



ADVANCE SOCIAL SCIENCE ARCHIVE JOURNAL

Available Online: <https://assajournal.com>
Vol. 05 No. 02. April-June 2026. Page# 1534-1547
Print ISSN: [3006-2497](https://doi.org/10.5281/zenodo.20556497) Online ISSN: [3006-2500](https://doi.org/10.5281/zenodo.20556497)
Platform & Workflow by: [Open Journal Systems](https://doi.org/10.5281/zenodo.20556497)
<https://doi.org/10.5281/zenodo.20556497>



Influence of Dietary Regimes on the Yield Dynamics and Physio-Chemical Attributes of Marecha Camel (*Camelus dromedarius*) Milk"

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ABSTRACT

A comparative feeding trial was conducted to evaluate the effects of fodder and concentrate rations on milk yield and composition in Marecha camels. Twenty lactating camels were randomly assigned to two groups: control (fodder and grazing) and treatment (fodder, grazing, and concentrate supplementation), with 10 animals in each group. The trial lasted one month. Camels receiving concentrate supplementation produced significantly higher milk yield ($P < 0.05$) than those fed only fodder and grazing. Milk specific gravity and body weight were not significantly affected ($P > 0.05$). However, fat, total solids, solids-not-fat (SNF), and lactose percentages were significantly improved ($P < 0.01$) in the treatment group. The results indicate that concentrate supplementation enhances both milk production and milk quality in Marecha camels.

Key words: Marecha Camel, Concentrate Ration, Milk Composition, Fat Percentage, Lactose

Introduction

Camels have key role in the subsistence of poor people of the country. Additionally, Camels are used for pulling out water from wells, softening & flattening of land, use for taking out for oil from different sources, crushing of many food and cash crops such as wheat, corn and many

other cereals & grains, grinding sugarcane crop, and for the carriage of all types of heavy goods and people. The camel with adequate feed has ability to produce 10-15 Litters milk per day. The milk of Mareecha Camel can also be utilized for making many dairy products such as yogurt (dahi), kurth, butter (makhan), ghee, rabbri and khoya (sweets) (Ahmad et al., 2010).

Pakistani camels have a tremendous ability for quality milk production. The Mareecha breed in camels is probably the best milk producing breed in the world with an average milk production of 4179 Liters per year. The average lactation length may vary from 270 to 540 days depending upon the environment and average milk production may ranges from 1300 to 4200 Litters per year (Khan and Arshad, 2001).

Pakistani camel has excellent potential as milk animal i.e. Marecha, which is probably one of the best milk yielder breeds in the world with an average milk production of 4,179 liters per year (Faraz et al., 2021). The average daily production of milk ranges from 3-10 L during the lactation (Farah et al., 2007). The daily production of milk may be increased to 20 L provided better animal feed, availability of water and veterinary care (FAO, 2006). In a similar environment, camels produce more milk for a longer period of time than any other species, while their requirement for feed is modest (Musaad et al., 2013).

The camel survives in those areas where green vegetation is only available at season depending upon the unpredictable raining and meets their feed requirements by the diet which is rejected by other animals (Fesseha and Wondwossen, 2020). The highest food consumption of 30-40 kg fresh forage (8-12 kg dry matter) is found on salty pastures and the lowest food intakes (5 kg/day) is noted from dried grass pastures (Askar et al., 2024). It is obvious that milk of camels in many traits is superior to the milk of other livestock family when the camels are reared under intensive captivity (Seifu, 2022). There are only a few references on camel milk, whether they concern production (Faye, 2005). Therefore, this study was carried out to determine the comparative production and physio-chemical characteristics of milk in marecha camels under different feeding regimes.

Materials and Methods

20 camels meeting specific criteria were included in the study for one month period. Two groups were made i.e. Control and Treatment each having 10 numbers of animals for feeding trials. Group I (control) received only conventional feeding i.e. fodder and shrubs grazing in fields. Whereas group II (treatment) received additionally energy rich diet in the form of concentrate (Anmol Vanda) @ 1% of their body weight. The group II offered concentrate ration having CP-14%, DM-83.26% and TDN-71%. Every time whole milking was done in the absence of calf suckling and milk was fed to the calves manually through bucket system having nipples. The milk samples of all animals under trial were collected on weekly basis for a whole month on regular intervals i.e. 0, 7, 14, 21 & 28th day. The milk samples were regularly sent to Milk Testing Laboratory of Camel Breeding and Research Center, Rakh Mahni for analysis of milk parameters i.e. Specific gravity, Fat, Solid not fat, Total solids, Lactose and Body weight according to the procedure described by (Khan *et al.*, 2005) by using milk analyzer. In this research trial, Gerber's method was adopted for the estimation of fat content in milk. The specific gravity of milk was calculated through lactometer readings while total solids and solid not fat were calculated by the following formulas:

$$\text{Percentage of Total solids} = \text{CLR}/4 + 1.2 \times F$$

$$\text{Percentage of Solids Not Fat} = \text{CLR}/4 + 0.2 \times F$$

Where,

CLR = Lactometer (Quevenne) reading corrected to 60F^o

F = Percentage of Fat

The data of all parameters under studies was tabulated by using MS excel sheet and analyzed with SPSS (Statistical Package for Social Sciences) version 20. The comparative differences or similarities related to milk production and composition among the groups were calculated with independent sample t-test.

RESULTS AND DISCUSSION

Milk parameters

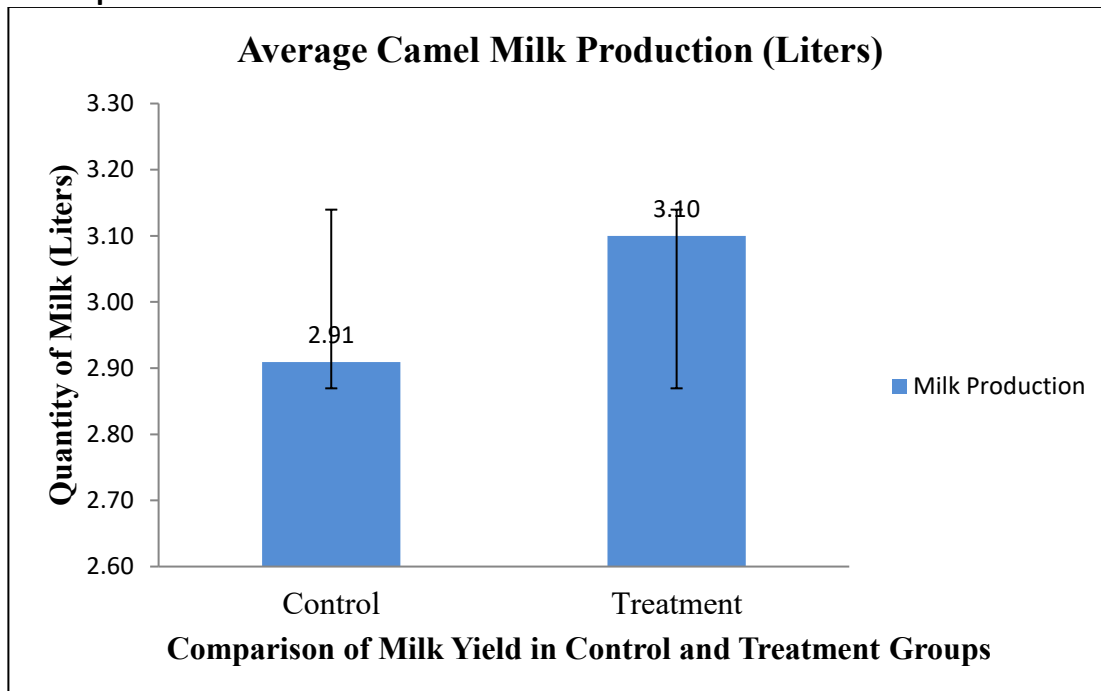
Average Milk Production

The average milk production (in liters) of Mareecha Camels was significantly affected ($P < 0.05$) due to the variation in diet sources i.e. fodder and concentrates. The milk production was higher on concentrate ration ($P < 0.05$). The mean value of Average Milk Production (liters) of Mareecha Camels on fodder was 2.91, while the average milk yield (liters) of the same breed on additional concentrate supplement was 3.10 (Table 1) as showing in following (Fig. 1). Highly significant difference was showed by the groups on statistical analysis ($P < 0.01$) in respect to average milk yield. Dereje and Peter (2005) observed same results in their experiment and recorded increased milk production in two treatment groups (protein supplementation and energy supplementation) by 12.9, 9.1 kg as compared to control group (browsing only) i.e. 7.6 kg at intensive farming system.

Khan and Iqbal (2001) also showed same result that the milk production increases from desert to intensive condition (from 3.5 liters to upto 40liters).

Hatmi *et al.*, (2004) also resulted same in his experiment showing the increase of milk production in group II (on concentrate feeding) $3105.4 \pm 1028.8\text{ml}$ as compared to group I (on less concentrate) $1854 \pm 386.9\text{ml}$, ($P < 0.01$).

Fig. 1 Comparative Milk Production of Mareecha Camel at Fodder and Concentrate feeding



*Control bar shows the Milk quantity in liters at Fodder grazing

*Treatment bar shows the Milk quantity in liters at additional Concentrate feeding

Table 1. Milk Parameters of Marecha camels fed on Fodder and Concentrate diets

Breed	Marecha	
Groups	A	B
Treatments	Fodder	Concentrate
Parameters studied	Mean \pm STD	Mean \pm STD
Specific Gravity	1.14 \pm 0.061	1.16 \pm 0.062
Milk Fat (%)	1.27 \pm 0.157	1.58 \pm 0.279
Total Solids (%)	7.29 \pm 1.094	8.79 \pm 0.349
Solids not Fat (%)	6.02 \pm 1.137	7.22 \pm 0.491
Lactose (%) in Milk	4.91 \pm 0.194	5.33 \pm 0.348
Average Body weight (kg)	531 \pm 34.45	537 \pm 57.50
Milk production (liters)	2.91 \pm 0.370	3.10 \pm 0.310

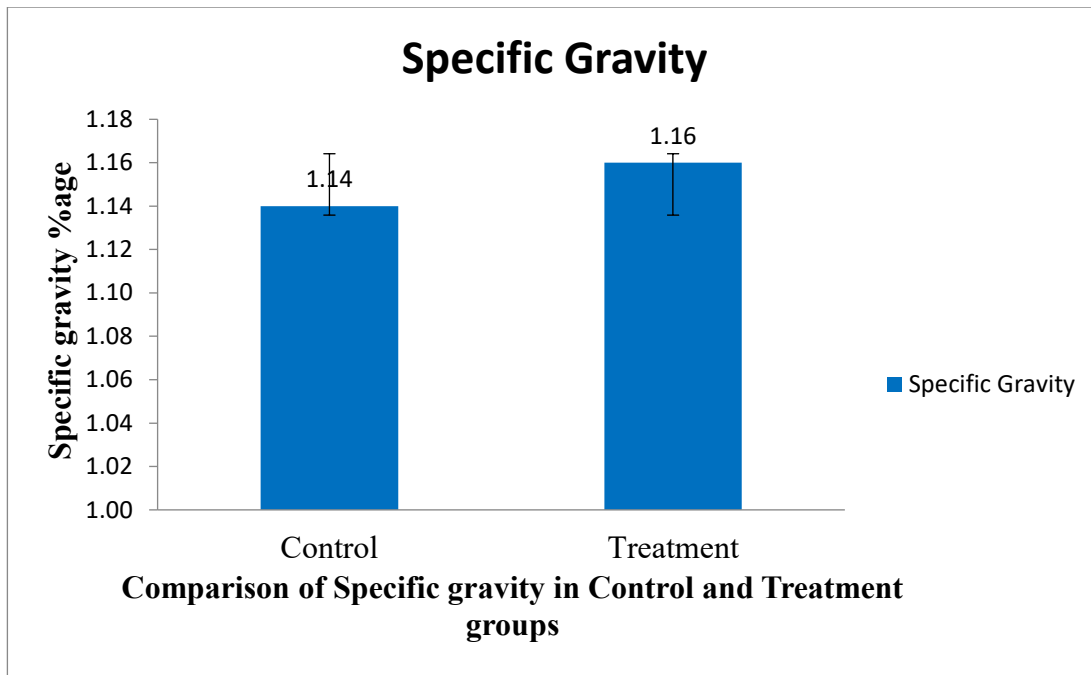
Laboratory Examinations

Specific gravity

The specific gravity of milk was not significantly affected ($P>0.05$) due to changing feeding source. The average mean value of Specific Gravity of Mareecha Camel in control group (fodder and browsing) was 1.14, whereas the result of Specific Gravity on treatment group (on concentrate feeding) was 1.16 (Table 2).

The range of specific gravity and the similarity of this result were in accordance to the research findings of Konuspaya *et. al.* (2009) as they analysed the camel milk composition by eighty two references from scientific journals and not reported the significant differences in the specific gravity of milk.

Fig. 2 Comparison of Specific gravity of Mareecha Camel Milk at Fodder and Concentrate ration



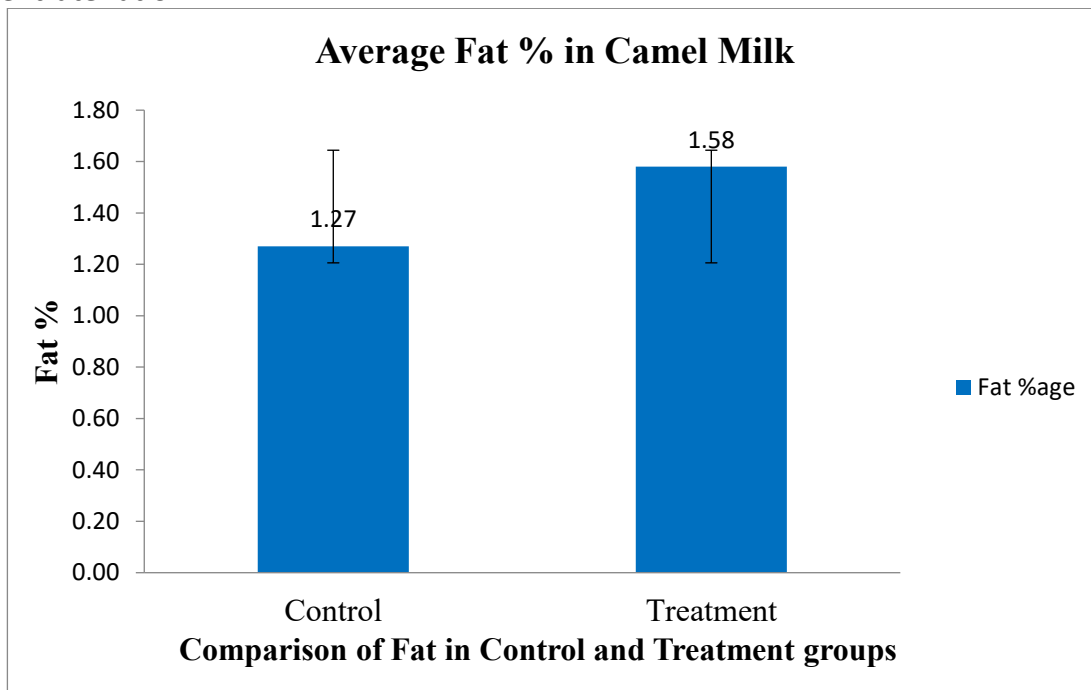
*Control bar shows the Specific gravity value at Fodder grazing

*Treatment bar shows the Specific gravity value at additional Concentrate feeding

Fat %age

The fat contents of camel milk were significantly affected ($P < 0.05$) in two groups i.e. control and treatment group due to change in diet source. The average means value of Fat %age in Mareecha camels (Table 2) of two different groups, i.e A & B was 1.27 and 1.58, respectively (Table 2). Derej and Peter (2005) showed the similar results of increase in milk fat in two groups (control and treatment) from 37g/l to 39g/l, respectively ($P < 0.05$) at two different feeding. The results are also in line with Knoess, (1977) showed the similar result of camel milk fat percentage i.e. 2.1% to 2.6%.

Fig. 3 Comparative Effect of Fat Percentage of Mareecha Camel Milk at Fodder and Concentrate ration



*Control bar shows the Fat percentage in Milk at Fodder grazing.

*Treatment bar shows the Fat percentage in Milk at additional Concentrate feeding.

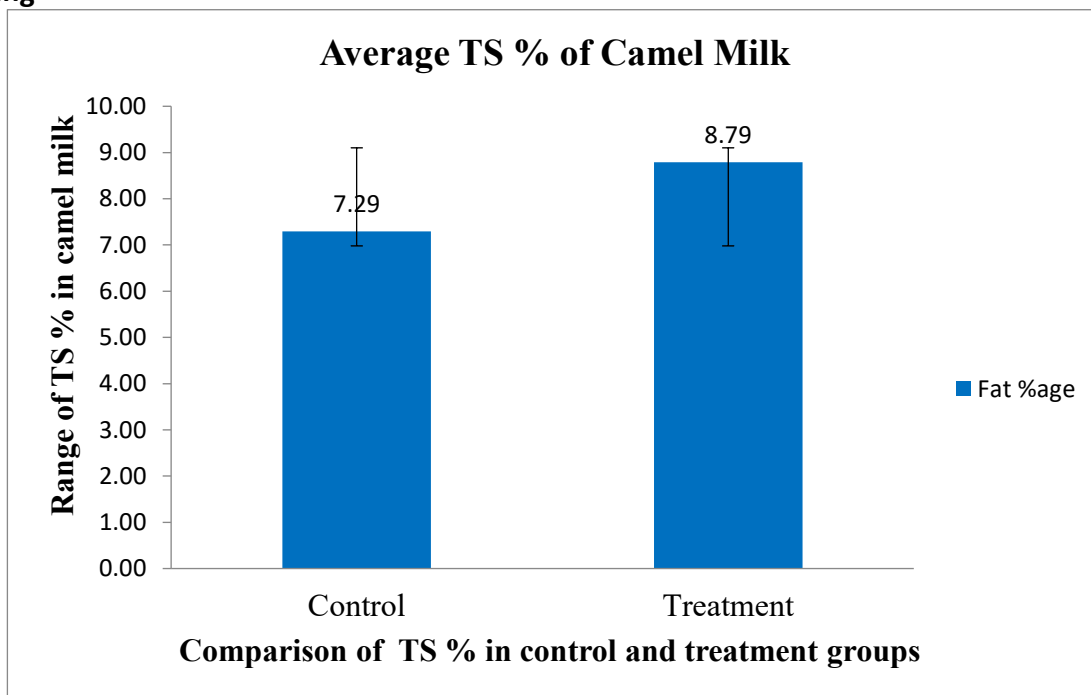
Total Solids

The total solids %age of milk samples of both group was significantly affected ($P < 0.01$) i.e. control and treatment group due to change in diet source. The mean values of Total Solids percentage in Mareecha camel milk in two groups was 7.29% and 8.79% respectively (Table 2).

The results are in close agreement with Vittorio *et al.* (2000) who observed the effect of diet supplementation in camel milk in two groups of twelve dromedary camels and noted an increase in vital constituents of total solids i.e. protein, fat, calcium and zinc (2.86 vs. 2.56%, 3.31 vs. 3.19%, 1.20 vs. 0.94g/l and 3.16 vs. 2.52g/l, treatment vs. control, respectively). They were shown significantly higher value of total solids of treatment (supplemented) group vs. control (un-supplemented) group ($P < 0.01$).

This result was also in close agreement with Soryal *et al.* (2004) who investigated the variations in milk composition of alpine goats at different level of concentrate feeding with pasture grazing. Animals were divided into four groups i.e. A, B, C and D depending upon the level of concentrate feed. The animal in the groups showed higher milk fat, protein, solid not fat and total solids contents who received the high concentrate ration with the pasture grazing than those animal groups who fed only on pasture grazing.

Fig. 4 Comparative Total solids percentage of Mareecha Camel Milk at Fodder and Concentrate feeding



*Control bar shows the Total solid percentage in Milk at Fodder grazing

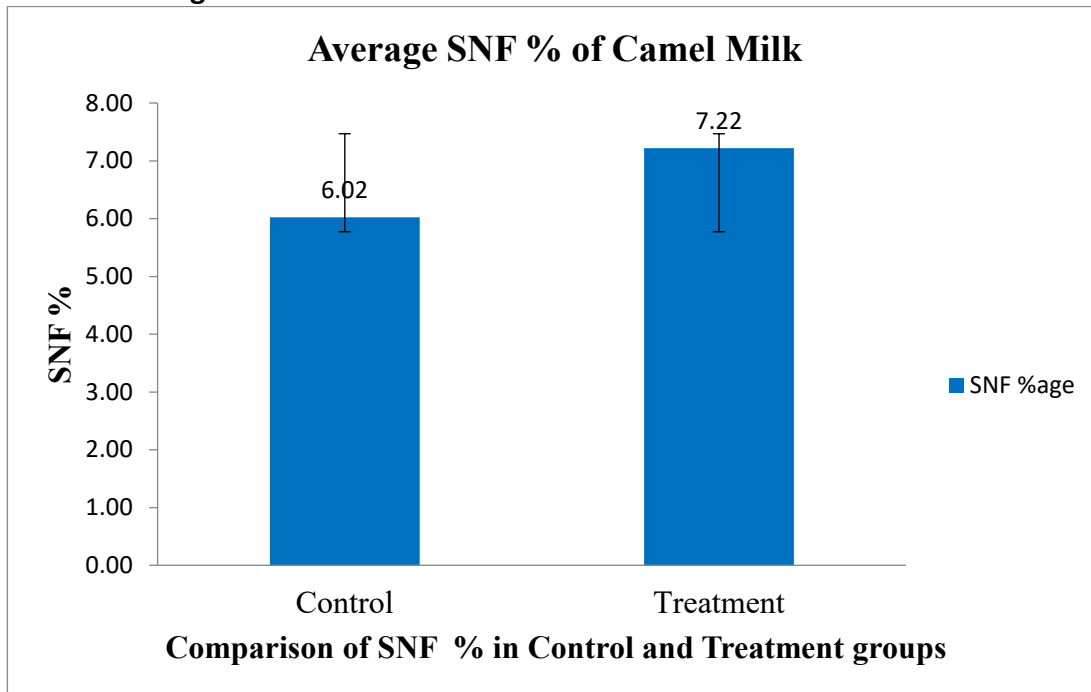
*Treatment bar shows the Total solid percentage in Milk at additional Concentrate feeding

Solid Not Fat

Solid not fat %age of milk was significantly affected ($P < 0.01$) between two groups i.e. control and treatment due to change in feed source i.e. fodder and concentrate. A high significant difference was observed in both groups ($P < 0.01$). The mean values of SNF %age in Mareecha camels under two different treatment groups (control and treatment) were 6.02 and 7.22, respectively (Table 2).

The results are in close relation with the Vittorio *et al.* (2000) who reported the highly significant difference ($P < 0.01$) in milk solid not fat contents and total solids in adult camels group fed with additional supplementation than the control group animal (un-supplemented).

Fig. 5 Comparative percentage of Solid Not Fat of Mareecha Camel Milk at Fodder and Concentrate feeding



*Control bar shows the Solid not fat percentage in Milk at Fodder grazing

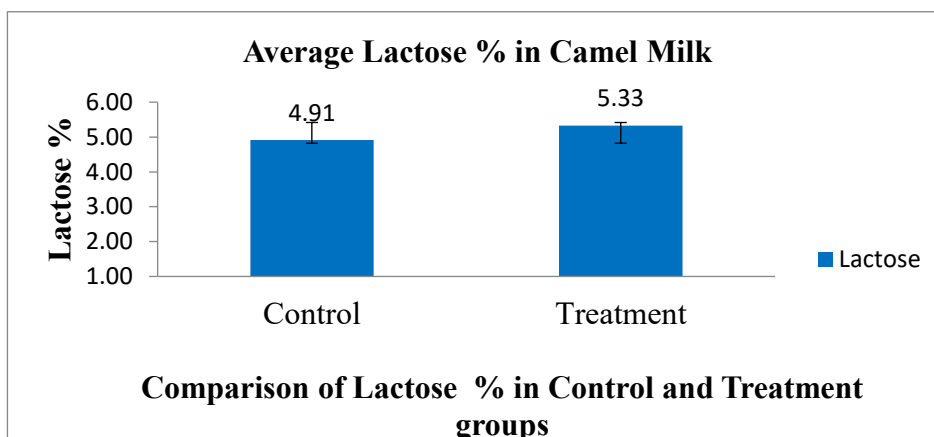
*Treatment bar shows the Solid not fat percentage in Milk at additional Concentrate feeding

Lactose (%)

Lactose %age of milk was significantly affected ($P < 0.01$) due to change in diet sources i.e. fodder and concentrate. The average means value of lactose percentage in Mareecha camel milk in two groups were 4.91 and 5.33, respectively (Table 2).

The results are in line with the study of Awais *et al* (2022) who reported the same proportion of lactose i.e. 5.78% in camel milk with the provision of better and adequate feeding. Khan and Iqbal (2001) also concluded in their research that the lactose contents in camel milk ranges from 2.9% to 5.8%, provided with the concentrate feeding which are also in close agreement to this result.

Fig. 6 Comparison of Lactose percentage of Mareecha Camel Milk at Fodder and Concentrate feeding



*Control bar shows the Lactose percentage in Milk at Fodder grazing

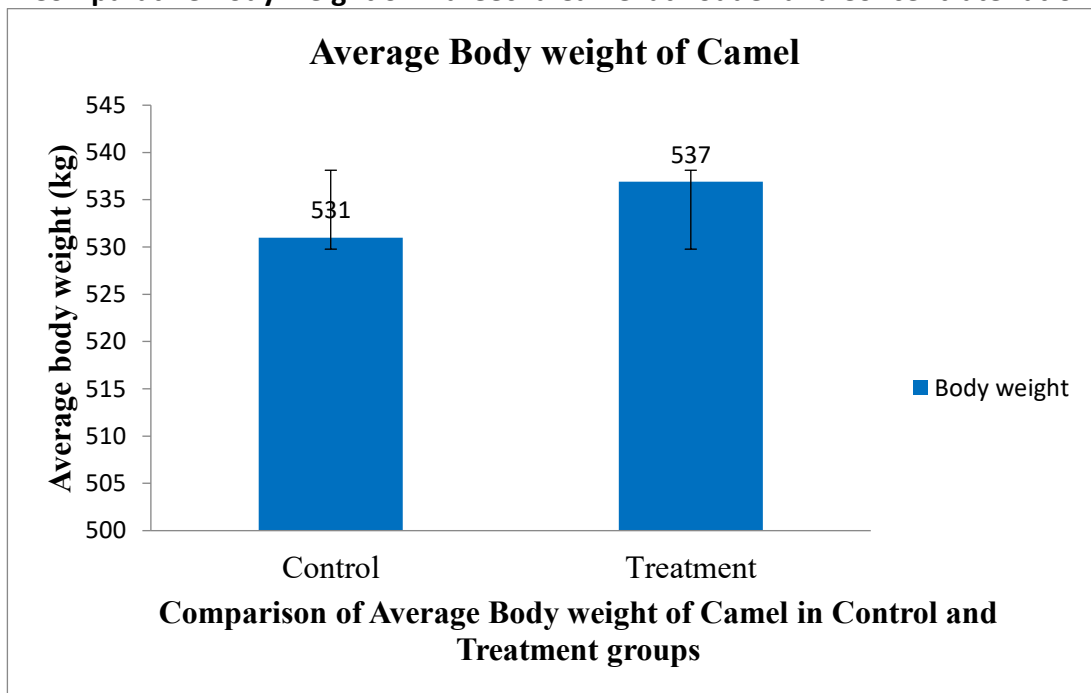
*Treatment bar shows the Lactose percentage in Milk at additional Concentrate feeding

Body Weight (kgs)

Average Body Weight (kgs) of Mareecha camels under trial were not significantly affected between the groups ($P>0.05$) due to change in diet source, i.e. fodder and concentrate. The comparative result of mean Body Weight of Mareecha camels of control and treatment groups were 531 ± 34.45 kg and 537 ± 57.50 kg, respectively (Table 2).

Hammadi *et al.* (2001) reported the effect of diet supplementation on growth in camels. Eighteen pregnant dromedary female camels were selected to study the effect of concentrate supplement on average weight gain in 90 days before calving and 90 days after calving. The animals were divided into two groups, i.e. control (C) and supplemented (S), each having nine number of animals. The daily body weight gain (DBG) of concentrate supplemented group significantly affected during the last 90 days of gestation period and daily body weight gain (DBG) was at least tenfold more in group S than in group C (775 g vs. 72 g respectively) and during the post-partum period, females in group S gained in weight (116 g/d) whereas females in group C lost more than 200 g/d. In our study, the animals in treatment group showed gradual weight gain in body but not a significant level as the duration of trial was lesser (only five times for a month) to measure the average whole-body weight with respect to age factor.

Fig. 7 Comparative Body weight of Mareecha Camel at Fodder and Concentrate ration



*Control bar shows the Average body weight (kilogram) at Fodder grazing

*Treatment bar shows the Average body weight (kilogram) at additional Concentrate feeding

Table: 2 Comparison of Milk Parameters (mean values) on fodder and concentrate feeding in Mareecha Camels:

Breed	Mareecha	
Groups	A	B
Treatments	Fodder	Concentrate
Parameters studied	Mean ± STD	Mean ± STD

Specific Gravity	1.14± 0.061	1.16± 0.062
Milk Fat (%)	1.27± 0.157	1.58±0.279
Total Solids (%)	7.29±1.094	8.79±0.349
Solids not Fat (%)	6.02± 1.137	7.22±0.491
Lactose (%) in Milk	4.91±0.194	5.33±0.348
Average Body weight (kg)	531± 34.45	537±57.50
Milk production (liters)	2.91±0.370	3.10±0.310

* 1st row in table shows the breed under trial.

* 2nd row shows the two groups (A & B) under trial.

* 3rd row shows the different treatment in groups (Fodder grazing and Concentrate feeding).

* 4th row shows the mean values of different parameters under trial along with their standard deviation (STD).

Interpretation of data of Milk Parameters under Trial on Day wise basis

As discussed in previous chapter 3, two groups were selected for the trial i.e. control and treatment. Each of the group (having equal number of animals) was studied through following parameters at five different intervals of a month i.e. 0, 7, 14, 21, 28 days and following statistical results was inferred.

Comparison of milk parameters at Day 0:

a) Specific Gravity:

The mean value of specific gravity for control group was 1.10±0.045 as compared to treated group 1.13±0.062 which was statistically non-significant ($P>0.05$).

b) Fat percentage:

The mean value of fat percentage for control group was 1.274±0.189 as compared to treated group 1.327±0.226 which was statistically non-significant ($P>0.05$).

c) Solid Not fat percentage:

The mean value of solid not fat percentage for control group was 6.012±0.283 as compared to treated group 7.378±0.572 which was statistically significant ($P<0.01$).

d) Total Solids percentage:

The mean value of total solids percentage for control group was 7.286±1.220 as compared to treated group 8.705±0.408 which was statistically significant ($P<0.01$).

e) Lactose Percentage:

The mean value of lactose percentage for control group was 4.916±0.201 as compared to treated group 5.113±0.323 which was statistically non-significant ($P>0.05$).

f) Body Weight of Animals:

The mean value of body weight percentage for control group was 530.200±36.322 as compared to treated group 533.500±59.817 which was statistically non-significant ($P>0.05$).

g) Milk Production of Animals:

The mean value of body weight percentage for control group was 3.000±0.471 as compared to treated group 2.985±0.315 which was statistically non-significant ($P>0.05$).

Table 3. Descriptive Statistics & Two Tailed Independent Sample T-Test for Milk Parameters at Day 0.

Milk Parameters	Groups	No. of Observations	Mean ± Standard Deviation	Sig./non-sig
Specific Gravity	Control	10	1.10±0.045	NS

	Treated	10	1.13±0.062	
Fat %	Control	10	1.274±0.189	NS
	Treated	10	1.327±0.226	
SNF %	Control	10	6.012±0.1283	S
	Treated	10	7.378±0.572	
Total Solids%	Control	10	7.286±1.220	S
	Treated	10	8.705±0.408	
Lactose%	Control	10	4.916±0.201	NS
	Treated	10	5.113±0.323	
Body Weight (kg)	Control	10	530.200±36.322	NS
	Treated	10	533.500±59.817	
Milk Production	Control	10	3.000±0.471	NS
	Treated	10	2.985±0.315	

Note: “S” stand for significance and “NS” stand for non-significance

Comparison of milk parameters at Day 07:

a) Specific Gravity:

The mean value of specific gravity for control group was 1.14±0.040 as compared to treated group 1.15±0.047 which was statistically non-significant (P>0.05).

b) Fat percentage:

The mean value of fat percentage for control group was 1.241±0.150 as compared to treated group 1.410±0.264 which was statistically non-significant (P>0.05).

c) Solid Not fat percentage:

The mean value of solid not fat percentage for control group was 6.040±1.233 as compared to treated group 7.362±0.567 which was statistically highly significant (P<0.01).

d) Total Solids percentage:

The mean value of total solids percentage for control group was 7.281±1.215 as compared to treated group 8.772±0.384 which was statistically highly significant (P<0.01).

e) Lactose percentage:

The mean value of lactose percentage for control group was 4.903±0.175 as compared to treated group 5.198±0.292 which was statistically significant (P<0.01).

f) Body weight of Animals:

The mean value of body weight percentage for control group was 530.80±35.854 as compared to treated group 535.40±60.460 which was statistically non-significant (P>0.05).

g) Milk production of Animals:

The mean value of body weight percentage for control group was 2.955±0.371 as compared to treated group 3.050±0.276 which was statistically non-significant (P>0.05).

Table 4. Descriptive Statistics & Two Tailed Independent Sample T-Test for Milk Parameters at 7th Day

Milk Parameters	Groups	N	Mean Std. Deviation	Sig./non-sig
Specific gravity	Control	10	1.14±0.040	NS
	Treated	10	1.15±0.047	
Fat%	Control	10	1.241±0.150	NS
	Treated	10	1.410±0.264	
SNF%	Control	10	6.040±1.233	S
	Treated	10	7.362±0.567	
TS%	Control	10	7.281±1.215	S

	Treated	10	8.772±0.384	
Lactose%	Control	10	4.903±0.175	S
	Treated	10	5.198±0.292	
Body weight (kg)	Control	10	530.80±35.854	NS
	Treated	10	535.40±60.460	
Milk production	Control	10	2.955±0.371	NS
	Treated	10	3.050±0.276	

Note: "S" stand for significance and "NS" stand for non-significance result.

Comparison of milk parameters at Day 14:

a) Specific Gravity:

The mean value of specific gravity for control group was 1.18±0.043 as compared to treated group 1.12± 0.057 which was statistically significant (P<0.05).

b) Fat percentage:

The mean value of fat percentage for control group was 1.276±0.166 as compared to treated group 1.582±0.241 which was statistically highly significant (P<0.01).

c) Solid Not fat percentage:

The mean value of solid not fat percentage for control group was 5.969±1.122 as compared to treated group 7.183±0.476 which was statistically highly significant (P<0.01).

d) Total Solids percentage:

The mean value of total solids percentage for control group was 7.245±1.090 as compared to treated group 8.765±0.351 which was statistically highly significant (P<0.01).

e) Lactose percentage:

The mean value of lactose percentage for control group was 4.955±0.159 as compared to treated group 5.357±0.322 which was statistically highly significant (P<0.01)

f) Body weight of Animals:

The mean value of body weight percentage for control group was 531.90±36.422 as compared to treated group 537.20±59.892 which was statistically non-significant (P>0.05).

g) Milk production of Animals:

The mean value of body weight percentage for control group was 2.945±0.246 as compared to treated group 3.120±0.284 which was statistically non-significant (P>0.05).

Table 5. Descriptive Statistics & Two Tailed Independent Sample T-Test for Milk Parameters at 14th Day

Milk Parameters	Groups	No. of Obs.	Mean ± Standard Deviation	Sig./non-sig
Specific Gravity	Control	10	1.18±0.043	S
	Treated	10	1.12± 0.057	
Fat %	Control	10	1.276±0.166	S
	Treated	10	1.582±0.241	
SNF %	Control	10	5.969±1.122	S
	Treated	10	7.183±0.476	
Total Solids	Control	10	7.245±1.090	S
	Treated	10	8.765±0.351	
Lactose	Control	10	4.955±0.159	S
	Treated	10	5.357±0.322	
Body Weight	Control	10	531.90±36.422	NS
	Treated	10	537.20±59.892	
Milk Production	Control	10	2.945±0.246	NS

	Treated	10	3.120±0.284	
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Note: “S” stand for significance and “NS” stand for non-significance result.

Comparison of Milk Parameters at Day 21

a) Specific Gravity:

The mean value of specific gravity for control group was 1.19±0.044 as compared to treated group 1.13±0.042 which was statistically non-significant (P>0.05).

b) Fat percentage:

The mean value of fat percentage for control group was 1.257±0.152 as compared to treated group 1.774±0.147 which was statistically highly significant (P<0.01).

c) Solid Not fat percentage:

The mean value of solid not fat percentage for control group was 6.032±1.152 as compared to treated group 7.037±0.410 which was statistically significant (P<0.05).

d) Total Solids percentage:

The mean value of total solids percentage for control group was 7.289±1.118 as compared to treated group 8.811±0.343 which was statistically highly significant (P<0.01).

e) Lactose percentage:

The mean value of lactose percentage for control group was 4.907±0.223 as compared to treated group 5.509±0.383 which was statistically highly significant (P<0.01).

f) Body weight of Animals:

The mean value of body weight percentage for control group was 531.50±35.954 as compared to treated group 539.10±59.891 which was statistically non-significant (P>0.05)

g) Milk production of Animals:

The mean value of body weight percentage for control group was 2.835±0.377 as compared to treated group 3.118±0.368 which was statistically non-significant (P>0.05).

Table 6. Descriptive Statistics & Two Tailed Independent Sample T-Test for Milk Parameters at 21st Day

Milk Parameters	Groups	No. of Obs.	Mean ± Standard Deviation	Sig./non-sig
Specific Gravity	Control	10	1.19±0.044	NS
	Treated	10	1.13±0.042	
Fat %	Control	10	1.257±0.152	S
	Treated	10	1.774±0.147	
SNF %	Control	10	6.032±1.152	S
	Treated	10	7.037±0.410	
Total Solids	Control	10	7.289±1.118	S
	Treated	10	8.811±0.343	
Lactose	Control	10	4.907±0.223	S
	Treated	10	5.509±0.383	
Body Weight	Control	10	531.50±35.954	NS
	Treated	10	539.10±59.891	
Milk Production	Control	10	2.835±0.377	NS
	Treated	10	3.118±0.368	

Note: “S” stand for significance and “NS” stand for non-significance result.

Comparison of milk parameters at Day 28:

a) Specific Gravity:

The mean value of specific gravity for control group was 1.08±0.044 as compared to treated group 1.23±0.046 which was statistically highly significant (P<0.01).

b) Fat percentage:

The mean value of fat percentage for control group was 1.296 ± 0.1529 as compared to treated group 1.794 ± 0.166 which was statistically highly significant ($P < 0.01$).

d) Solid Not fat percentage:

The mean value of solid not fat percentage for control group was 6.040 ± 1.136 as compared to treated group 7.122 ± 0.416 which was statistically highly significant ($P < 0.01$)

e) Total Solids percentage:

The mean value of total solids percentage for control group was 7.344 ± 1.052 as compared to treated group 8.916 ± 0.288 which was statistically highly significant ($P < 0.01$).

c) Lactose percentage:

The mean value of lactose percentage for control group was 4.855 ± 0.230 as compared to treated group 5.451 ± 0.306 which was statistically highly significant ($P < 0.01$).

d) Body weight of Animals:

The mean value of body weight percentage for control group was 531.50 ± 35.170 as compared to treated group 539.30 ± 59.746 which was statistically non-significant ($P > 0.05$)

e) Milk production of Animals:

The mean value of body weight percentage for control group was 2.775 ± 0.381 as compared to treated group 3.215 ± 0.318 which was statistically highly significant ($P < 0.01$).

Table 7. Descriptive Statistics & Two Tailed Independent Sample T-Test for Milk Parameters at 28th Day

Milk Parameters	Groups	No. of Obs.	Mean \pm Standard Deviation	Sig./non-sig.
Specific Gravity	Control	10	1.08 ± 0.044	S
	Treated	10	1.23 ± 0.046	
Fat %	Control	10	1.296 ± 0.1529	S
	Treated	10	1.794 ± 0.166	
SNF %	Control	10	6.040 ± 1.136	S
	Treated	10	7.122 ± 0.416	
Total Solids	Control	10	7.344 ± 1.052	S
	Treated	10	8.916 ± 0.288	
Lactose	Control	10	4.855 ± 0.230	S
	Treated	10	5.451 ± 0.306	
Body Weight	Control	10	531.50 ± 35.170	S
	Treated	10	539.30 ± 59.746	
Milk Production	Control	10	2.775 ± 0.381	S
	Treated	10	3.215 ± 0.318	

Note: "S" stand for significance and "NS" stand for non-significance result.

Conflict of interest

The authors declare that there is no conflict of interest.

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