

Effect of Season on Arabian Camel (Camel us Dromedarius) Semen Parameters

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Abstract

This study was conducted on forty (40) of one- humped Arabin camels to evaluate the effect of season on semen parameters, therefore the semen was collected from these animals in four seasons which are Winter, Autumn, Spring and Summer, the parameters which are studied include: semen concentration, semen motility, semen volume, the percentage of life sperms and the percentage of abnormal sperms. The results were revealed that, there is significant increase in sperms concentration, semen volume and semen motility during cold seasons (Winter and Autumn) as compared with other seasons also there is increase in percentage of life sperms and decrease in percentage of abnormal sperms in cold seasons (Winter and Autumn) as compared with other seasons

Keywords: *Arabian camel, semen, season.*

Introduction

Camel is a huge and strong animal live in the desert, it can travel for long distances sufficient with little of water and food, and the camels can transfer weightlifting and luggage, camel stacks and repairs fat in its hump to utilize it as energy source. [1]

Camels considered as an important food source, by its meat, milk and cheese [2] Their, skins used in leather industry and their hyrax in wraps industry. [3]

Camel plays vital soci – economic roles and support millions of huen begins in the dry and arid zones of Asia and Africa. camels during severe drought periods, not only surviving such droughts but also producing and reproducing [4] testes are responsible for the production of spermatozoa and secretion of androgens, the spermatozoon is the result of a complex process of cellular differentiation – During this morphological modifications occur based on biochemical and cytochemical changes [4] camels are known to be seasonal breeders, and their reproductive efficiently under natural pastoral condition is low. [5]

And because lack of studies about male camel reproductive system this study was designed

to know the seasonal effects on sperm parameters of Arabian camel (camel us dromdarius)

Materials and methods

Animals

This study was conducted on forty (40) of the one humped Arabian camels (camel us dromdarius).

The semen was collected from them in four seasons of the year as following:-

- Winter:- the samples were collected in January 2015
- Spring :- the samples were collected in April 2015
- Summer :- the samples were collected in August 2015
- Autumn :- the samples were collected in October 2015

Semen Collection

Samples of semen were collected by electroejaculator. [6]

Semen Analysis

The sperm parameters were doing by veterinary sperm analyzer (Xuzhou lianchnarg medical)

Studied Parameters

Studied parameters were include

- Sperm count.
- Total motility
- Volume
- Percentage of life sperms.

- Percentage of abnormal sperms

Statistic Analysis

Doing by spss version 7

Results and Discussion

Table 1: effect of seasons on Arabian camel (camel us dromedarius) on semen concentration *10⁷/ml

summer	Autumn	winter	spring
8 ± 0.8 A	10 ± 0.5 B	12 ± 0.9 C	8.5 ± 1.1 A

- Number of animals= 40
- The different litters indicate significant differences between groups(P≤ 0.05)

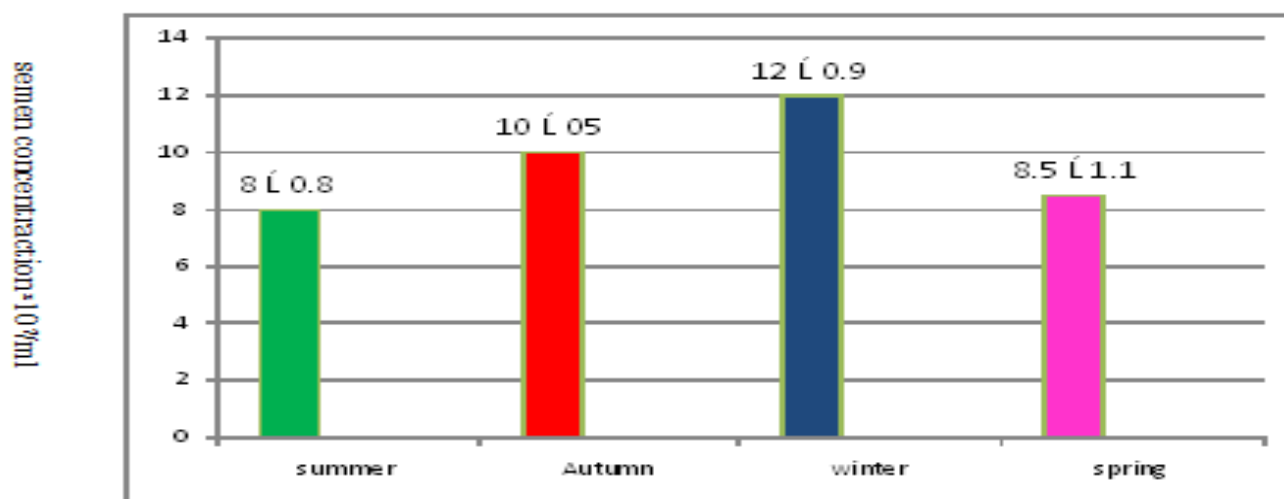


Figure1: Effect of seasons on Arabian camel (camel us dromedarius) on semen concentration *10⁷/ml

Table 2: effect of seasons on Arabian camel (camel us dromedarius) semen motility (%)

summer	Autumn	winter	spring
42 ± 3.2 A	53.5 ± 4.5 B	55 ± 3.8 B	43 ± 4.1 A

- Number of animals= 40
- The different litters indicate significant differences
- between groups(P≤ 0.05)

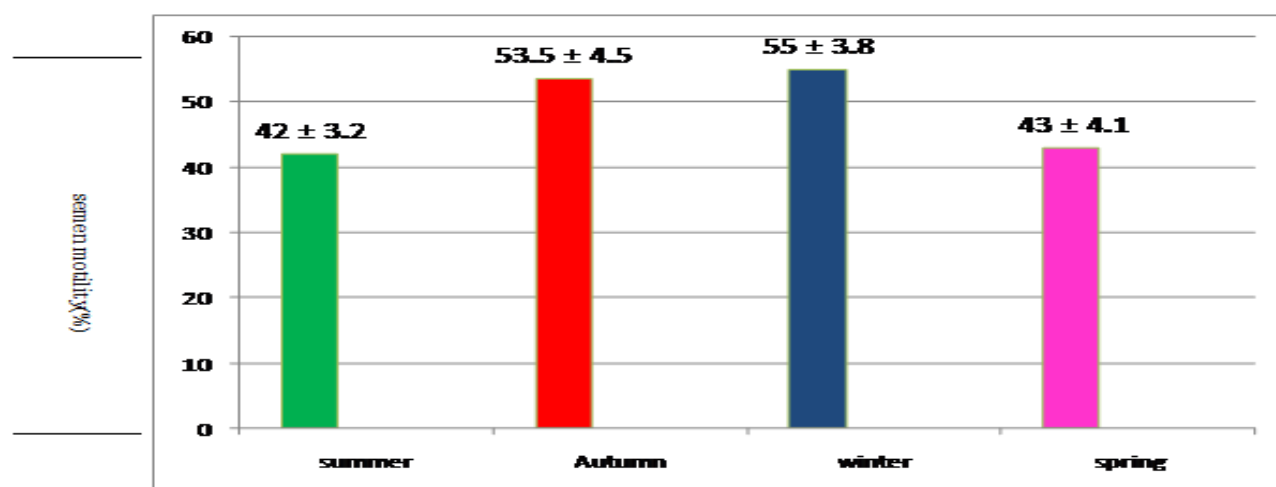


Figure 2: Effect of seasons on Arabian camel (camel us dromedarius) semen motility (%)

Table 3: Effect of seasons on Arabian camel (camelus dromedarius) semen volume (ml)

summer	Autumn	winter	spring
9 ± 0.9 A	10.5 ± 0.7 A	12.5 ± 1.2 B	10 ± 0.8 A

- Number of animals= 40
- The different litters indicate significant differences between groups(P≤ 0.05)

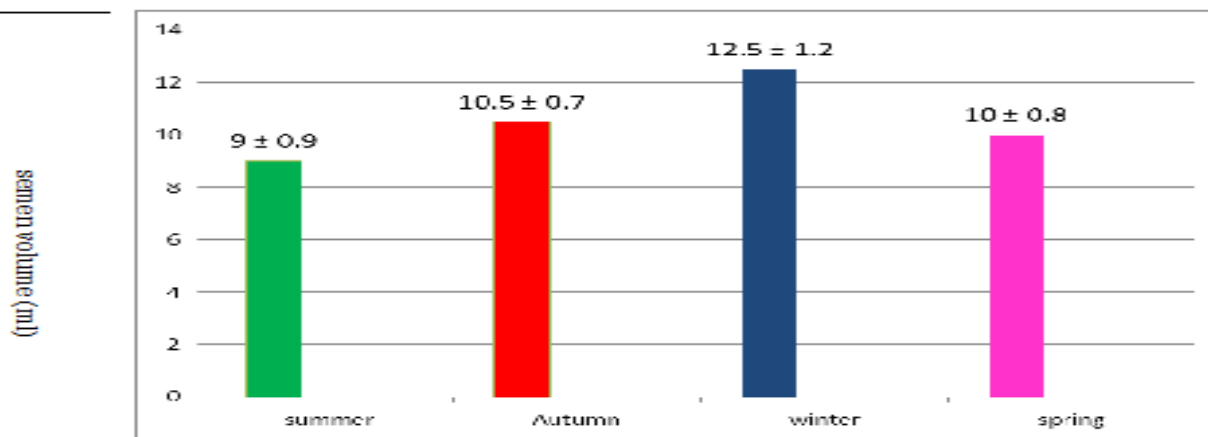


Figure 3: Effect of seasons on Arabian camel (camel us dromedarius) semen volume (ml)

Table 4: effect of seasons on Arabian camel (camel us dromedarius) on percentage of life sperms (%)

summer	Autumn	winter	spring
50.3 ± 3.5	57 ± 3.2	60 ± 4.6	51.2 ± 4.1
A	B	C	A

- Number of animals= 40

- The different litters indicate significant differences between groups($P \leq 0.05$)

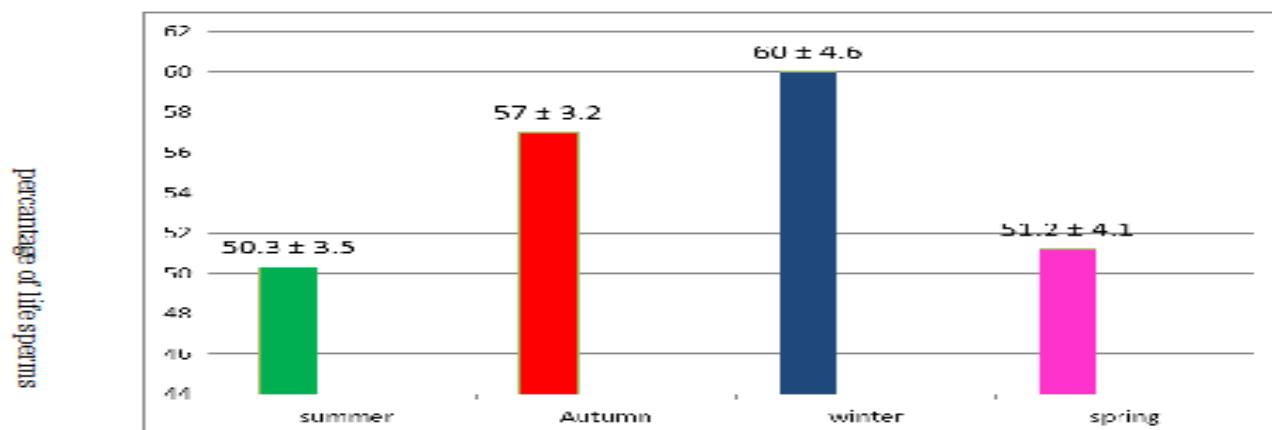


Figure 4: effect of seasons on Arabian camel (camel us dromedarius) on percentage of life sperms (%)

Table (5: effect of seasons on Arabian camel (camel us dromedarius) on percentage of abnormal sperms (%)

summer	Autumn	winter	spring
8 ± 0.6	4.5 ± 0.6	5 ± 0.8	7.5 ± 1.1
A	B	B	A

- Number of animals= 40

- The different litters indicate significant differences between groups($P \leq 0.05$)

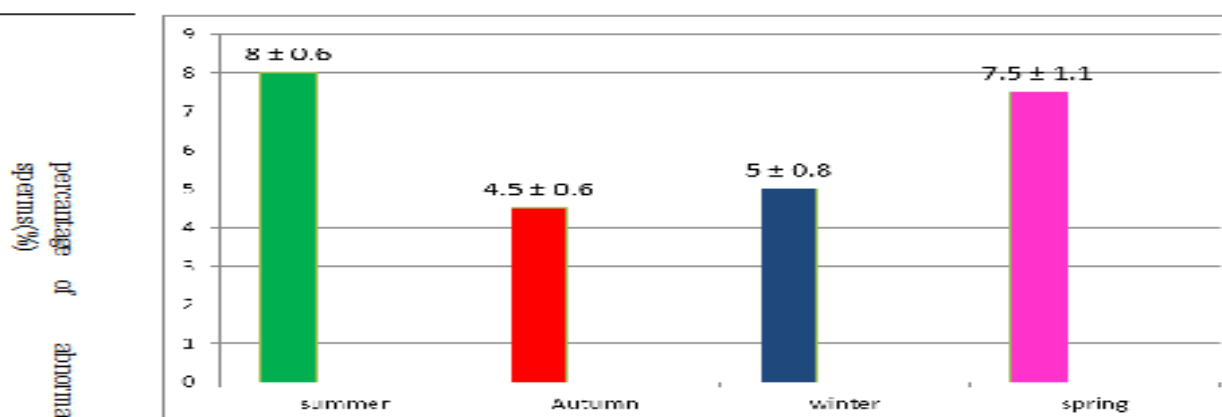


Figure 5: Effect of seasons on Arabian camel (camel us dromedarius) on percentage of abnormal sperms (%)

In the Table (1) we observe significant increase ($P \leq 0.05$), in semen concentration of Arabian camel, in the winter, more than other seasons, this may be due to increase of testosterone hormone concentration, in winter [7] which is concurrence with increase in the weight of testes [7] also, Tingari et al, [8] indicated that spermatogenesis continues through the year, but at a higher rate during the colder months of the breeding season. In the Table (3) which shows effect of season on semen volume of Arabian camel, there is significant increase ($P \leq 0.05$) in semen volume, which is agree with Rai et al [9]. Who found that there is increase in semen volume in the breeding season (cold weather) as compared with non-breeding season? For the sperms movement, Table (2) shows there is significant increase in cold seasons (winter and Autumn) as compared with spring and summer. This percentage varies according to season [10]. For the method of semen collection, when used of electroejaculation the percentage of motility was more than artificial vagina. [11] Zeidan et al [7] found that sperm motility values were more during winter, compared with other seasons also it is more when used electroejaculation compared with artificial vagina [12] Table (4) shows, that there is decrease in percentage of live sperms during summer and spring, which agree with Rai et al, [9] whom

found that the highest percentages of dead spermatozoa were recorded during summer and lowest during winter. Also in percentage of abnormal sperms as shown in Table (5). There is increase in this percentage in summer as compared with winter and autumn [13]. Elevation of the ambient temperature during summer which is closely correlated and may be a result of the increase in daylight length, seems to play the main role in affecting the camel reproductive activities. However although environmental variations have a strong influence, yet there is some evidence suggesting that the SCN may be sensitive changes in ambient temperature, with some cells being more sensitive and others more responsive to heat. Furthermore the molecular mechanisms that regulate rhythmicity, such as the cyclic changes in the expression of clock proteins, can be altered by temperature changes. Particularly, further studies on the importance of SCN in reproductive functions of the camel are needed [14, 15].

Conclusion

The season has an important effect on semen parameters in Arabian camel (camelus dromedarius), since there is improvement in these parameters during cold seasons (winter and autumn) and retreat in moderate (spring) and hot (summer) season.

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