



Nutritional, antimicrobial and medicinal properties of Camel's milk

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Abstract

In many regions of the world, camel's milk constitutes a significant component of the staple diet. Health-promoting ingredients found in camel's milk include lactoferrin, zinc, lactoactive peptides, and mono- and polyunsaturated fatty acids. Some significant human ailments, such as tuberculosis, asthma, gastrointestinal disorders, and jaundice, may be treated with the use of these drugs. Compared to cow's milk, camel's milk has a more varied composition. In camels, nutrition, breed, age, and lactation stage have a greater impact on milk composition. The ratio of components in camel's milk varies greatly depending on the region and season. Along with having a large number of soluble proteins, camel's whey protein contains native proteases such as chymotrypsin A and cathepsin D. These whey proteins have distinctive qualities, such as physical, chemical, physiological, functional, and technological traits that are advantageous in the food application, in addition to their high nutritional value. Camel's milk proteins are hydrolyzed to create bioactive peptides, which have an impact on the body's primary organ systems and give them physiological activities. The angiotensin-I-converting enzyme (ACE)-inhibitory peptides in camel milk have antioxidant, antibacterial, antidiabetic, and anticholesterol properties.

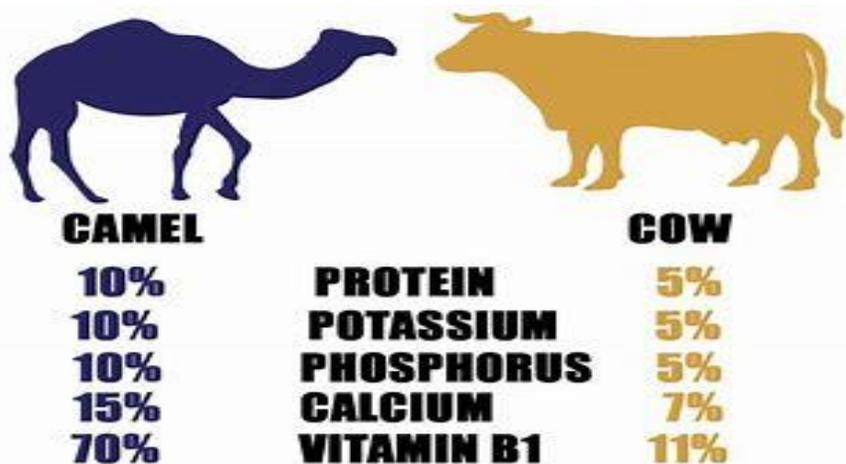
Introduction

Camels have the ability to adapt to many environmental situations. They are used for transportation, recreation, and as sources of milk and meat, boosting the economy and ensuring that people have access to food. Camel's milk has a lower pH than cow's milk, ranging from 6.2 to 6.5, and is opaque white with a little salty flavour (6.5–6.7). It has an extremely low-fat content, with 96% triglycerides and 30 mg of cholesterol per 100 g of dry matter. Compared to cow's milk, it has less short chain fatty acids in its fat. Additionally, the fat globules' average size is less than those found in milk from cows, buffalo, and goats. Camel's milk is very digestible, which could lead to issues in technical applications. Vitamin B₁, B₂, and C are all abundant in camel's milk. In desert regions where access to green crops is scarce, vitamin C, which is three to five times more than in cow's milk, is crucial for diet. Researchers have found that camel's milk possesses anti-diabetic, antibacterial, and hepatitis-hosting properties. It withstands microbial infection to varying degrees. due to its distinctive inhibitory frameworks, including lactoferrins, lysozyme, immunoglobulins, and free greasy acids, and the lactoperoxidase/thiocyanate/hydrogen peroxide framework.

Camel's milk in comparison to Cow's milk

For instance, the primary protein in cow's milk known as beta-lactoglobulin, which can cause allergic reactions, is absent from camel's milk. Additionally, camel's milk has more lactoferrin, lysozyme, immunoglobulin, and lactoperoxidase in its whey protein than does cow's milk does. Approximately 52–87% of the total proteins in camel's milk are casein, whereas whey proteins make up 20–25%. Camel milk has four fractions and accounts of casein, and the ratio of as1 to as2 to b to j-casein fluctuates significantly, being 22:9.5:65:3.5. Camel's milk contains 65 and 21% of the total casein, respectively, more b-casein than a-casein.

In particular, the Ca, P, Mg, Na, and K content of milk is comparable to that of cow's milk. Zn, Cu, Fe, and Mn content make up the majority of the difference because camel's milk contains higher levels of these minerals. The prevention of iron-deficiency anaemia may be helped by camel's milk higher iron content.



Additionally, the antibacterial action of lactoferrin is increased by camel's milk lower citrate concentration than that of cow milk. Additionally, camel's milk has a greater ascorbic acid concentration. As a result, it can boost the antioxidant and antiradical properties of its products and increase their shelf life. However, compared to cow's milk, camel's milk has better thermal stability. temperature of camel milk rising to 80-degree C induces the denaturation of 47-53% of its whey proteins while increasing to 90-degree C promotes the breakdown of 32-35% of its whey proteins.

Health benefits of Camel's milk

Benefits
Antioxidant activity
Mineral binding capacity
Immunomodulatory function
Reduction in blood pressure
Anti-hypertensive, hypo-allergic, anti-cancer and anti-diabetic properties
Helpful in the treatment of diseases like tuberculosis, asthma, dropsy, and jaundice

Conclusion

Health-promoting ingredients found in camel's milk include lactoferrin, zinc, lactoactive peptides, and mono- and polyunsaturated fatty acids. Whey proteins are important both functionally and nutritionally because they help with texture, structure alteration, and overall food appearance. They also provide energy and necessary amino acids. Whey from camel's milk is a wonderful source of vitamins, minerals, and vital bioactive peptides. The main benefit of these bioactive peptides is represented by their antioxidant, antimicrobial, ACE inhibitory, antidiabetic, and anticholesterol actions.

