

EFFECT OF DATE PITS ON THE PERFORMANCE OF SUDANESE DESERT LAMBS

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ABSTRACT: Twelve Sudanese desert lambs with an average live weight of 20.9 kg were divided into three groups of equal number to study the effect of date pits level on the performance of Sudanese desert lambs. The study was conducted at small ruminant research unit in the Faculty of Agricultural Technology and Fish Sciences, Al-Neelain University Khartoum, Sudan. Three iso-nitrogenous and iso-caloric diets containing graded levels of date pits (0%, 5%, and 10%) were randomly assigned to the lambs groups. Feeding was on ad libitum for 45 days. Performance of experimental lambs did not significantly influenced with introduction of date pits.

Key words: Lambs, date pits, chemical composition, performance.

INTRODUCTION

The increasing pressure on the aquaculture to reduce or eliminate feed antibiotics as growth enhancers has initiated new research to find safe and efficient natural alternatives. This new generation of feed additives includes herbs and their essential oils and extracts (Brenes and Roura, 2010). Herbal additives contain substances which increase also appetite and digestion (Barreto et al., 2008). There has been published many studies have confirmed that the addition of plants or their extracts in the diets has a beneficial effect to improve growth parameters and protect from diseases in aquaculture (Shalaby, 2004; Sasmal et al., 2005; Johnson and Banerji, 2007, Farahi et al. 2010, Sudagar et al., 2010; Kasiri et al., 2011).

Dates are considered as one of the most important food crops in many countries around the world, especially in tropical and subtropical regions. However a substantial amount of this production is inedible due to its low quality. This portion is used mainly as fertilizer or animal feed.

Date pits (known also as date stones, kernels, or seeds) represent about 13-15% of the total weight date fruits (Hussein et al. 1998). Date pits contains about 10-20% fiber and 55-70% nitrogen free extract (NFE) depending on date species and varieties (FAO 1999). About 55-73% of NFE in the date pits is mainly starch (Yousif et al. 1996; Hussein et al. 1998; Ali et al. 1999).

A number of studies have been conducted on the use of date by-products for sheep (Tag El- Din and Nour 1993; El Hag et al. 1996), poultry (Hussein et al. 1998) and Calves (El Hag and El Khanjari 2000).

The high content of NFE in date pits has attracted the attention of a number of researchers to evaluate its potential use in animal feed, with promising results. Dietary inclusion of date pits significantly improved the growth and feed utilization of sheep (Elgasim et al. 1995), rats (Ali et al. 1999) and poultry (Vandepopuliere et al. 1995; Hussein et al. 1998).

So the study here was carried out to see the effect of the date pits on the performance of Sudanese desert lambs.

MATERIALS AND METHODS

Date pits were collected, washed, soaked in water for 7 days and dried in the shade then grounded. Proximate analysis of date pits were carried out according to methods of AOAC (1980).

Three iso-nitrogenous and iso-caloric diets A, B and C were formulated which contains date pits meal with percentages 0%, 5% and 10% respectively (Table 2).

ORIGINAL ARTICLE



Twelve Sudanese desert lambs with an average live weight of 20.9 kg were used in this study. Lambs were kept for an adaptation period of two weeks during which they were sprayed with an acaricide and drenched for endoparasites. A mixture containing equal proportions of experimental diets was fed to the lambs. At the end of the adaptation period lambs were individually weighed and divided into three groups of equal number and weight. Each group was separately kept in a pen provided with watering and feeding facilities.

The diets were randomly assigned to the lambs groups and offered *ad libitum* in one morning meal throughout the feeding period. Green fodder (*Medicago Sativa*) was also offered at a rate of 1kg/ head/week as a source of vitamin A. Clean water and salt lick were available throughout the feeding period which lasted for 45 days. Feed intake, live weight and feed conversion ratio were determined.

Data was statistically analyzed according to the analysis of variance applicable to complete randomized design as described by Snedecor and Cochran (1980).

RESULTS AND DISCUSSION

The proximate analysis of date pits and the ingredients proportion of three experimental rations were shown in Table 1 and Table 2 respectively. Performance characteristics of Sudanese desert lambs were presented in Table 3. Graded percentages of date pits meal induced no significant effect on the final body weight, weight gain and feed conversion efficiency.

Table 1 - Approximate composition (g/Kg DM) of date pits

Items	g/kg DM
CP	214
EE	50
CF	158
Ash	53
ME (Mj/kg DM) *	8.8

* ME was calculated according to the equation: ME (MJ/kg DM) = 0.012CP + 0.031EE + 0.005CF + 0.014NFE (Maff, 1975).

Table 2 - Ingredients proportion and chemical composition of experimental diets

Ingredients	Ration A	Ration B	Ration C
Sorghum grain	30	22	22
Wheat bran	18	22	20
Groundnut meal	19	18	17
Groundnut hulls	24	21	20
Datepits	0	5	10
Molasses	7	10	9
Lime stone	1	1	1
Common salt	1	1	1
ME (Mj/kgDM)	10.26	10.00	9.97
CP %	16.7	17.05	17.1

Table 3 - Performance characteristics of Sudanese desert Lambs fed

Item	A	B	C	S.E
No. of animals	4	4	4	-
Experimental period (days)	45	45	45	-
Initial weight (Kg)	20.2	20.6	20.3	0.26
Final weight (Kg)	25.51	25.02	25.17	0.43
Average daily gain (g/)	118	98	108	1.05
Feed intake (Kg/day)	1.20	1.09	1.12	0.90
Feed conversion*	10.21	11.08	10.38	1.56

S.E. Standard error; *Feed intake (g)/average daily gain (g)

Table 4 - Financial Study of the research

Feeds	Feed Intake	Kilogram's Price*	Whole Price
A	202.32	0.84	169.95
B	182.88	0.82	149.96
C	188.64	0.78	147.14

* Price in Sudanese pounds

These results were not in line with a number of previous studies (Shawket, 1999; Ahmed et al., 2001; Shawket et al., 2001; Abouheif et al., 2000) this may be due to the low percentages of the date pits that were used in this study. On the other hand feed intake, average daily gain and feed conversion were lower with diet containing date pits than that of diet containing no date pits. These results were not in agreement with that of Al-Owaimer et al. (2008), who reported that feed intake was higher with the lambs fed on diet containing date pits. As seen from



Table 4 inclusion of date pits minimize the cost of the diet to 0.84, 0.82 and 0.78 Sudanese pounds for kilogram in case of 0, 5 and 10% inclusion of date pits.

CONCLUSION

The current study recommended that using date pits by 10% give a good animal performance among trail diets as well as it had a lower cost.

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