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PRODUCTIVE PERFORMANCE OF GROWING RABBITS FED DIETS CONTAINING DIFFERENT FORMS OF *Portulaca oleracea* (PURSLANE) AND SUGAR BEET TOPS SILAGES

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ABSTRACT

This study aimed to investigate effects of feeding growing rabbits on diets containing different forms of silage on their productive performance. A total of 80 New Zealand White (NZW) weaned rabbits (5 weeks old) was allotted into 5 nearly equal groups, 16 in each group 8 female and 8 male. Rabbits in the 1st group were fed on 100% concentrate feed mixture (CFM) and was served as control groups as compared to those fed different forms of silage (30%) including Portulaca oleracea + sugar beet tops (1:1) (P.O. + SBTS), sugar beet tops (SBTS) silage and dried whole Portulaca oleracea (DPO).

***Results show that** rabbit in all silage groups showed significantly (P<0.05) higher total DM intake than the control group. Digestibility coefficient of CP was higher for POS, PO + SBTS and SBTS groups than the control group. While, rabbit in DOP group was similar to the control group. The differences were significant (P<0.05) only between POS an each of DPO and control groups. Values of OM, CF and NFE digestion were significantly (P<0.05) the lowest in CTS as compared to the other groups. While digestion of EE was not affected significantly by dietary treatment. Rabbits in all groups showed insignificant differences in N-balance, being positive in all groups. Feeding rabbits on silage and dried PO diets did not affect total protein and there fraction in blood plasma. However, a significant (P<0.05) increase was recorded in globulin concentration. There were no significant differences in LBW and conversion of growing rabbits at all feeding intervals. The effect of dietary treatment on average daily gain (ADG) of rabbits was significant (P<0.05) only during the interval from 11-16 weeks of age, being the highest in SBTS group and the lowest in PO + SBTS group (15.15 and 12.99 g/day, respectively). Most carcass traits were not affected by dietary treatments. Content of DM in rabbit meat significantly (P<0.05) increased in all silage groups than the control group. However, contents of CP, EE and ash did not differ significantly in all silage groups than the control group. Rabbits fed PO silage or PO + SBTS diets lowered total feed costs as compared to the other silage and dried PO groups.*

In conclusions*, introducing 30% silage and dried whole Portulaca oleracea in diets resulted in increasing growth and economic feed efficiency of rabbits, being the highest for POS and PO+SBTS groups.*

Keywords: Rabbit, *Portulaca oleracea* (dried and silage), growth performance, blood components, digestibility.

INTRODUCTION

In many developing countries, good quality forage may only be available on a seasonal basis suggesting a need for forage preservation as silage or hay. Rabbits have the advantage of utilizing forages and by-products as major diet components, since forages represent an import part of the rabbit diets (Toson *et al*., 1999). Rabbits are able to consume forages containing higher levels of fiver (Cheeke, 1986).

Silage from topical crops has higher levels of water soluble carbohydrates which make it appropriate for rabbit feeding (Portridge *et al.,* 1985).

In this respect, the results of experiments carried out from 1999 to 2010 (Ezekwe *et al.*, 1999; Lin *et al*., 2000; Gart *et al.*, 1999 and Abaza *et al.*, 2010) indicated that *Portulaca oleracea* (fresh, dried or silage) had high nutritive values and were more palatable compared to other forage by-products. In addition, *Portulaca oleracea* contain many compounds, including free oxalic acids, omerga-3 fatty acids, flavonoids, polysaccharide and protein compared to the vegetables. Purslane has been used as antibacterial, antifungal and analyesic activity (Chan *et al*., 2000).

Therefore, the present work aimed to study the effect of feeding rations containing different forms either *Portulaca oleracea* silage and sugar beet tops silage as well as dried *Portulaca oleracea* hay on productive performance of growing rabbits.

MATERIALS AND METHODS

The present study was carried out at Sakha Animal Production Research Station, Animal Production Research Institute, Agriculture Research Center, Egypt. This work was carried out through the Project Funded by the Council of Agricultural Research and Development.

Animals:

A total number of 80 NWZ growing rabbits having 5 weeks of age was divided into five equal groups, according to their weights, 16 animals in each (8 males and 8 females). All rabbits were individually housed in 30 cages (60 x 50 x 40 cm).

Rabbits in the 1st group were fed 100% concentrate feed mixture (CFM) and was considered as control group, while those in silage and dried groups were fed on diets containing 70% CFM and 30% silage including *Portulaca oleracea* silage (POS), *Portulaca oleracea* + sugar beet tops (PO + SBTS), sugar beet tops (SBTS) and dried *Portulaca oleracea* (DPO).

Feeding system:

Rabbits in all groups were fed on the tested rations from 5 up to 16 wk of age according to NRC (1994) requirements for growing rabbits. The CFM was

composed of different feedstuffs as shown in Table 1. The amounts of CFM for all groups were offered individually at morning. While in silage groups, rabbits were given the calculated amounts of silage afternoon.

Table 1: Composition of concentrate feed mixture used in rabbit feeding.

Ingredients	%
Wheat bran	24.0
Soybean meal (44%)	26.0
Yellow corn	16.0
Barley grain	30.0
Limestone	1.0
Premix*	0.5
Sodium chloride	0.5
Di-Ca phosphate	2.0

*** One kg premix contains**: Vit. A., 15.000 IU; Vit. E 100 mg ; Vit. K3, 21 mg ; Vit. B1, 10 mg ; Vit. B2, 40 mg ; Vit. B6, 15 mg ; Pantothenic acid, 100 mg ; Vit. B12, 0.1 mg ; Niacin, 200 mg Folic acid, 10 mg ; Biotin, 0.5 mg ; Choline, 5000 mg ; Fe 0.3 mg, Mn 600 mg, Cu 50 mg, Co 2 mg, Se 1 mg and Zu 450 mg.

Feeding was biweekly adjusted according to the LBW of growing rabbits. Chemical composition of CFM and different forms of the silage as well as calculated composition of the tested rations are shown in Table 2.

Growth performance parameters:

Live body weight (LBW) and feed intake of growing rabbit during the experimental period were weekly recorded. Then, average daily gain and feed conversion were calculated at different growth intervals (5-10, 11-16 and 5-16 wk of age).

Digestibility trial and nitrogen balance:

Digestibility trial was undertaken at the end of the experimental period (16 wk of age) on four animals (2 males and 2 females) from each group. Rabbits were housed individually in metabolism cages (40 x 35 x 30 cm), which allowed feces and urine separation. The experimental diets were offered daily and fresh water was provided all the time. Feed intake was accurately determined and coprophagy was not prevented. Quantitive collection of urine and feces started 24 hours after offering the daily feed for 5 days as a collection period, then the feces was dried at 60^{o}C for 12 h. All collected urine or feces for each animal were mixed, then feces were ground for chemical analysis and urine was kept (4-5^{o}C) for analysis. Chemical analysis of different feedstuffs, feces and nitrogen in urine was determined according AOAC (1980). Values of total digestibile nutrients (TDN) were calculated according to the classic formula described by Cheeke *et al.* (1982). However, digestibile energy (DE) was calculated according to the equation of Schiemann *et al.* (1972) as follows:

$$TDN\ (\%) = DCP\% + DNFE\ (\%) + DCF\ (\%) + 2.25\ (DEE\%).$$

$$DE\ (kcal/kg) = 5.28\ (DCP, g/kg) + 9.51\ (DEE, g/kg) + 4.2\ (DCF + DNFE, g/kg).$$

Where: DCP, DEE, DCF and DNFE =Digestible CP, EE, CF & NFE, respectively.

Table 2: Chemical analysis on DM basis of concentrate feed mixture (CFM) and different types of silage used in rabbit feeding.

Items	DM %	Chemical analysis (%) on DM basis					
		OM	CP	EE	CF	NFE	Ash
Chemical composition of feedstuffs							
CFM (Control)	87.56	90.64	18.23	2.10	6.66	63.61	9.36
PO silage (POS)	36.56	83.50	30.41	4.26	14.86	33.97	16.50
Sugar beet tops silage (SBTS)	31.85	72.50	18.10	3.40	10.40	40.60	27.50
POS+SBTS	34.20	78.10	24.20	3.30	12.38	38.22	21.90
Dried PO meal	80.46	83.02	31.92	4.44	12.81	33.85	16.98
Calculated composition of tested rations							
CFM (Control)	87.56	90.64	18.23	2.10	6.66	63.61	9.36
PO silage (POS)	61.73	88.50	21.92	2.74	9.12	54.72	11.50
Sugar beet tops silage (SBTS)	57.97	85.40	18.22	2.97	7.75	56.96	14.60
POS+SBTS	59.63	86.88	20.05	2.46	8.37	56.00	13.12
Dried PO meal	85.30	88.35	22.37	2.80	8.51	54.67	11.65

Blood parameters:

Blood samples were collected in heparinized test tubes from the ear vein of five rabbits in each group. Thereafter, blood plasma were separated by centrifugation at 3000 rpm for 15 min and stored at -20^{o}C until chemical analysis. Concentration of total protein (Gornall et al., 1949), albumin (Weichselaum, 1946) and creatinine (Henry, 1965) as well as ctivity of aspartate (AST) and alanine (ALT) transaminases (Reitman and Frankal, 1957) in blood plasma were determined using commercial kits (Diagnostic system Laboratories, Inc, USA). Plasma globulin concentration was calculated by subtracting concentration of albumin from total proteins.

Slaughter procedure:

Three males from each group were randomly taken and weighed before slaughter. After complete bleeding the head, pelt, viscera, feet, and tail were removed. Eight of carcass (dressed weight) was recorded, then dressing percentage was calculated. Weights of edible and non-edible organs were recorded. Samples from meat from the right caudal side of the carcass were taken for analysis according to AOAC (1980).

Economic feed efficiency (EFE%) was calculated according to the following equation:

$$EFE\% = (A\text{-}B/B) \times 100$$

Where: A = Price of kg gain in Egyptian pound (LE), B = Feed cost per kg gain (LE).

Statistical analysis:

Results were statistically analyzed according to Snedecor and Cocham (1982). However, the significant differences among treatments were tested using Duncan's Multiple Range Test (Duncan, 1955).

RESULTS AND DISCUSSION

Feed intake:

Table (3) show that dry matter intake (DMI) from CFM at all feeding intervals was significantly (P<0.05) higher for control group than those in all silage groups, which was in accordance with the designed feeding system for the experimental groups. However, in silage group, rabbits significantly (P<0.05) increased their intakes from PO + SBTS silage during intervals from 5-11 wk of age and from SBTS during the interval from 11-16 wk of age. This reflected insignificantly (P<0.05) higher intake from PO + SBTS and SBTS silages during the whole feeding interval from 5 to 16 wk of age. Rabbits in all silage groups showed significantly (P<0.05) higher total DMI than the control group. The present results regard to feed intake from different types of silage are similar to that reported by Abd El-Lateif (1996), Shetiefa (1999) and Omara (2005).

Table 3: Average daily DM (%) of CFM and different types of silage intake by growing rabbits during different experimental intervals.

Items	Control	POS	SBTS	POS+SBTS	DPO
5-10 wk of age					
CFM	72.13±0.3a	53.80±0.6b	52.51±0.41b	52.51±0.35b	53.17±0.41b
Forage	-	23.06±0.8	22.51±0.53	22.51±0.46	22.79±0.51
Total	72.13±0.3b	76.86±1.4a	75.02±0.92a	75.02±0.86a	75.96±0.83a
11-16 wk of age					
CFM	120.21±0.2a	94.38±0.10b	89.30±0.11c	92.40±0.20b	93.39±0.01b
Forage	-	40.45±0.14a	38.28±0.15c	39.63±0.21b	39.98±0.8b
Total	120.21±0.2c	134.83±0.18a	127.09±0.19b	132.03±0.25a	133.27±0.6a
Overall mean 5-16 wk of age					
CFM	94.32±0.2a	72.53±0.13b	72.27±0.14b	70.92±0.22b	71.69±0.2b
Forage	-	31.09±0.28a	29.79±0.15b	30.41±0.32b	30.72±0.23b
Total	94.32±0.2c	103.62±0.24b	102.06±0.13b	101.33±0.28b	102.41±0.23b

Feed consumption of rabbits depends basically on nutrient contents in accordance with the actual energy need of the animal (Dehalle, 1981) or/and protein and fiber level of its ration (Fekete and Bokori, 1985). The lower intake from dried PO meal, this may be due to unpalatable test of PO as reported by Hassanin and Hassan (1996) and Abaza et al. (2010). These results are in agreement with those obtained by El-Sayed (2001) who found that rats fed diet containing 10% PO significantly increased feed intake compared to those fed diet contained 15% PO.

Digestibility coefficient and nutritive values:

Data in Table (4) show that digestibility coefficient of CP was higher for PO silage, PO+SBTS and SBTS groups than the control group, while rabbits in dried PO group was similar to the control groups. Values of OM, CF and NFE digestion were significantly (P<0.05) the lowest in SBTS as compared to the other groups.

While, digestion of EE was not affected significantly by dietary treatment. The observed reduction in digestion of OM, CF and NFE may be attributed to significantly (P<0.05) feed intake from SBTS silage diet during feeding interval from 11-16 wk of age. The present results were similar to those obtained by Abd El-Lateif (1996); Shetiefa (1999); Abou-Ashour *et al.* (2003) ; Omara *et al*. (2005) and Abaza *et al.* (2010) on NZW rabbits fed different types of silage. The present study indicated beneficial effect of inclusion PO silage and dried whole PO in rations of rabbits in term of insignificant differences in nutritive value as TDN as compared to the control diet, however, inclusion of PO + SBTS silage or SBTS silage only significantly decreased nutritive values as TDN%. On the other hand, nutritive values as DCP% were significantly lower only in PO+SBTS silage and dried whole PO diets as compared to the control group.

Table 4: Digestibility coefficient and nutritive values of PO meal and types of silage**.**

Items	Control	POS	SBTS	POS+SBTS	DPO
Digestion coefficients %					
OM	74.61±1.3b	76.23±1.2a	74.58±1.5b	74.97±1.4b	72.97±1.7c
CP	72.04±1.4b	73.0±1.4a	72.96±1.6b	73.03±1.9a	72.94±1.6b
EE	78.27±3.2b	81.31±2.9a	72.22±3.1c	79.11±2.7b	79.09±2.3b
CF	60.99±3.2b	62.01±1.6a	62.58±2.4a	61.08±2.7b	61.12±3.1b
NFE	76.70±1.8b	79.63±1.1a	76.83±1.0b	77.55±2.3a	74.51±1.4c
Nutritive values %					
TDN	69.72±0.98a	70.24±1.16a	65.91±1.16c	67.56±1.20b	67.23±1.19b
DCP	13.17±1.31c	16.0±0.27a	13.29±1.29c	14.64±0.36b	16.32±0.38a

Blood biochemical parameters:

Feeding rabbits on silage diets did not affect protein metabolism in liver. However, a significant (P<0.05) increase was recorded in globulin concentration which was association with tendency of higher concentration of total protein (Table 5). The normal function of liver in rabbits fed silage and dried PO diets was indicated from the insignificant differences in activity of AST and ALT in plasma. In addition, disappearance of significant differences in concentration of creatinine between all silage groups and control one may suggest normal function of kidney in all groups. So, inclusion different types of silage is in the save side without any harmful effects on liver and kidney function. Similar finding were obtained on NZW rabbits fed on different types of silage by Abd El-Lateif (1996); Shetiefa (1999); Abou-Ashour *et al.* (2003) and Abaza *et al.* (2010). Levels of protein in blood may reflect the nutritional status of the animals. Concentration of total protein (TP) and their fractions in blood were affected by feed consumption consequently protein intake (Khalil, 1988 and Abd El-Moty, 1991) and by level of dietary protein (Ayyat, 1991). The significantly (P<0.05) higher total DMI in all silage groups than the control groups (Table 4) was associated with significant differences in nutritive values of different silage rations (Table 5) and insignificant differences in concentration of total proteins and their fractions among dietary groups (Table 5).

Such findings may indicate a higher protein utilization for rabbits fed silage diets, particularly rabbits in PO + SBTS silage than the control group.

Concentration of creatinine in plasma did not differ significantly among dietary groups (Table 5). Increases in creatinine levels in blood of rabbits may cause or induce kidney dysfunction.

The present levels of creatinine may indicate a normal function of kidneys in rabbits of all silage groups. The present activity of transaminases in plasma is within the normal ranges which indicate normal function of liver and heart (Ayyat, 1991 and El-Rahim, 1996). Metwally and Mohsen (1997) reported positive correlation of AST activity and negative correlation of ALT activity with body weight. This may explain the absent of significant differences in activity of transaminases (AST and ALT) in blood plasma of rabbits in all dietary groups (Table 5).

Growth parameters:

Data in Table (6) show insignificant differences in live body weight and feed conversion (FC) of growing rabbits at all intervals although there was a tendency of the heaviest weight for rabbit in PO silage group as compared to the control.

It is interest to the note that the effect of dietary treatment on average daily gain of rabbits was significant ($P<0.05$) only during the interval from 11-16 weeks of age, being the highest in SBTS silage group and the lowest in PO + CT silage group (15.15 and 12.99 g/day, respectively).

The present values of ASG are similar to those reported by Abd El-Lateif (1996) ; Shetiefa (1999); Abou-Ashour *et al.* (2003) ; Omara et al. (2005) and Abaza et al. (2010) in growing NZW rabbits fed different types of silage and dried PO diets. Generally, satisfactory growth rates were achieved by rabbits fed on different rations at all intervals (18.87-19.30 g/h/d). Similar valus of ADG were recorded by Abd El-Lateif (1996); El-Sayed (2001) and Abaza *et al.* (2010) for NZW rabbits fed on diets containing silage and dried whole PO.

Table 5: Average values of some biochemical concentrations and transamineases activity in blood plasma of growing rabbits fed different dietary treatments.

Items	Control	POS	SBTS	POS+SBTS	DPO
Total protein (g/dl)	7.31±0.3	7.98±0.2	7.61±0.2	7.88±0.4	7.92±0.3
Albumin (g/dl)	3.56±0.1	3.72±0.1	3.63±0.3	3.70±0.1	3.81±0.1
Globulin (g/dl)	3.75±0.1b	4.26±0.1a	3.98±0.2b	4.18±0.1a	4.11±0.2a
Creatinine (mg/dl)	1.58±0.2	1.74±0.3	1.66±0.2	1.69±0.2	1.71±0.3
AST (u/l)	41.5±2.3	42.72±2.5	41.09±2.7	42.50±3.1	42.64±2.5
ALT (u/l)	26.91±1.4	28.32±1.6	27.35±1.4	27.85±1.3	28.29±1.4

Table 6: Growth performance of growing rabbits fed different dietary treatments at different intervals of the experimental diets.

Items	Control	POS	SBTS	POS+SBTS	DPO
Live body weight					
5 wk	700±0.17	705±0.18	705±0.27	696±0.17	705±0.18
10 wk	1641±0.36c	1794±0.38a	1732±0.40b	1753±0.43ab	1775±0.39ab
16 wk	2190±0.40d	2489±0.42a	2331±0.45c	2402±0.39b	1446±0.38ab
Average daily gain (g)					
5-10 wk	22.40±0.6c	25.93±0.8a	24.45±0.7b	25.17±0.6ab	25.47±0.9ab
11-16 wk	13.07±0.4b	16.55±0.9a	14.62±0.8ab	15.45±0.7a	15.96±0.7a
5-16 wk	17.74±0.4b	21.24±0.6a	19.36±0.5ab	20.31±0.5a	20.73±0.6a
Feed conversion (g) feed /g gain					
5-10 wk	3.22±0.2a	2.96±0.3b	3.07±0.2ab	2.98±0.1b	2.98±0.3b
11-16 wk	9.20±0.5a	8.15±0.6c	8.69±0.6b	8.55±0.5bc	8.34±0.4bc
5-16 wk	5.32±0.7a	4.88±0.9b	5.27±0.4**a**	4.99±0.6b	4.94±0.6b

Carcass traits:

Data in Table (7) show that preslaughter weight and other carcass traits were not affected significantly by silage and dried PO diets as compared to the control group. In agreement with the present results, feeding rabbits on diets containing 20% PO on the expense of soybean meal without any adverse effects on carcass traits 9Abaza et al., 2010). Also, Abd El-Lateif (1996) found no dietary effect on full weight of the digestive tract of NZW rabbits fed SBTS and BS diets as compared to berseem hay diet.

Table 7: Carcass traits of rabbits fed different dietary treatments.

Items	Control	POS	SBTS	POS+SBTS	DPO
Preslaughter weight(g)	2160±140c	2454±110a	2298±118b	2368±115a	2409±105a
Carcass weight (g)	1112±75	1286±60	1190±69	1236±70	1239±55
Dressing, %	51.5±0.24	52.4±0.49	51.8±0.50	52.2±0.45	51.43±0.43
Weight of edible offals (g)					
Head	121.4±5.3c	162.6±6.7a	131.5±4.2b	143.8±6.4b	141.3±6.5b
Heart	5.1±0.43b	7.8±0.33a	7.09±0.35a	7.5±0.49a	7.2±0.46a
Liver	53.2±5.3c	62.2±5.9a	56.2±4.6b	59.1±4.8b	57.4±4.7b
Kidney	14.6±0.57c	19.2±0.98a	17.4±0.62b	18.2±0.88b	17.1±0.81b
Testes	7.1±0.60	8.2±0.83	8.4±0.69	8.3±0.75	8.0±0.79
Total	201.4	260.0	220.6	231.9	231.0
Drawn weight	1313.8	1546	1411	1473	1470
Dressing, %	60.82c	62.99a	61.4b	62.2b	61.02b
Weight of non-edible offals (g)					
Skin	366.8±69	390.8±74	386.4±73	390.2±74	399.6±76
Lungs	10.7±0.74	16.5±0.79	13.8±0.59	14.1±0.63	16.2±0.77
Blood	71.2±2.98	85.3±4.1	74.0±3.4	75.2±3.9	89.8±4.5
Digestive tract	397.5±75	415.4±80	412.8±81	415.6±83	433.4±89
Total	**846.2**	**908**	**887**	**895.1**	**939**

Chemical composition of meat:

Concerning the chemical composition of rabbit meat, content of DM and ash significantly (P<0.05) increased in all silage and dried whole PO groups than the control group (Table 8).

In accordance with the present results Malhate (1992) and Abd El-Lateif (1996) mentioned that feeding NZW rabbits on diets containing silage did not affect meat composition. Generally the present composition is within the normal range reported Gad-Allah (1997) on rabbit meat.

Table 8: Chemical composition of meat samples of rabbits fed different dietary treatments.

Items	Control	POS	SBTS	POS+SBTS	DPO
DM %	25.6±0.42c	29.82±0.28	27.41±0.46b	28.71±0.39b	28.91±0.29b
CP %	76.7±0.20	77.91±0.79	77.28±0.39	77.59±0.83	77.79±0.69
EE %	16.3±0.37	17.2±0.49	16.89±0.32	17.49±0.59	17.35±0.59
Ash %	9.11±0.72a	7.45±0.66b	8.44±0.63b	7.83±0.49b	7.51±0.16b

Economic feed efficiency:

In comparing of different treatment diets, incorporation of forage in silage and dried whole PO diets resulted in marked reduction in total feed cost, being 78.7, 77.3, 84.3 and 81.4% in PO silage, PO+SBTS silage, SBTS silage and dried PO, respectively, of that in the control group (Table 9).

Table 9: Economic efficiency of rabbits fed different dietary treatments.

Items	Control	POS	SBTS	POS+SBTS	DPO
Feed intake as fed (kg)					
CFM	9.80	7.54	7.30	7.19	7.45
Forage	-	7.74	8.51	7.70	3.47
Cost of feed intake (LE)					
CFM	20.58	15.83	15.33	15.10	15.65
Forage	-	2.70	2.55	2.50	1.74
Total cost (LE)	20.58	18.53	17.88	17.60	17.39
Reduction of feed cost %	100	90.04	86.88	85.52	84.50
Total weight gain (kg)	1.490	1.784	1.626	1.706	1.741
Feed cost/ kg gain	13.81	10.39	10.99	10.32	9.99
Price of total gain (LE)	26.82	32.11	29.27	30.71	31.34
Net revenue (LE)	4.19	7.61	7.01	7.68	8.01
Economic efficiency, %	30.12	73.24	63.79	74.42	80.18
EFE (%) relative to control	100	243.16	211.79	247.08	266.20

The price of LBW was 18 LE/kg, the prices of CFM, POS, SBTS, POS+SBTS and DPO were 2100, 350, 300, 325 and 500 LE/ton, respectively.

The lowest total feed cost of PO silage and PO + SBTS silage groups and higher total weight gain of rabbits fed these rations led to higher EFE% for both groups as

compared to the other silage groups as well as the control groups. Similar results were reported by Abdel-Lateif (1996) and Abaza *et al.* (2010) using different types of silage and dried whole PO.

In conclusion, introducing 30% silage and dried whole PO in diets resulted in increasing growth and economic feed efficiency of rabbit, being the highest for PO silage and PO + SBTS silage groups.

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الاداء الانتاجى للارانب النامية والمغذاة على علائق تحتوى صور مختلفة من سيلاج الرجلة وعروش بنجر السكر

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تهدف هذه الدراسة لبحث تأثير تغذية الارانب النامية على علائق تحتوى على صور مختلفة من سيلاج الرجلة وعروش بنجر السكر على كفاءتها الانتاجية . استخدم فى هذه الدراسة ٨٠ أرنب نيوزلاندى نامى عمر ٥ أسابيع مقسمة الى خمس مجموعات تجريبية مغذاة على عليقة مصنعة وبكل مجموعة ١٦ أرنب (٨ ذكور ، ٨ اناث) ، فالمجموعة الاولى غذيت على ١٠٠% عليقى مصنعة بينما المجاميع الاخرى غذيت على ٧٠% عليقة مصنعة ، ٣٠% سيلاج (المجموعة الثانية غذيت على سيلاج الرجلة ، والمجموعة الثالثة على مخلوط سيلاج الرجلة + سيلاج عروش بنجر السكر بنسبة (١:١) والمجموعة الرابعة على سيلاج عروش بنجر السكر بينما المجموعة الخامسة غذيت على دريس الرجلة الكامل الجاف ، وغذيت كل المجاميع من عمر ٥ اسابيع وحتى عمر ١٦ اسبوع . ويمكن تلخيص النتائج المتحصل عليها كالتالى:

١ - أظهرت كل المجاميع المعاملة زيادة معنوية فى المادة الجافة الماكولة مقارنة بالكنترول.
٢ - ارتفع معامل هضم البروتين فى مجموعات السيلاج عن مجموعة المقارنة ما عدا مجموعة سيلاج عروش بنجر السكر والتى لم تختلف معنويا عن المجموعة المقارنة.
٣ - لم يتأثر ميزان الازوت بين المجموعات التجريبية.
٤ - لم يتأثر البروتين الكلى فى سيرم الدم بالمعاملات فى مجموعات السيلاج مقارنة بمجموعة المقارنة.
٥ - ادخال السيلاج ودريس الرجلة الجاف فى علائق الارانب ادى الى زيادة فى معدلات النمو وخاصة فى الفترة من ١١-١٦ اسبوع ، بينما وزن الجسم ومعدل استهلاك الغذاء اليومى لم يختلف معنويا فى كل المجموعات التجريبية.

التوصية: الدراسة توصى بادخال سيلاج الرجلة وعروش بنجر السكر ودريس الرجلة فى علائق الارانب النامية لتحسين كفاءتها الانتاجية.