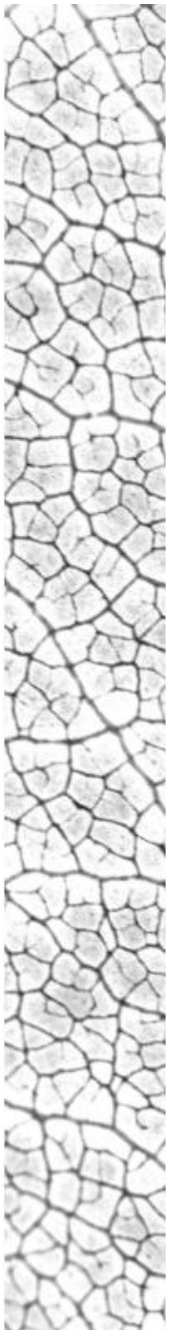

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Impact of using dried bread residue as substitution of energy source for cereals on milk production and its ingredients of Awassi ewes

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Abstract
In order to know effects of dried bread residue used as partial substitution of energy source by barley grains in fodder of Awassi ewes on milk production and its ingredients and growth of lambs.Twenty Awassi ewes and their lambs were used during this study. This study included two experiments, the first was conducted on Awassi ewes group, which extended from benefiting, gestation, milk production until the weaning of lambs. The second experiment was conducted on lambing from birth until reaching the age of weaning. The dried bread residues was using with different percentages (0,12,24 and 36%) as energy source instead of barley grains in the control fodder. The ewes and their newborns were randomly distributed into four treatments was mentioned above. The results of the first experiment in this study showed a significant superiority(P≤0.01) on rates of ewes performance, milk production and its composition, concentrations of blood proteins and glucose sugar were in favor of ewes groups which were fed on experimental diets (different percentages of dried bread residues) compared to the control group. As well as the results of the second experiment appeared a significant improvement on rates of daily and total weight gain and most blood traits of lambs which was in favor of lambs groups that consumed experimental diets containing different levels of dried bread residues compared to control group. We conclude there was a significant improvement on weight gain, daily milk production, percentages of milk protein and milk fat that were in favor of ewes groups which were consumed an experimental diets. This was reflected on improvement of lambs growth during lactation period until they reached weaning due to the computational improvement on milk intake during this period. Also, the results indicates a significant improvement on blood protein concentrations of ewes and neonates who were treated with experimental diets compared to the control group.

Keywords: dried bread residue, milk production, productive traits, blood proteins, Awassi lambs

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INTRODUCTION

The increasing population and income level of individuals in developing countries, including Iraq, led to an increase in demand for red meat, especially sheep meat due to its high flavor and palatability (Leward et al. 1995). Ruminants have potential to consume large quantities of agro-industrial waste, including bakery residues, as a source of energy in ruminant rations and convert them into consumable products for human such as meat and milk. This residues are palatable, rich in carbohydrates and medium in level of protein and vitamins (Passini et al. 2001). Therefore the breeders was sought to find cheap of local feedstuffs to replace by barley grains for profitable economic returns that would benefit local breeders and meet the market's need for meat (Al-Zubaidi 2012). Several studies (AL-Issawi et al. 2011, AL-Zubaidi 2013, Khushnaw 2009) indicate that addition of leftover restaurants, bakeries and poultry waste in the fodder to replace a part of the barley grains in sheep diets, which to increase activity of rumen microbes and improved digestion and absorption factor. The numerous studies have shown that 25% bakery residues can replace barley grains in rations of milking cows and fattening lambs without causing deterioration in milk production and lambs growth (Guiroy et al. 2000, Schorder 1999). Other studies suggest that 30% of bakery residues can be used as a component of the ration in fattening of Aberdeen Angus calves and have no adverse effects on animal health and performance (Afzalzadeh et al. 2007, Passini et al. 2001). At same

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direction, Franca et al. (2012) who found significant improvement in rates of daily feed intake when upward of different levels (0, 7, 14, 22, 30%) of dried bakery residues with replaced by maize grains in fattening diets of hybrid lambs. As for milk production traits, Olafadehan and Adewumi (2008) observed significant improvement on milk protein, fat milk, solid non fats, lactose sugar and non-significant effect on milk production of milking cattle groups when fed on three diets containing corn bran, palm kernel cake and dried barley waste respectively than control ration group (barley grains).These results were supported by Larson, (2003), who observed a significant improvement on daily milk production , levels of milk protein and milk fat in milk of dairy heifers (Holstein).The results was in favored for the experimental diets (sugars) compared to the comparison group (Yellow corn) when used yellow corn in first ration while the second diet was contained cornstarch and third diet contained a mixture of citrus sugar and sucrose in feeding of milking heifers (Holstein).

Recently, Iraq and most Arab countries have seen an increase in demand for purchase of dried bakery residues resulting from surplus needs of houses, bakeries and restaurants and has been widely used as feedstuff in rations of farm animals as a major source of energy, especially in feeding of sheep to reduce the cost of excessive feeding which constitutes about 70% of the total cost of tunnels in livestock production farms (Haddad and Ereifej 2004, Franca et al. 2012), which was characterized by high palatability and protein content about (10-12% crude protein) and high level of metabolize energy (13.3 MJ/kg) , middle level of crude fat and low percentages of ash and crude fiber **(**AL-Zubaidi 2012, Kasha 2015)**.**The local markets have been trade and sell dried bread and are still popular in Iraq because they are available throughout the year and are cheaper compared to prices of grain and other of grain processing waste such as wheat bran, especially after the local breeders touched the benefit of this type of feed and increased profitable economic returns (Hassan et al. 2014). Therefore, in recent years there has been great interest in optimal using of the bakeries waste, houses and restaurants through the addition of feedstuffs that enter in components of ruminant diets to improve the quality and quality of the ration and to meet the necessary requirements of nutrient compounds for the host animal and the growth and development of microorganisms rumen (Lyons 1994, Muniz et al. 2008). The similarity between barley grains and dried bread residues was found in chemical analysis based on dry matter. It was found to contain 99 - 97% organic matter, 1.1 - 1.8% crude fat, 18 - 15% neutral fiber extract (NDF), 14 - 14.5% crude protein respectively (Hindiyeh et al. 2011). At present time there is a growing interest in milk production from sheep especially in the Middle East which produces about 80% % of the world's milk production, representing more than 10 million tons /year (FAO 2012). For the purpose to obtain a large amounts of milk to be used to meet the needs of human consumption one hand, and on the other hand because of daily waste of large quantities of dried bread residue from the bakeries residues, homes and restaurants, which was estimated at 2.6 billion tons annually in the world (Mahrous 2006, Oeztuerk et al. 2005). Therefore, this study was conducted to aim of replacing dried bread residues at different proportions (0, 12, 24, 36%) to replace with barley as a component of sheep rations and knowing their effect on milk production and it ingredients of Awassi ewes and growth of their lambs.

MATERIALS AND METHODS

This experiment was conducted in two experiments in the animal field. Twenty heads of Awassi ewes were used in the first stage with ages (1.5 – 2) years and mean of primary weight were range from 42.60 to 44.20 kg. The animals were randomly distributed into four treatments (5 ewes per treatment). The dried bread residue was partially replaced with 12%,24%,36% with by barley grains in second, third, fourth treatments. The animals were then placed under check and veterinary conditions during the experiment. The ewes were feeding on add libitum on four equal rations in iso crude protein (15.60, 15.54, 15.60, 15.65%) and iso metabolize energy (2639, 2639, 2687, 2698 k_{cal}/ kg) throughout pregnancy and lactation (**Table 1**). The daily of feed was served on two meals.The first meal was served at 8.30 am and the second meal at 4.30 pm. Moreover, the sheep was grazing on short grasses in natural pastures for five hours per day. The drinking water was freely available to all animals. The live weight of all ewes was measured by a box balance devoted to sheep every two weeks. The data of ewes, which included daily feed intake, were scored by calculating the difference between the amount of feed provided and remaining feed for the animal, as well as for feed conversion efficiency. As for data of milk production was measured at the fourth day after delivery. The milking process was continued once time per a week until arrival their lambs to weaning age. The process of measuring of milk production by isolating lambs from their mothers from evening until the morning of the next day which was hand milking of sheep and recorded the amount of milk produced for each ewe and then release the lambs to stay with her mothers for 20 minutes to suckling remaining milk in her mother's udder and then record amount of daily milk intake of lambs. This is done twice a day at morning and evening for each week (Hadijpanyiotou and Louca 1976).The milk samples was homogeneously were taken by hand milking from each ewe before suckling and then another milk sample was taken after completed of natural process.The samples were mixed to obtain a representative and homogeneous sample in order to overcome problem of

Table 1. Percentage of concentrated feedstuffs and chemical composition of rations of Awassi lambs

Feedstuffs	First ration (control)	Second ration (12%dried bread residue)	Third ration (24% dried bread residues)	Fourth ration (36% dried bread residue)
1.Barley (%)	50	37	25	13
2.Wheat bran (%)	33	33	33	33
3.Soybean meal (%)	10	10	10	10
4.Dried bread residues** (%)	---	12	24	36
5. Wheat straw (%)	5	5	5	5
6.Sodium bicarbonate (%)	---	1	1	1
7.Limeston (%)	1	1	1	1
8. Salts (%)	1	1	1	1
Total	100%	100%	100%	100%
Chemical composition*				
1.Dry matter (%)	95.81	95.02	95.89	95.76
2.Crude protein (%)	15.60	15.54	15.60	15.65
3.Ether Extract (%)	2.47	2.36	2.26	2.16
4.Crude fiber (%)	9.84	8.45	8.45	7.79
5.Ash (%)	5.06	5.05	5.08	5.11
6.Nitrogen Free Extract (%)	63.85	63.36	63.62	63.88
7.Metabolize Energy** (K_{cal}/kg)	2639	2639	2687	2698

*The Chemical analysis of feed stuffs was adopted from the chemical analysis tables of Iraqi feeds (AL-Khawaja et al.,1978)
** The chemical analysis of dried bread residues has been adopted as reported of Afzalzadeh,2003 and metabolize energy has been approved by Jassim et al. 2006

different proportions of milk components. The milk samples were placed in small plastic tubes and recorded number and date of ewes, and then kept in refrigerator for one day. The chemical analysis of milk samples was carried out by using milk analyses system to estimate ingredients milk in the Nutrition Laboratory, Animal Production Techniques Department, Faculty of Agricultural Technology. Also, it has been to pull 10 ml of blood samples from jugular vein of all ewes at last week of pregnancy. The serum was separated from thrombus formed by using a centrifuge system at a speed of 3000 r /min for 15 minutes and placed in plastic sealed tubes and kept under temperature (-20 C°) for biochemical tests by using kits to determine total protein concentration (Green and Clark 1982), albumin (Bush 1998), cholesterol (Allain et al. 1974) and triglycerides (Tietz et al. 1999) and globulin was calculated by difference between total protein and albumin (Otto et al. 2000).

As for the second experiment: This experiment was conducted on twenty newborn lambs of the same ewes which used in the first experiment and then were randomly assigned to four treatments. The first treatment was considered as control treatment, while the second groups was treated with by 12% of dried bread residues,24% in the third treatment and 36% in the fourth treatment respectively. This experiment was started from birth date and continued during the lactation period until they arrived the weaning age (3 months).The data were taken of lambs were daily and total weight gain, daily milk intake, and daily feed intake from the first month of birth date to end of experiment. The blood samples were drawn by 10 ml from jugular vein of those lambs to estimate concentrations of total protein, albumin, globulin, cholesterol and triglyceride as in same way as in the first experiment. The statistical analysis of data on ewes and lambs was carried out according to the complete random design (CRD) (AL-Zubaidy and AL-Falahy 2016) in both of experiments .The significant differences between means of traits studied were compared with Duncan (1955) polynomial test by using statistical program SAS (2012).

RESULTS AND DISCUSSION

The results of this study include effect of replacing dried bread residues as an alternative to barley grains in fattening rations of Awassi ewes and their lambs on studied traits as follows:

The Characteristics of Growth of Ewes and Lambs

The results presented in **Table 2** showed no significant differences in rates of primary weight among Awassi ewes groups at the beginning of the experiment because the ewes was highly homogeneous and were no found of individual differences between of them. The rates of initial weighting were 42.60, 44.20, 43.00 and 44.20 kg for four treatments respectively. While the results showed highly significant differences (P≤0.01) between control treatment (free-dried bread residues) compared to experimental treatments containing different proportions of dried bread residues in rates of ewes weight at the end of pregnancy, the date of birth and weaning of their lambs. The weights in the last months of pregnancy was 48.90, 50.68, 55.69, 57.45 kg, live weight at birth was 43.20, 44.00, 46.40, 51.20 kg and live weight at weaning age 45.40, 45.20, 49.60 and 53.20 kg for four treatments respectively. The significant improvement was in favor of experimental treatments that containing different proportions of dried bread residues compared to the control group in weights of ewes during pregnancy, delivery and weaning was attributed to the fact that bread contains starch as a source of energy and a good amount of protein, it leads to growth improvement of the animal and wool fiber growth on it (AL-Shanti 2005, Kasha 2015). As a result of increasing utilizing efficiency of the nutrients absorbed in the gut and thus equipping animals with amino acids

Table 2. Effect of bread residue on productive performance of Awassi ewes

Traits	First treatment (control)	Second treatment (12% dried bread residues)	Third treatment (24% dried bread residues)	Fourth treatment (36% dried bread residues)
1.No. of ewes:	5	5	5	5
2.initial weight (kg)^{NS}	42.60 ± 0.40 A	44.20 ± 1.49 A	43.00 ± 1.30 A	44.20 ± 0.24 A
3.The weight at gestation (kg)**	48.90 ± 1.21 C	50.68 ± 1.79 BC	55.69 ± 1.75 AB	57.45 ± 1.89 A
4.The weight at birth (kg)**	43.20 ± 0.96 B	44.00 ± 2.09 B	46.40 ± 1.50 B	51.20 ± 1.53 A
5.The weight at ** weaning (kg)	45.40 ± 0.97 B	45.20 ± 1.06 B	49.60 ± 1.28 B	53.20 ± 1.53 A
6.Daily feed intake (kg/d)**	2.048 A	1.889 A	1.798 A	1.763 A
7. Feed conversion ^{NS} (kg feed/kg milk yield)	3.54 A	3.05 A	2.41 A	2.17 A
8. Milk yield (kg/d)	645.20 ± 22.83 B	678.60 ± 53.70 B	786.40 ± 47.90 AB	892.50 ± 70.05 A

NS: no significant
*: significant at 0.05
**: high significant at 0.01

Table 3. Effect of bread residue on productive performance of Awassi lambs

Traits	First treatment (control)	Second treatment (12% dried bread residues)	Third treatment (24% dried bread residues)	Fourth treatment (36% dried bread residues)
1. No. of lambs:	5	5	5	5
2.The weight at birth(kg)^{NS}	4.06 ± 0.36 A	4.09 ± 0.30 A	4.12 ± 0.09 A	4.53 ± 0.25 A
3.The weight at weaning (kg)**	23.60 ± 0.98 C	24.80 ± 1.07 BC	27.10 ± 0.64 AB	29.60 ± 1.29 A
4.Daily weight gains (kg)**	217 ± 8.70 C	230 ± 13.57 BC	253 ± 7.55 AB	278 ± 12.22 A
5.Total weight gains (gm)**	19.54 ± 0.78 C	20.71 ± 1.22 BC	22.98 ± 0.68 AB	25.07 ± 12.22 A
6.Daily feed intake (kg/d)	747.80	759.40	780.6	793.8
7. Milk intake (gm)^{NS}	565.20 ± 10.29 B	653.60 ±74.44 AB	666.80 ±28.57 AB	715.50 ± 23.98 A
8. Feed conversion: (kg feed/kg weight gains).	3.44	3.30	3.06	2.85

NS: no significant
*: significant at 0.05
**: high significant at 0.01

and energy to precipitate protein tissues in the animal body and cover their needs for maintenance and growth and which was reflected to increase in the weight of ewes (AL-Zubaidi 2012). As for feed intake and feed conversion efficiencies were not statistically analyzed due to the group feeding of ewes during the experiment. It seems that there is non-significant improvement in efficiency of the diets conversion of the ewes which were eaten different proportions of dry bread residues compared to the control group due to the processes of bread preparation and associated changes in physical and chemical nature of the nutrients in bread which leads to an increase of nutrients within the gut and thus lead to fill the nutrient requirements of the animal (Trenkele 1983). Also, the results revealed a high significant increase (P≤0.01) in mean of amounts of milk produced which was in favor of the fourth group (36% of dried bread residues) compared to other groups that treated with 0, 12 and 24% dried bread residues respectively (**Table 2**).The significant increase in milk yields was attributed to the significant increase in live weight of the experimental ewes during the experiment period, as well as the efficiency of utilization of the daily feed intake and the computational improvement in the efficiency of dietary conversion (**Table 2**). The results of this study was agreed with Broderick et al. (2002), who indicated no found any significant differences in averages of amounts of milk produced and consumed and also was founded significant differences on protein and fat levels in milk samples between four nutritional treatments when they were using sucrose as an energy source by (0, 2.5, 5, 7.5%) by corn starch in the diets of milking cows.

As for the developing lambs, the results appeared no significant differences on mean weight of lambs at birth which reached 4.06, 4.09, 4.12 and 4.53 kg for four treatments (**Table 3**). Also, the results showed a significant effect (P≤0.01) of the level of dried bread residue in the diet on weight at weaning, daily and total weight gain and milk intake during lactation period and was in favor of experimental treatments compared to control group. The average of live weight of lambs at weaning was 23.60, 24.80, 27.10, 29.60 kg and averages of daily weight gain 217, 230, 253, 278 gm/lamb/day, total weight gain of lambs 19.54, 20.71, 22.98, 25.07 kg and milk intake 565.20, 653.60, 666.80 and 715.50 kg, respectively (**Table 3**). The results of this study revealed significant decrease in mean of weight gain in the group of lambs which had consumed high grain barley (50%) compared to other treatments containing different proportions of dried bread residues. This is attributed to the fact that barley grains contain a high percentage of starch and when ingested, they are rapidly fermenting, causing a decrease in the pH of the rumen liquid to less than 5.7 (Cerrato et al. 2007).This leads to a decrease in the activity of rumen microorganisms and thus causes a decrease in the amount of feed intake and reduced efficiency of utilization , especially crude fiber (Russell et al. 1993, Tripathi et al. 2004). The daily feed intake and feed conversion efficiency of lambs were not statistically analyzed due to the mass feeding of the lambs. The results are consistent with Hindiyeh et al. (2011) who found significant differences on rates of final weight and daily and total weight gain between experimental treatments that containing different levels of dry bread

Table 4. Effect of bread residue on milk yield and its composition of Awassi ewes

Traits	First treatment (control)	Second treatment (12% dried bread residues)	Third treatment (24% dried bread residues)	Fourth treatment (36% dried bread residues)
1. No. of ewes:	5	5	5	5
2. Milk yield (kg/d)	645.20 ± 22.83 B	678.60 ± 53.70 B	786.40 ± 47.90 AB	892.50 ± 70.05 A
3.Moisture (%)^{NS}	84.79 ± 0.29 A	84.06 ± 0.47 AB	83.68 ± 0.22 AB	83.15 ± 0.57 B
4.Crude protein (%)*	4.23 ± 0.13 B	4.29 ± 0.07 B	4.39 ± 0.03 AB	4.66 ± 0.03 A
5.Ether Extract (%)*	5.64 ± 0.05 B	6.29 ± 0.20 AB	6.40 ± 0.25 AB	6.55 ± 0.36 A
6.Lactose (%)*	4.35 ± 0.06 B	4.73 ± 0.17 AB	4.84 ± 0.19 A	4.91 ± 0.09 A
7. Ash (%)^{NS}	0.58 ± 0.04 A	0.63 ±0.05 A	0.69 ± 0.05 A	0.73 ± 0.12 A
8.Solids Non Fats (%)*	9.30 ± 0.21 B	9.65 ± 0.19 AB	9.92 ± 0.27 AB	10.30 ± 0.12 A
9. Total Solids (%)**	14.41 ± 0.30 C	15.44 ± 0.38 BC	16.32 ± 0.22 AB	16.85 ± 0.58 A

NS: no significant
*: significant at 0.05
**: high significant at 0.01

residues in fodder than for comparison group in fattening of Awassi lambs .Also, the results agree with Tayeb and Yassin (2018), who obtained significant differences on final weight and daily and total weight gain between two treatments. The first is comparison treatment and the second treatment included dry yeast bread as food additives in the fattening diets of Awassi lambs for 90 days. The results of this study do not match with those of Broderick et al. (2002), who found no significant differences in amounts of milk produced and consumed and also in protein and fat levels in milk samples between four nutritional treatments were used to feed of milking cows. When replaced sugar sucrose as a source of energy (0, 2.5, 5, 7.5%) replaced maize starch in the ration. These results are not consistent with findings of Afzalzadeh et al. (2007) who observed no significant differences on final weight, daily and total weight gain between four groups of Zandi lambs which consumed different proportions of bakery residues (0, 6, 12.5, 25%). As well as the results were inconsistent with the results of Obeidat et al. (2012) who found non-significant between treatments containing dried bread residues (10, 15, 20%) about the comparison transaction on final weight, weight gain and efficiency of food conversion for ewes and lambs. Also that results contradict with the findings of AL-Zubaidi (2013) who observed not significant on rates of live weight at the end of the experiment between the four treatments containing different proportions of dried bread residues (10, 14, 18%) in fattening of lambs. The results of this study differed with those of Awawdeh et al. (2019) who did not find significant differences between three sources of energy (dried bread residues, carob pods, olive oil cake) in fattening diets of Awassi lambs.

Milk Production and its Ingredients

The results shown (**Table 4**) significant differences (P≤0.05) in means of daily milk production, percentages of crude protein, crude fat, lactose sugar and non-fat solids (SNF), but the results was appeared high significantly (P≤0.01) on percentage of total solids between the first treatment (control) free of dried bread residue compared to the fourth treatment (36% dried bread residue).This is due to the fact that the provider of dried bread residues as an energy source with sodium bicarbonate in experimental diets will make an neutral acidic of rumen liquid which will activate of microorganisms and thus cause a computational increase in the amount of feed intake in addition to the improvement in the digestion coefficients of food compounds as a result of increased efficiency energy and protein and thus finally reflected in improving milk production and increasing fat levels in it (Mousa et al. 2012, Tayeb 2019).The significant decrease in milk production and the proportion of its components in the first treatment (control) which due to the high presence of barley (50%) in components of the first ration which causes a decrease in the pH value of the rumen liquid (Fuentes et al. 2009) and this leads to a decrease activity of microorganisms (Cerrato et al. 2007), which reduces food intake and hence reduces the efficiency of feed intake (Russell et al. 1993, Tripathi et al. 2004) leading to an increase in concentration of propionic acid which adversely affects on reduction of milk production and fat content (Cottee et al. 2004). Also, the results showed (**Table 4**) a significant increase in the proportion of milk protein by increasing the proportion of dried bread residue in the experimental treatments compared to the comparisons group which due to the large size and capacity of the digestive channel as a result of increased consumption of feed intake, which in turn leads to more utilization of feed efficiency, which was reflected to increase size of milk glands in ewes which was reflected to increase milk protein (AL-Saegh and AL-Kass 2006). As for percentages of humidity and ash the results showed (**Table 4**) that there were no significant differences between four treatments in the rates of these two traits above. The humidity rates were 84.79, 84.06, 83.68, 83.15% and ash was 0.58, 0.63, 0.69 and 0.73% for four treatments. These results are consistent with Larson, (2003), who observed a significant difference in average of daily milk production between the first treatment (control) and second treatment contained dry bread yeast in feeding of milking cows (Holstein).The results of this study are in line with the results of Olafadehan and Adewumi, (2008), which showed a significant superiority in rates of milk production and proportions of milk components, such as crude protein, ether extract, solids non fats, ash, lactose

Table 5. Effect of bread residue on blood parameters of Awassi ewes

Traits	First treatment (control)	Second treatment (12% dried bread residues)	Third treatment (24% dried bread residues)	Fourth treatment (36% dried bread residues)
1. No. of ewes:	5	5	5	5
2. glucose (mg)**	58.63 ± 0.68 B	64.69 ± 1.26 C	68.96 ± 0.68 A	69.84 ± 0.78 A
3.cholesterol (mg)NS	50.62 ± 1.03 A	52.51 ± 1.27 A	52.63 ± 0.49 A	52.86 ± 2.18 A
4.triglycerides (mg)NS	46.12 ± 0.77 A	46.17 ± 1.60 A	46.76 ± 0.71 A	47.89 ± 0.78 A
5.albumin (gm)*	3.26 ± 0.06 B	3.86 ± 0.33 AB	4.20 ± 0.32 A	4.49 ± 0.15 A
6.globulin (gm)*	2.87 ± 0.17 C	3.19 ± 0.19 BC	3.39 ± 0.05 B	3.85 ± 0.06 A
7. total protein (gm)*	6.13 ± 0.21 C	7.05 ± 0.20 B	7.59 ± 0.26 B	8.34 ± 0.17 A

NS: no significant
*: significant at 0.05
**: high significant at 0.01

Table 6. Effect of bread residue on blood parameters of Awassi lams

Traits	First treatment (control)	Second treatment (12% dried bread residues)	Third treatment (24% dried bread residues)	Fourth treatment (36% dried bread residues)
Lambs:	5	5	5	5
2. glucose (mg)*	43.83 ± 1.69 B	49.66 ± 2.18 AB	53.01 ± 2.64 AB	57.33 ± 4.63 A
3.cholesterol (mg)NS	44.96 ± 0.73 A	47.48 ± 3.35 A	47.43 ± 0.76 A	44.76 ± 0.60 A
4.triglycerides (mg)NS	34.48 ± 2.04 A	33.79 ± 2.46 A	33.63 ± 3.80 A	33.38 ± 1.54 A
5.albumin (gm)*	2.88 ± 0.26 B	3.04 ± 0.31 B	3.36 ± 0.18 AB	4.01 ± 0.33 A
6.globulin (gm)*	2.58 ± 0.12 B	2.77 ± 0.19 B	3.27 ± 0.12 A	3.50 ± 0.06 A
7. total protein (gm)**	5.46 ± 0.38 C	5.81 ± 0.51 BC	6.63 ± 0.16 AB	7.05 ± 0.05 A

NS: no significant
*: significant at 0.05
**: high significant at 0.01

sugar and total solids between four treatments. While they were using four treatments , the first was grazing on natural pastures, and the second treatment was introduced yellow corn bran into the fodder and the third treatment was added of pulp cake in the fodder, As for fourth treatment was added dried brewers grains into the feed of dairy cows (Bnaji).The results are consistent with the results of Helal and Abdel-Rahman, (2010) who observed significant differences between the two groups, the first group (control) which is free from dried bread yeast while the second ration has contained dry bread yeast in feeding of Rahmani ewes. This results were agreement with Tayeb and Yassin (2018), who reported significant differences in mean of milk yields and ether extract ratio among three diets, the first diet was prepared as a control treatment, while the sodium bicarbonate was added in the second diet and dry bread yeast was added in the third diet of feeding Awassi ewes**.** This results contrasted with results of Broderick et al. (2002) who found no significant differences in mean of milk yields, protein and fat levels in milk samples between four nutritional treatments which was using different levels of corn starch (0, 2.5, 5, 7.5%) in feeding of dairy cows. The results of this experiment was differed with the results of some studies (Larson et al. 2003, Obeidat et al. 2012, Helal and Abdel-Rahman 2010, Tayeb and Yasin, 2018) which showed no significant differences between the treatments containing baking residues or dried bread yeast than from control group were used in the feeding of ruminant animals.(Adjanke et al 2017).

The Blood Parameters

The results of the experiment conducted in Awassi Ewes groups (**Table 5**) showed that there were high significant differences (P≤0.01) on total blood protein and blood sugar (glucose) levels between both of third treatments (24% dried bread residue) and fourth (36% dried bread residue) compared with the first (Control) and second treatment (12% dried bread residue) also, between the first, third and fourth treatments on concentrations of globulin. Also, the results indicate to presence of significant differences (P≤050) on albumin concentration between the first treatment than for the third and fourth treatments. The concentrations total blood protein were 6.13, 7.05, 7.59, 8.34 gm/dl, albumin 3.26, 3.86, 4.20, 4.49 gm/dl, globulin 2.87, 3.19, 3.39, 3.85 gm/dl and blood sugar (glucose) 58.63, 64.49, 68.96 69.84 mg/dl for four co-treatments. However, no founded significant differences in concentrations of cholesterol and triglycerides between four treatments in the blood serum of Awassi ewes, which were 50.62, 52.51, 52.63, 52.87 mg/dl and triglycerides 46.13, 46.17, 46.77 and 47.90 mg/dl respectively. As for suckling lambs groups, the results showed a significant increase (P≤0.05) in blood glucose levels between the first treatment (control) than the fourth treatment (36% dried bread residue), as well as between the fourth treatment than both the first and second treatments (0,12% residue of dried bread) on concentrations of total protein, albumin and globulin in blood serum of Awassi lambs (**Table 6**). The concentrations of blood glucose were 43.83, 49.66, 53.01, 57.33 mg, albumin 2.88, 3.04, 3.36, 4.01 gm/dl and globulin 2.58, 2.77, 3.27, 3.50 gm/dl and total blood protein 5.46, 5.82, 6.63, 7.05gm/dl respectively. The concentrations of cholesterol and triglycerides in blood serum of Awassi ewes and their developing lambs showed significant differences (P≤0.05) in rates of both two traits between Awassi ewes groups and their lambs were treated with different proportions of dried bread residues (12, 24, 36%) than

for comparison group (control). There is a significant superiority in concentration of blood glucose with increasing percentage of dried bread residues in rations of ewes and their newborns because it due to growth and increase of number of microorganisms rumen where specialized bacteria will digest starch was found in dried bread residue and break down of glycosides bonds in the chains of starch granules and decomposes into several units of glucose sugar in the rumen liquid and thus raise the level of concentration of blood sugar in the blood which leading to improved digestion coefficients of nutritional compounds and stimulation of metabolic processes in the body tissues (AL-Rikabi, 2013, Beauchemin et al. 2003). As for significant improvement in blood proteins (albumin, globulin and total protein) in serum of ewes and lambs treated with dried bread residues compared to the control group may be due to increased intake of diets containing residue of dried bread and bicarbonate. This will make the rumen environment as neutral, which leads to increase activity and numbers of rumen microorganisms in digestion of nutrient compounds in the rumen liquid which will lead to increase absorption of large amounts of food protein by rumen bacteria and this is reflected to increase of blood proteins concentrations and thus to improve of digestion coefficients for nutrient compounds and processes of metabolism of nutrients in body tissues. The results of the current study agreed with Larson (2003) who noticed significant differences in the levels of glucose and total blood protein when fed three groups of Holstein cows on three energy sources: yellow corn, corn starch and a mixture of citrus sugar and sucrose in three diets, respectively. This results are consistent with results of Hassan (2009), which noticed significant differences on concentrations of albumin and globulin between the hybrid lambs groups (ossimi × Bakri) when fed on five rations that were containing dry yeast, antibiotic (Flavomycin), bentonite , bentonite. + Dry baking yeast and mixture (bentonite + dry baking yeast + flavomycin) respectively. The results were confirmed by AL-Khafaji, (2011) which found significant improvement on total protein levels which was in favor of Awassi lambs groups that eaten different proportions of dry yeast and black beans than for comparision group for fattening period (60 days).These results were supported by Dagher et al. (2012) who reported significant differences in concentrations of blood protein between the control diet (yellow maize) than from lambs groups was eaten bread yeast, black bean and mixture of dry yeast bread, black bean respectively. This results are consistent with the results of the Areej et al., (2016) which indicates to significant differences in concentrations of blood proteins between Awassi lambs groups when used two levels of rations (coarse and concentrated) and two levels of dried bread yeast (0, 5 gm / head) in fattening of Awassi lambs. The results of this study was contradict with results of some studies (AL-Khafaji 2011, Dagher et al. 2012) who observed significant differences in concentrations of triglycerides and cholesterol among sheep groups were fed on diets containing dry baking yeast compared to the control diet.

CONCLUSIONS

The results of this study indicate using to increase dried bread residue at 36% in the ration composition without damaging on animal's performance and production. Also, the results showed a significant superiority on daily milk production and its ingredients such as percentages of fat and milk protein with by increasing of dried bread residue instead of the barley grains in rations of Awassi sheep. Also, the results showed a significant improvement in the blood glucose and concentrations of blood proteins in experimental treatments was containing different levels of dried bread residue compared to the control of free dried bread residue.

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