Journal of Genetic and Environmental Resources Conservation, 2014, 2(3):326-330.
www.jgerc.com

The effect of magnetically treated water and some of the factors affecting the components of the milk of Awassi local sheep

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Abstract

This study was conducted in the field of animal's Department of Animal Resources College of Agriculture / University of Tikrit, during the period from May 5th 2010 until April 4th 2011. In this study, 36 ewes Awassi aged 3-5 years, with an average weight of 41.5kg from birth until the end of lactation, were randomly divided into three equal groups by 12 per ewe group. Through statistical analysis shows that the magnetically treated water at a level significant effect ($P<0.05$) in the ratio of protein for period the first and third, as well as the water treatment magnetically significant effect on the ratio of solids SNF for the first and third. Also found that the magnetically treated water significant effect at the point of freezing milk in intensity in the third period. As for the age of the sheep, and had a significant effect at the level of ($P<0.05$) in the percentage of protein in the solids SNF in the first period, not to the age of the sheep significant effect on other components of milk. While no significant effect for the month of lambing and weight of the sheep in the components of milk for all periods. prolactin hormone did not affects any of the studied factors.

Keywords: Magnetically treated water, Awassi, Components of milk.

Introduction

Water is of the most important factors of production, water is necessary for the functioning of vital events in the body naturally it constitutes one of the main vehicles for all the cells and tissues of the animal's body (Ibrahim, 2000). The passage of water through a magnetic field, the compositions are more accurate and homogeneity of the water and increase liquidity with the acquisition of the magnetic properties and its ability to dissolve minerals and vitamins and works to increase the speed of delivery to all parts of the body (Kronenberg, 1985). Have demonstrated many of the studies predictability of milk production through a small number of periodic measurements of production (Kominakis *et al*., 2002; Abdel-Rahman *et al*., 2002), as well as their interest in the impact of factors Allorathih different in the production of milk and attributes of different, hence the importance of periodic measurements of the components of milk from in order to stand on their direct relationship to produce milk because of its importance in giving the nutritional value of milk product and its importance in various manufacturing processes and to determine the calorific value of the raw milk product (El-Barody *et al*., 2002; Morgan *et al*., 2006). The current research aims to study the effect of some of the factors (weight of the sheep and the month of birth and the age of the sheep) and magnetically treated water in the components of milk (the ratio of protein, fat, SNF, density, freezing point and PH) of Awassi local sheep.

Materials and Methods

Prepared a special device to generate magnetically treated water by Nahrain University / Center for Bio- technologies. have been linked to each device near the main water pipe fitted to each group carrying it on a column for Wood dismissed by the tube. and has water treatment magnetically and by the group and by twice a day to fill the tub am and evening where the process is done by opening the tap water are a few to make the flow of water gradually so as to give greater opportunity to the effect of water by magnetic fields and thus treated water magnetically, taking into account the period that remains where water is magnetized lasts for twelve hours after the loss of property starts magnetic imperceptibly.

Ewes fed collectively after placed in hangars half-closed and put the plastic manholes were provided fodder center (Table 1) by 1kg per animal per day, and the animals were out to pasture collective two hours in the morning and three hours

in the afternoon. It was grazing ewes in the breeding season on barley residue resulting from the harvest season in births grazing ewes with their offspring on barley green and without drinking water in the pasture, but after re-entry to the barns.

Rams were introduced to the experiment in June 15th 2010 and by two rams for each group (12 Ewes) were examined for pregnancy ewes at the beginning of October by ultrasound (Sonar) weight of sheep and their offspring after birth all alone were recorded by electronic balance and weighed ewes every two weeks from birth until the end of lactation. The breastfeeding was natural and are free all the time. Milk filtered from dirt and impurities using a piece of clean gauze is then packaged in plastic containers ready teacher capacity 20ml labeled plain tubes marked sheep no. and date of measurement and stored under freezing (-20°C) until used in estimating the ratios of the components of milk. Milk components were calculated depending on the tests and measurements of the monthly periodical with 10days after birth until the end of the season has been used in device (Lactoscan). The periods during which the milk was measured components which were December and January and February and March. As much as the level of the hormone prolactin in the blood serum using several ready-made work (Kit) and processed from the company BioChech, Inc. technique using ELISA according to what came way (Uotila *et al*., 1981), adopted this examination on the principle of direct sandwich.

Data were analyzed statistically using the general linear model method within the statistical program SAS (2003). The significant differences between the test transactions have been using polynomial Duncan test (Duncan, 1955) level (0.05).

Table (1): The components of the bush

Ingredients	Wheat bran	Barley	Wheat	Salt
Percentage%	50	14	35	1

Results and Discussion

Magnetically treated water: Indicates (Table 2) to the existence of a significant effect (P <0.05) for magnetically treated water in the ratio of protein and solids SNF of the first period as it overtook treatment (750G) on the rest of the transactions and outperformed the transaction (1500G) to control and averaged protein (4.40, 4.32 and 4.24%) and averaged solids SNF (11.71, 11.51 and 11.30%), either in the third period outperformed the transaction (1500G) the rest of the transactions and outperformed the transaction (750G) on the control and averaged protein (4.53, 4.27 and 4.23%) and the average solids SNF (12.05, 11.41 and 11.28%) and this is consistent with (Al- Maro, 2011; Majid and Abd Allah, 2013) and vary with (Sargolzehi *et al*., 2010; Almazidawi, 2011) and perhaps due to the water treatment magnetically claim to improve the ability productivity of animals as a result of Activity tissues, including the udder tissue (Wolf and Torsello, 2005). It turns out that water treatment magnetically significant effect (P<0.05) in the freezing point and the density of the third term where overtook treatment (1500G) the rest of the transactions and the average freezing point (0.81, 0.76 and 0.75ºC) and the average density (44.71, 41.99 and 41.15 kg/m^3) the rest of the components of the water was not treated magnetically significant effect.

Weight of Ewe: Not for the weight of Ewe significant effect on the components of milk for all periods in this study, although the rates were better among ewes with weight (35-41kg) (Table 2) and these are consistent with (Saleh and Maarof, 2004) and vary with (Pulina *et al*., 1994; Yilmaz *et al*., 2011).

Month of Lambing: Can be seen from (Table 3) that the month of Lambing did not affect morale in the components of milk in this study, since the births in the field are concentrated during the months of December and January and are part of the winter, and no significant difference between them in different environmental conditions so you do not effect month in moral traits, and this result is consistent with (Asofi, 1998; hamdani, 2000; Saleh and Maarof, 2004) and contrary to what it said (Hamdon *et al*., 2005; Abd Allah *et al*., 2011).

Age of ewe: The results of the statistical analysis (Table 3) revealed that the age of Ewe significant effect (P <0.05) in ratio of protein and the ratio of solids SNF of the first period where excelled ewes by age (5 years) the rest of the reconstruction and average protein (4.42, 4.27 and 4.27%) and the average solids SNF (11.76, 11.37 and 11.36%) and this is consistent with (Carta *et al*., 2001; Alhbita, 2005) and different to what he found (Serrano *et al*., 2003; Shams Al-Din, 2005; Al-Dabbagh, 2009) may be attributed outweigh the ewes that age (5 years) to increase the growth and development of the mammary gland tissue and lead to an increase in the number of milking times and an increase in manufacturing the components of milk (Sevi, 2000), either the other components of the milk was not for the influence of age.

Table (2): The overall average ± standard error of the impact of magnetically treated water weight in sheep milk ingredients

Traits	Period	Overall mean	Factor				
			Weight of Ewe		Magnetically treated water		
			41 - 47 kg	35 - 40 kg	Control	750 Gauss	1500 Gauss
		NO. (31)	NO. (18)	NO. (13)	NO. (9)	NO. (10)	NO. (12)
Protein %	1	0.02 ± 4.31	0.03 ± 4.32	0.04 ± 4.31	0.04±4.24b	0.06±4.40a	0.03±4.32 ab
	2	0.05 ± 4.48	0.09 ± 4.25	0.06 ± 4.32	0.07±4.22	0.16±4.28	0.05±4.33
	3	0.05 ± 4.36	0.05 ± 4.39	0.11 ± 4.32	0.10 ±4.23 b	0.13 ± 4.27ab	0.04 ± 4.53a
	4	0.07 ± 4.20	0.10 ± 4.14	0.12 ± 4.27	0.11 ± 4.31	0.15 ± 4.17	0.14 ± 4.13
Fat %	1	0.28± 3.29	0.37 ± 3.31	0.44 ± 3.26	0.46±3.17	0.6±3.50	0.46±3.24
	2	0.24 ± 2.88	0.34 ± 2.86	0.34 ± 2.90	0.39±3.09	0.47±2.63	0.41±2.92
	3	0.16 ± 1.65	0.21 ± 1.66	0.23 ± 1.80	0.19 ± 1.85	0.36 ± 1.62	0.24 ± 1.59
	4	0.27 ± 3.20	0.45 ± 3.19	0.21 ± 3.22	0.70 ± 4.0	0.32 ± 2.77	0.36 ± 2.97
Solid not Fat %	1	0.07 ± 11.49	0.09 ± 11.50	0.11 ± 11.47	0.11±11.30b	0.17±11.71a	0.08±11.51ab
	2	0.15 ±11.40	0.24 ± 11.32	0.15 ± 11.51	0.20±11.25	0.42±11.41	0.13±11.51
	3	0.15 ± 11.62	0.15 ± 11.69	0.31 ± 11.53	0.28 ± 11.28b	0.35±11.41 ab	0.10 ± 12.05a
	4	0.21 ± 11.10	0.27 ± 11.01	0.34 ± 11.32	0.32 ± 11.44	0.40 ± 10.93	0.38 ± 11.0
Freez point c°	1	0.06 ± 0.75	0.09 ±0.75	0.07 ± 0.74	0.08±0.73	0.14±0.76	0.09±0.75
	2	0.10 ± 0.75	0.17 ± 0.74	0.08 ± 0.75	0.16±0.73	0.28±0.75	0.09±0.75
	3	0.11 ± 0.78	0.11 ± 0.79	0.22 ±0.77	0.21±0.75 b	0.26 ± 0.76b	0.06 ± 0.81a
	4	0.15 ± 0.73	0.20 ± 0.72	0.22 ± 0.74	0.25 ±0.74	0.27 ± 0.72	0.26 ± 0.72
Density Kg / m^3	1	0.36 ± 40.61	0.59 ± 40.74	0.44 ± 40.47	0.49±39.84	0.88±41.41	0.54±40.74
	2	0.62 ± 40.74	1.01 ± 40.42	0.54 ± 41.17	1.05±39.86	1.59 ±41.01	0.59±41.17
	3	0.63 ± 42.80	0.68 ± 43.08	1.19 ± 42.41	1.24 ± 41.15b	1.35 ± 41.99b	0.37 ± 44.71a
	4	0.95 ± 39.31	1.31 ± 38.87	1.42 ± 39.93	1.89 ± 39.88	1.58 ± 39.22	1.66 ± 38.97
PH	1	0.05 ± 5.38	0.07 ± 5.31	0.08 ± 5.44	0.10 ±5.35	0.07 ± 5.47	0.10 ± 5.34
	2	0.04± 5.53	0.05 ± 5.52	0.06 ± 5.53	0.08 ±5.61	0.08 ± 5.49	0.04 ± 5.50
	3	0.04 ± 5.23	0.06 ± 5.22	0.06 ± 5.25	0.07 ±5.15	0.09 ± 5.18	0.06 ± 5.34
	4	0.03 ± 5.25	0.04 ± 5.25	0.07 ± 5.25	0.07 ±5.22	0.08 ± 5.33	0.05 ± 5.20
Prolactin H. Ng/ml		0.003±0.013	0.005± 0.015	0.009 0.001±	0.001 ± 0.02	0.001 ± 0.01	0.001 ± 0.009

Different letters within a row indicate significant differences ($p < 0.05$)
December 2 = January 3 = February 4 =March 1 =

Table (3): The overall average ± standard error of the impact of the month of lambing and the age of Ewe in the components of milk

Traits	Period	Overall mean	Factor				
			Age of Ewe			Month of lambing	
			5 Year	4 Year	3 Year	January	December
		NO. (31)	NO. (12)	NO. (10)	NO. (9)	NO. (10)	NO. (21)
Protein %	1	0.02± 4.31	0.04 ± 4.42a	0.03 ± 4.27b	0.04 ±4.27b	0.04 ± 4.25	0.03 ± 4.33
	2	0.05 ± 4.48	0.13 ± 4.75	0.07 ± 4.27	0.07 ± 4.31	0.14 ± 4.17	0.05 ± 4.34
	3	0.05 ± 4.36	0.05 ± 4.43	0.06 ± 4.39	0.18 ± 4.22	0.06 ± 4.29	0.08 ± 4.39
	4	0.07 ± 4.20	0.13 ± 4.23	0.17 ± 4.08	0.09 ± 4.29	0.14 ± 4.21	0.09 ± 4.19
Fat %	1	0.28± 3.29	0.61 ± 3.30	0.39 ± 3.41	0.53 ± 3.15	0.52 ± 2.91	0.34 ± 3.40
	2	0.24 ± 2.88	0.38 ± 4.48	0.47 ± 3.00	0.39 ± 3.28	0.41 ± 2.29	0.28 ± 3.16
	3	0.16 ± 1.65	0.30 ± 1.55	0.20 ± 1.75	0.36 ± 1.69	0.21 ± 1.30	0.21 ± 1.82
	4	0.27 ± 3.20	0.36 ± 3.04	0.71 ± 3.49	0.29 ± 3.11	0.30 ± 2.62	0.09 ± 3.48
Solid not Fat %	1	0.07 ± 11.49	0.12 ± 11.76a	0.09 ± 11.36b	0.11 ± 11.37b	0.11 ± 11.31	0.08 ± 11.54
	2	0.15 ±11.40	0.34 ± 11.38	0.20 ± 11.37	0.17 ± 11.47	0.38 ± 11.12	0.13 ± 11.54
	3	0.15 ± 11.62	0.12 ± 11.84	0.16 ± 11.74	0.46 ± 11.21	0.17 ± 11.48	0.21 ± 11.69
	4	0.21 ± 11.10	0.35 ± 11.11	0.46 ± 10.81	0.25 ± 11.42	0.35 ± 11.01	0.27 ± 11.15
Freez point c^o-	1	0.06 ± 0.75	0.11 ± 0.76	0.09 ± 0.74	0.09 ± 0.74	0.09 ± 0.74	0.07 ± 0.75
	2	0.10 ± 0.75	0.23 ± 0.75	0.17 ± 0.74	0.08 ± 0.75	0.27 ± 0.73	0.09 ± 0.75
	3	0.11 ± 0.78	0.09 ± 0.80	0.13 ± 0.79	0.33 ± 0.75	0.13 ± 0.77	0.15 ± 0.78
	4	0.15 ± 0.73	0.24 ± 0.73	0.33 ± 0.71	0.17 ± 0.75	0.24 ± 0.73	0.19 ± 0.73
Density Kg/m^3	1	0.36 ± 40.61	0.68 ± 41.71	0.60 ± 40.06	0.53 ± 40.17	0.60 ± 40.40	0.44 ± 40.67
	2	0.62 ± 40.74	1.32 ± 41.01	1.11 ± 40.45	0.52 ± 40.70	1.50 ± 40.08	0.60 ± 41.05
	3	0.63 ± 42.80	0.55 ± 43.72	0.79 ± 43.10	1.83 ± 41.24	0.82 ± 42.39	0.85 ± 43.00
	4	0.95 ± 39.31	1.43 ± 39.63	2.26 ± 37.85	0.09 ± 40.53	1.35 ± 39.66	1.28 ± 39.15
PH	1	0.05 ± 5.38	0.09 ± 5.37	0.13 ± 5.34	0.06 ± 5.42	0.11 ± 5.26	0.06 ± 5.41
	2	0.04 ± 5.53	0.06 ± 5.50	0.08 ± 5.57	0.07 ± 5.53	0.08 ± 5.57	0.04 ± 5.51
	3	0.04 ± 5.23	0.07 ± 5.20	0.08 ± 5.28	0.08 ± 5.23	0.08 ± 5.18	0.05 ± 5.26
	4	0.03 ± 5.25	0.07 ± 5.30	0.05 ± 5.30	0.06 ± 5.13	0.03 ± 5.27	0.05 ± 5.24
Prolactin H. Ng/ml		0.003± 0.013	0.008 ± 0.01	0.0009± 0.008	0.001 ± 0.009	0.001 ± 0.02	±0.009 0.0008

Different letters within a row indicate significant differences (p <0.05), December = 2 January= 3, February = 4, March =1.

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