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Effect of feeding Barki lambs on straw treated with Nutrient liquid

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Abstract
This experiment was carried out at a private farm in Bani Walid, Libya, to investigate the effect of feeding treated straw treated with Nutrient Liquid, 10 Barki lambs (males) with an average weight of 30 kg were randomly divided into two groups, each group containing (5 lambs), The first group (the control group) was fed on untreated straw, and the second group (the treatment) was fed on straw treated with Nutrient Liquid at a rate of 10% of the dry weight of the straw in order to study the efficiency of food conversion and the daily growth rate. The obtained results showed a significant decrease (p<0.05) in the NFE of straw treated with the nutrient liquid compared to the untreated straw. On treated straw compared to lambs fed on untreated straw, the study also showed a highly significant increase (p<0.01) in the digestibility of nutrients and the daily intake of dry matter, organic matter and nitrogen for treated straw compared to untreated hay.

Keywords: Nutrient liquid, growth rate, digestibility, barki lambs

Introduction
Hay is from agricultural residues, and it is a coarse feed poor in protein, high in cellulose and lignin, and given the importance of the presence of these rough feeds next to concentrated feed in feeding ruminants for physiological aspects, and given the presence of straw in very large quantities in the country as rough feed in ruminant diets despite its low nutritional value and for the purpose of benefiting From it, it is necessary to work to improve its nutritional value and raise the rate of its digestion by using some chemical treatments or the use of biological treatments or fortification with liquid nutrients, as indicated by (Hassan Shaker and others b, a 1998) [7-8] (Hassan *et al*., 1999) [9] that providing corn with coarse feed led to an increase in the intake of dry matter and an increase in the digestibility of organic matter. Also, adding molasses as one of the energy-rich food additives when added to rough feeds is of poor quality, as it improves their palatability and thus increases the edible of them (Brown, W.F.1993) [3].

Liquid nutrients are used to enhance the nutritional value of the waste, as this technology aims to supplement the nutritional value of agricultural waste with deficient micro nutrients and a source of non-protein nitrogen, in addition to activating microorganisms in the rumen and supplying them with nutrients necessary for their growth. This goal is achieved by producing some liquid nutrients that depend on their composition on Molasses and urea, as molasses provides the energy needed for the growth and activity of microorganisms in the animal's rumen, especially those that decompose cellulose. For cellulose (Freeman *et al*., 1992) [5] and that the use of urea and molasses together led to an increase in the intake of poor-quality rough feed, and this is due to the improvement in the efficiency of microorganisms in the rumen, which increases the efficiency of digestion of nutrients by providing a direct source of energy and nitrogen together, and the importance of this technology is due to In addition to the ease of its application for the small breeder, it is provided directly to feed the animal to provide it with what it lacks of salts, vitamins and raw protein. It compensates for the shortfall in the quantity and quality of the traditional ration based mainly on hay and straw. In addition, each half litre of this liquid mixture is equivalent to approximately half a kilogram of concentrated feed from where they contain digested energy. (Head. M.J., 1953) [11].

Materials and Methods

Preparation of the nutrient liquid: The nutrient liquid is composed of molasses (85-90%), urea (2.5%), a mineral source of phosphorous, sulfur, rare mineral salts and vitamins A-D with an amount of water about (5%). Sometimes antibiotics and some medicines are added to it and it is used as a means To complete the nutritional needs of the animal, phosphoric acid is usually added to it so that the phosphorous concentration becomes 1% in the mixture, and also as a means to reduce the animal's consumption of liquid if it is left in front of it to lick it freely. This liquid mixture is prepared in a special mixing unit. (Wanapat *et al*., 2009, Akter, *et al*., 2004) [13, 2].

Animal feeding

This liquid is sprinkled on the hay daily and mixed with hay a good and homogeneous mixture and added, as previously, at 10% of the dry weight of the hay, in addition to providing concentrated feed at a rate of 2% of the live weight of the animals. The experiment lasted for 90 days, at the end of which a digestion experiment was conducted on three lambs. From each group to study the coefficient of digestibility of nutritional compounds for treated and untreated figs, the daily growth rate and the total yield of the formed meat were calculated. The fodder and manure were analyzed according to AOAC. (2001) [1].

Statistical analysis

The data were statistically analyzed and significant differences between the means were tested using the Revised Least Significant Differences (RLSD) using the SPSS program (2012).

Results and Discussion

Table 1: Chemical analysis of untreated straw treated with nutrient liquid:

Items	DM%	OM%	CP%	CF%	EE%	Ash%	NFE%
CFM	100	93.52	14.11	12.91	2.42	6.48	64.08
WS	100	93.80	3.34	36.09	1.60	6.20	52.77
TWS	100	93.40	6.20	32.25	1.60	6.60	53.35

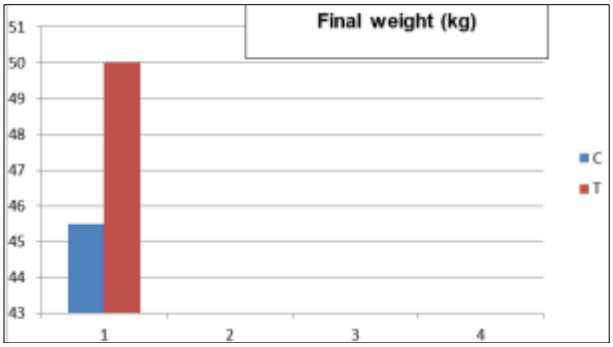
CFM: Concentrate feed mixture.
WS: Wheat straw.
TWS: Treated Wheat straw.

From the previous table (1), we find that the nutritional compounds increased in the straw treated with the nutrient liquid, except for the raw fibers decreased, and that this improvement that occurred in the nutritional compounds of the straw treated with the nutrient liquid was due to the action of ammonia resulting from the decomposition of urea in covalent bonds and the bonding of nitrogen to the straw and that these results Agreed with: (Hassan Shaker *et al*. 1998a, b&c) [7-9].

Table 2: Effect of treating straw with nutrient liquid on growth rate:

Item	Control	Treatment
Initial weight (kg)	30	30
Final weight (kg)	45.50	50.00
Total gain (kg)	15.50	20.00
Av.daily gain(g)	b172.22	222.22a
Growth rate %	50	66.66

a and b: Means is the same column with different superscripts are highly significantly different ($p< 0.01$).



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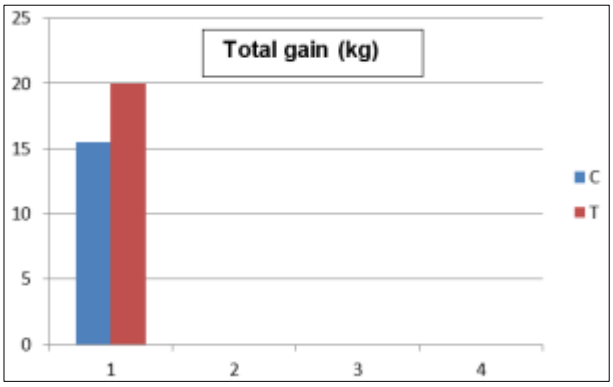
T = Treatment



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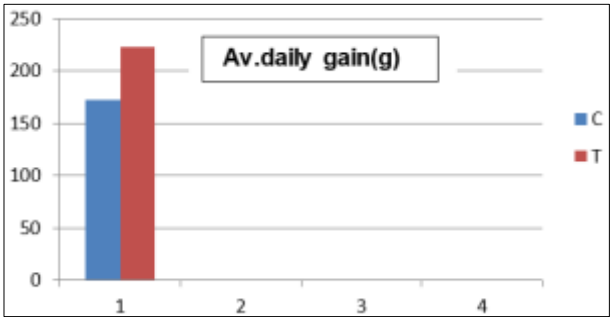

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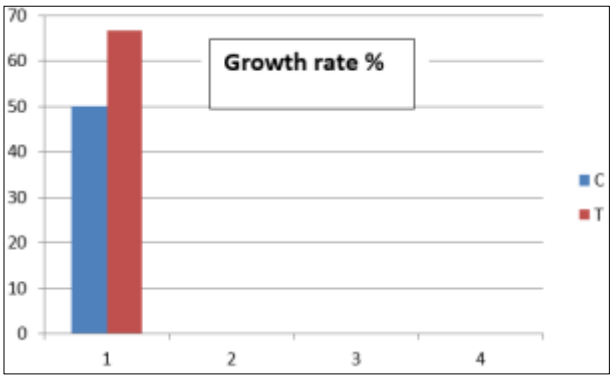

C= Control
T = Treatment

From the previous table no. (2) there is a highly significant increase ($p< 0.01$) in the daily growth rate in grams, and this is due to the increase in the nitrogen content of the straw treated with the nutrient liquid, as well as the decrease in its content of crude fibers, as well as the high coefficient of digestibility of food compounds in this hay due to the dissolution of the bonds between hemicellulose And lignin

on the one hand, and cellulose and lignin on the other hand, and this led to the exposure of hemicellulose and cellulose in the rumen to the action of microorganisms and the presence of an energy source, which is molasses. With what he found (Hassan Shaker *et al*. 1998b, Gihad 1979) [8, 6].

Table 3: The effect of treating hay with a nutrient liquid on the coefficient of digestion of feed compounds:

	DM%	OM%	CP%	CF%	EE%	NFE%
WS	b65.70	b 60.11	b 63.30	b 54 58.	b 60.10	b65.90
TWS	a68.80	a 65.00	a 69.30	a60.00	a70.50	a 69.50

a and b: Means is the same column with different superscripts are significantly different ($p< 0.01$)

From the previous table no. (3). It is clear that there was a significant increase in the digestion coefficient of both dry matter and organic matter, as well as the coefficient of digestion of crude protein, crude fiber, crude fat and soluble carbohydrates for straw treated with nutrient liquid compared to untreated figs. These results agreed with (Gihad 1979, White, *et al*., 1993) [6, 14].

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