

The Camel - A Short Communication on Classification and Attributes

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Abstract

Camels have a fascinated mankind which are very well adapted to their native environment and can sustain life in hot, harsh and hostile environments like deserts. The dromedary camel is a best source of milk and meat especially for those areas where production performance of other animals is adversely affected by the harsh environmental conditions. This is due to its unique physiological characteristics that enable to tolerate higher temperatures, solar radiations, water scarcity, poor vegetation and rough topography. Camel has no competition with any domestic specie regarding feed and performance. They are browsers, their tall as well as long neck and legs enable them to browse efficiently. And due to these specified attributes they can browse that feed material which is beyond the approach of other livestock species. In fact camel has the ability to transfer those poor products into valuable food which can't be consumed by other livestock species. Camels are of great importance, their virtues should be given ample consideration and it will definitely be an important addition to the food chain which will play its role in the food security of the world.

Keywords: Camel; Food; Environment; Desert; Attributes

Introduction

Classification of Camel

The word "Camel" has been derived from the Greek word "Kremal" and Sanskrit word "Kreluk" which means throw away legs that makes a sense of running camel as it throws its legs in the air having a little control over them [1]. The term 'Dromedary' is derived from "Dromados" a Greek word which means "run" so used for riding camels while the name 'Bactrian' refers to the area "Bactria" of the North Afghanistan where this camel is thought to be originated [2]. The one and two humped camels are known as "old world camels" and they are classified in class (Mammalia), order (Artiodactyla), sub-order (Tylopoda/Camelides), family Camelidae, genus (*Camelus dromedarius* for one humped camel and *Camelus bactrianus* for two humped camel). The llama (*Lama glama*), alpaca (*Lama pacos*), guanaco (*Lama guanicoe*), vicuna (*Vicugna vicugna*) are classified under "new world camels".

The Camelidae family includes two subfamilies 1- Camelinae (old world Camelids) and 2- Laminae (new world Camelids). The genus *Camelus* has two species of camels. First is dromedary or Arabian camel having single hump (*Camelus dromedarius*) which are widely distributed in the Middle East, Pakistan, India and African hot arid areas, while second is the Bactrian (*Camelus bactrianus*) having two humps which are found in the parts of China and central Asia [3]. The dromedary or Arabian camels are found to be more numerous than those of Bactrian camels and represents almost 95% of the total population of genus *Camelus*. According to [4] generally very little differentiation has been there regarding specialized types in the Camelids which are multi-purpose animals with the females used primarily for milk production, the males mainly for meat production, transportation or draught purpose and again both the sexes provide meat as a tertiary product.

Attributes of Camel

The virtues of camel are very well extolled in the Holy Quran. It is mentioned there that "Do they not look at the camel, how they are made" [5]. A great Muslim scholar Hazrat Imam Razi (Rehmat Ullah Alaih) quoted the Prophet Muhammad (Peace be upon Him) and says that all the utility traits which a man can expect from various animals, those are found in one animal "Camel" (Figure 1).

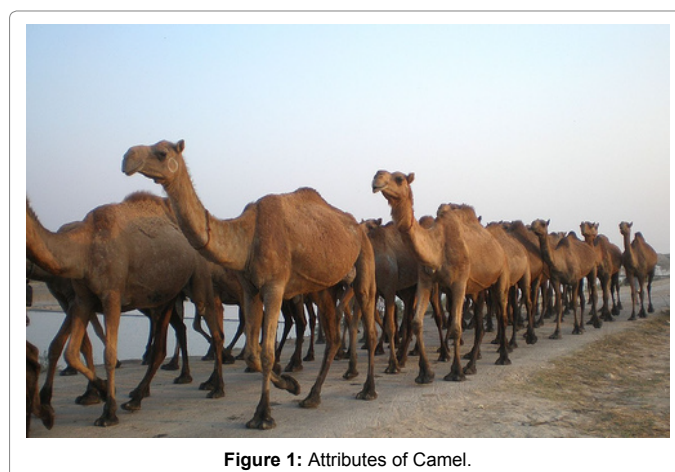


Figure 1: Attributes of Camel.

Internationally there is a growing awareness in respect of camel as it has been termed and considered as a "food security animal". One humped camel (*Camelus dromedarius*) seems very important in many countries where used as food animal. Its ability to utilize rangeland in marginal areas and to survive and produce well under hot and harsh environment has been recognized greatly over the years [6-10]. Globally camel enjoys a very unique ecological and socioeconomic status. It has been giving services to the humans under highly marginalized ecosystems and very harsh climatic conditions since ancient times [1]. The camel has numerous unique capabilities and characteristics as that it can be ridden, loaded with baggage, milked, eaten, traded for goods, harnessed to plough and used for other agricultural operations and exhibited in the zoo [11].

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Camel plays a vital role in the subsistence pastoral economy in the diverse eco-zones extending from India and Gobi desert in central Asia [12-14] and Mauritania in the west [15] to Ethiopia and Somalia in the horn of Africa [16-18]. Due to its appearance and ability to survive in a hot, harsh arid environment and to tolerate many stresses, e.g. heat, scarcity of water or water with high salinity and shortage of feed, camel has fascinated mankind. The camel can digest dry matter as well as all the nutrients especially crude fiber better than other ruminants. This dry matter and high fiber digestibility might be attributed to the longer retention time of large particles in its fore stomach and unique movement of the fore stomach of the camels [19]. The dromedary is the most important among the domestic animals in the hot, arid and semi-arid regions as it has potential to produce higher quality foods like meat and milk under extremely harsh weather at comparatively lower costs [9,20-21]. It has great tolerance to higher temperatures, solar radiation and water scarcity. It can thrive well on sandy deserts with poor vegetation and mainly consume those feed material that is unutilized by several other domestic animals [22,23].

Camel has no competition with any domestic specie regarding feed and performance. Browsing or grazing behavior of camel comprises a set of activities that are associated to the ingestion of feed including searching, choosing and absorption [24]. According to some scientists camel grazes on tall, young and succulent grasses [25] but typically it is a browser and their feed comprises on shrubs, bushes and trees [26]. According to Sleeper [27] camels are browsers, their tall as well as long neck and legs enable them to browse efficiently. And due to these specified attributes they can browse that feed material which is beyond the approach of other livestock species. They can browse on prickly plants, salty and thorny bushes due to special structure of its mouth. It's very strong prehensile lips, papillae and narrow muzzle permits it to browse efficiently on thorny plants [28]. According to [29] camels like browsing rather than grazing. Camel is declared as browser by nature [30]. According to [31] camels prefer browsing over grazing and they spend more time in rumination. In the absence of quality forages, camel can utilize poor quality forages with much more efficiency as it can retain fiber in its fore stomach for as long as 70 hours. According to [10] in contrast with other ruminants, when it is fed with low protein forage it has the capacity and efficiency of reutilizing the urea for microbial protein synthesis. Due to these attributes camel is considered as the animal with unfathomed potential to meet the future dietary and medical needs of human beings [32].

There is handsome share of camel's milk in the basic diet of pastoral community that contributing up to 30% in annual caloric diet. Daily milk yield of camel is 3-10 kg with a lactation period of 12-18 months [33]. Camel's milk contains 4.9% fat, 3.7% protein, 5.1% lactose, 0.70% ash and 14.4% total solids [34]. Camel milk is liked due to its nutrient richness and therapeutic peculiarities. People used camel milk as a remedy for many diseases like liver dysfunction, diabetes, long bone pain, tuberculosis, asthma, piles, spleen ailments, food allergies, arthritis and as an aphrodisiac [35-37]. Additionally, camel milk has higher vitamin C and Phosphorus contents, thus it is considered superior to the milk of other domestic species [38-40].

Camel meat production should be encouraged in Arabian and arid areas [9,18]. Camel meat replaces beef and mutton very efficiently in some Arab countries [41]. Camel plays a versatile role as a meat producer rather than as a symbol of social prestige, which was its role that is now diminished [42]. The general opinion about the camel meat is that, it is tough, having coarse fibers, watery and some-what sweetish in taste as compared to the meat obtained from other animals due to the fact that it is usually a by-product of primitive traditional

production system where it is obtained from spent females and old males those have become less effective in their primary functions of providing milk, breeding and transportation [4]. However, if camels are slaughtered at comparable age then evidences suggest that quality and carcass characteristics of its meat are not so different from beef [9,23]. In arid areas camels constitute the most important source of meat [2,9]. Mostly they are raised under traditional management systems as pastoralists are moving always in search of food and water over large areas for their camels [43-45].

Conclusion

Camel is an indigenous genetic resource, it needs to be managed and preserved properly. It plays an indispensable role in the pastoral ecology. Different studies highlight its unique characteristics especially under stress environment. To meet the rapidly growing demands of exploding population, the strategic idea is to recognize the place of camel in farm animals and to get increased output from this natural genetic resource that have not been exploited yet.

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