0.126	30.00± 2.430	28.323± 1.143 b
T1	28.117 ± 0.123	31.621± 1.210	34.220±0.426 a
T2	27.463 ± 0.065	30. 564 ± 0.150	33.212 ± 0.109 a
T3	33.333 ± 0.282	30.376 ± 0.166	33.333 ± 0.180 a
Level of significance	N.S	N.S	*

N.S not significant,*differences significant at a probability level of 0.05, various characters within the same column indicate the presence of significant differences

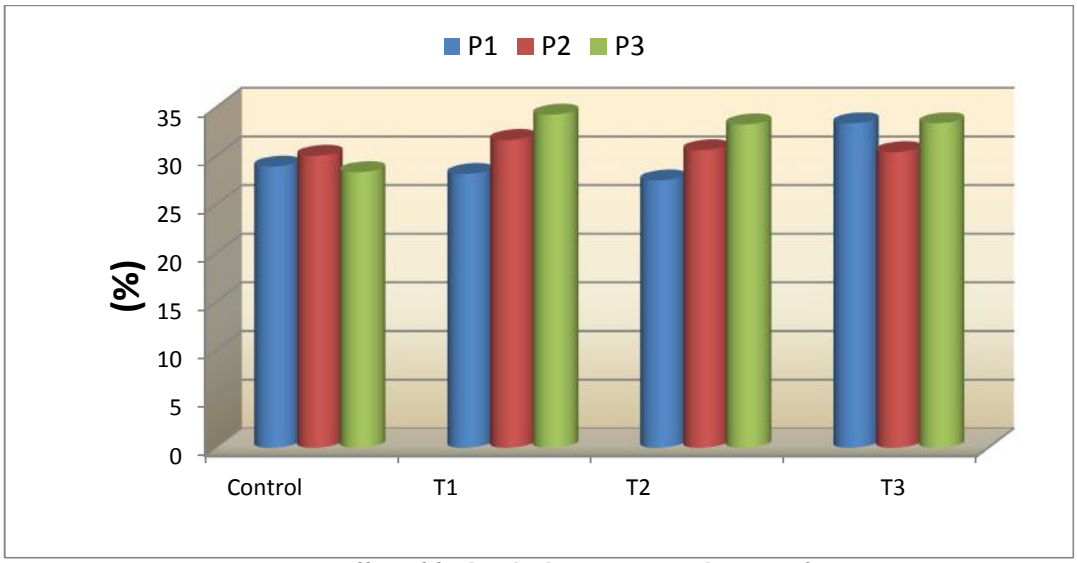

FIGURE 4: Effect of feeding barley straw treated in size of BCS

Effect of feeding barley straw treated with Iraqi Probiotic in some biochemical parameters of the blood serum shown in table 7, it was indicating that significant decrease (P <0.05) in the concentration of cholesterol in the all treatment (1,2,3) for the periods second and third compared with th control group which was once a higher level of Al-jamaa (2007)and Al- Issawi (2008), Hassan & Hassan(2010) and there is no significant difference in period1 with all treatments .

TABLE 7: Effect of feeding barley straw treated of blood cholesterol concentration (mg/dl)

Treatment	Periods		
	P1	P2	P3
Control	9.233 ± 0.234	8.786 ± 0.564 a	9.545 ± 0.127 a
T1	8.974 ± 1.285	6.846±1.0926 b	6.467 ± 0.862 b
T2	9.774 ± 1.696	7.162 ± 1.187 b	6.745± 0.664 b
T3	9.582 ±2.00	6.649± 0.762 b	6.866± 1.545 b
Level of significance	N.S	*	*

NS not significant,*differences significant at a probability level of 0.05, various characters within the same column indicate the presence of significant differences.

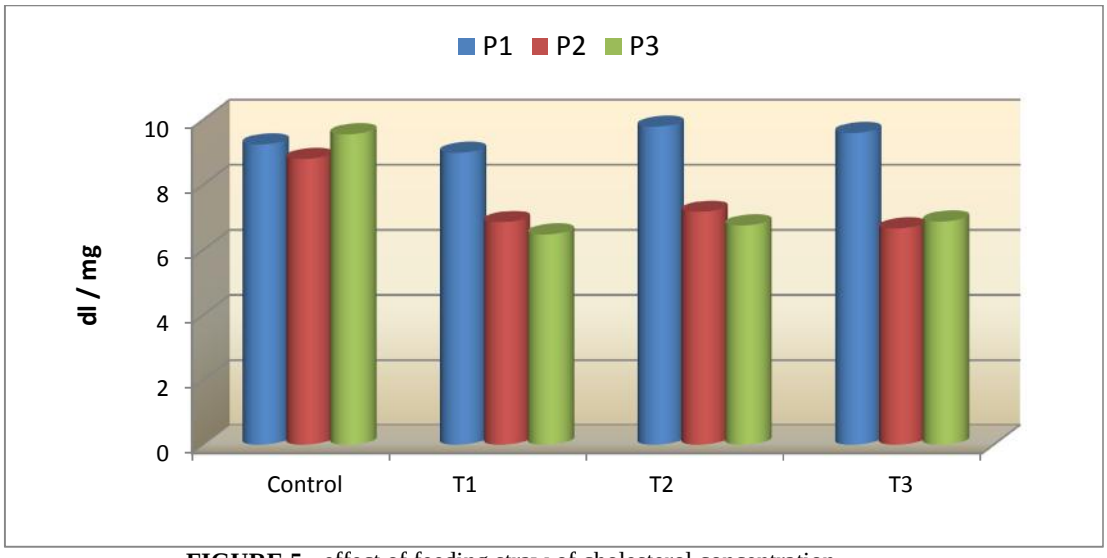

FIGURE 5: effect of feeding straw of cholesterol concentration.

There are no differences in urea concentration between treatment in the all groups fed on barley straw treated with IP compared with the control group (Al- Qassimi 2010 and Hassan and *et al*., 2009).

TABLE 8: Effect of feeding barley straw treated with blood urea concentration (mg/dl).

Treatment	Periods		
	P1	P2	P3
Control	29. 33 ± 2.834	28.96 ± 0.533	29.54 ± 0.127
T1	28.94± 0.275	29.37± 1.072	28.46± 0.862
T2	29.14±2.65	29.62 ± 0.137	28.74± 0.62
T3	29.92 ± 1.50	29.320 ± 1.74	29.60±1.95
Level of significance	N.S	N.S	N.S

N.S not significant

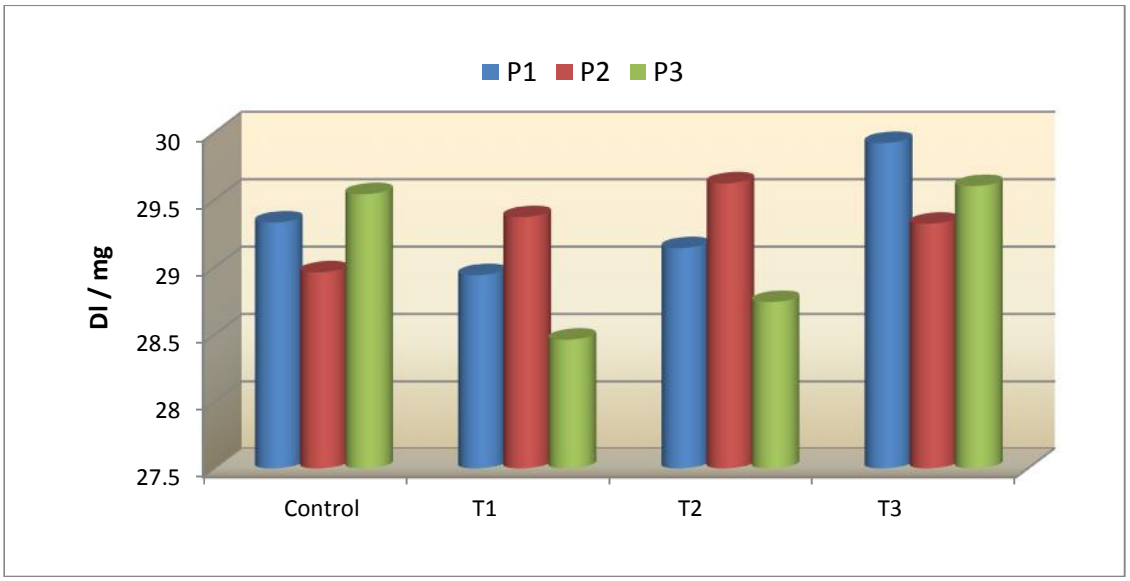

FIGURE 6: Effect of feeding barley straw treated in blood urea concentration

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