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Editorial

The Effect of Sunflower Seed on Milk Fatty Acids of One Hump Camel

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Introduction

The inclusion of sunflower seed in the ruminant's diet can change the milk production and fatty acids profile. Sunflower seed has high polyunsaturated fatty acids that increase linoleic acid isomers in the milk as beneficial fatty acids for heart health [3]. Sunflower seed contains 35 to 40% oil, 17 to 20% crude protein, and 70% linoleic acid and recommended in diets of early lactation duo to high contents of fat and protein. Supplementation with sunflower seed increased CLA of milk that has anti-carcinogenic, antiatherogenic and antidiabetic effects and potentially strengthens the immune response [4]. The aim of the current study was to investigate the effect of raw sunflower seeds in dairy camels' diet on the milk fatty acids profile.

Methods and Results

Twelve one-hump lactating camels, average weight 570 kg were grazed on the pasture. The camels were in second and third months of lactation. Lactating camels divided randomly into two groups: control group grazed on pasture and another group fed 400 g raw sunflower seed for 1 month. Milk production was recorded, and fatty acid profile was assessed by gas chromatography [2].

Data were analyzed as a completely randomized design using the General Linear Model (GLM) procedure of the SAS based on the statistical model: $Y_{ij} = \mu + T_i + e_{ij}$.

According to the results, milk production in camels fed raw sunflower seed was higher than control group ($P < 0.05$). Inclusion of sunflower seed in dairy camel's diet increased C18:1, C18:2, C18:3 and CLA amount ($P < 0.05$) (Table 1).

	Control	Sunflower seed	SEM	P-value
Milk production (Liter/day)	3.5[b]	5.7[a]	1.88	0.01
C 18:1c	15.8[b]	16.2[a]	0.03	0.01
C 18:3 n3	0.95[b]	1.1[a]	0.18	0.02
C 18:2 n6	1.61[b]	2.1[a]	0.03	0.01
CLA	0.29[b]	0.38[a]	0.2	0.02

Table 1: Milk fatty acids profile of camels fed with raw sunflower seed.

SEM: Standard error of means, Means with letters within each row differed significantly ($P < 0.05$).

The average milk production in camels fed with raw sunflower seed were higher than control. But, in another study it is concluded, supplementation 7.5 or 15% sunflower seed for 4 weeks to dairy cows had no significant effect on milk yield [3].

Dayani., *et al.* (2004) reported the concentrations of milk CLA cis-9, trans-11 increased in dairy cows fed sunflower seeds. Also, Mansouri., *et al.* (2011) concluded the dairy cows fed 7.5 % sunflower seed had the highest amount of unsaturated and C18:2 in milk. Cows fed with 4% sunflower oil had higher CLA content in the milk that improve human nutrition [4].

According to the current study, supplementation of the one hump dairy camels with 400 mg sunflower seeds, daily increased

milk production and unsaturated fatty acids such as C18:1, C18:2, C18:3 and CLA that effectively influence heart health. But it needs to do more studies on using various amounts of sunflower seed in the dairy camel.

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