

Unveiling the Remarkable Nutritional Benefits of Donkey Milk

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When it comes to milk, we often think of cows or goats as the primary sources. However, there's a lesser-known milk that has gained attention for its impressive nutritional profile and health benefits—donkey milk. Although it may sound unusual, donkey milk has been consumed and valued for centuries. In this article, we will explore the unique nutritional benefits offered by donkey milk and delve into the reasons why it has been hailed as a hidden gem of the dairy world. Donkey milk is a nutrient powerhouse, packed with a variety of essential vitamins and minerals. It contains vitamins A, B1, B2, B6, C, D, and E, as well as important minerals such as calcium, magnesium, potassium, and phosphorus. These nutrients are vital for maintaining overall health and supporting various bodily functions, including bone health, immune system function, and cellular regeneration.

Production and consumption in the world

Italy has a long history of donkey milk production, particularly in regions like Sardinia and Sicily. The country is known for its high-quality donkey milk products, including milk for direct consumption and the production of cosmetics. It is often consumed as a standalone beverage or used in the production of dairy products like cheese and gelato. In recent years, China has seen a significant rise in donkey milk production. The demand for donkey milk in China is primarily driven by its use in traditional medicine and the cosmetic industry. It is often consumed as a tonic or used as an ingredient in health foods and supplements. France has a small but notable donkey milk industry, particularly in regions like Provence and Corsica. Donkey milk is often used in the production of luxury skincare products. The milk is valued for its skin-nourishing

properties and is used in the production of high-end beauty products. Spain has a long tradition of donkey milk production, particularly in the Andalusia region. Donkey milk farms in Spain cater to both local and international demand. Countries such as Serbia, Romania, and Bulgaria have a history of donkey milk production, with a focus on traditional uses and local consumption. Donkey milk production exists to a lesser extent in other countries, including Greece, Turkey, Morocco, and some South American countries. While donkey milk consumption is less prevalent, it can be found in smaller quantities in other countries where it is either locally consumed or utilized in specialized products like cosmetics and natural remedies. Overall, the consumption of donkey milk remains a niche market.

Nutritional properties

For those seeking a low-fat and low-cholesterol alternative to traditional dairy products, donkey milk is an excellent choice. It contains significantly less fat than cow's milk while providing similar levels of protein. Moreover, the milk's lower cholesterol content makes it a suitable option for individuals aiming to manage their cholesterol levels or reduce their intake of saturated fats. Donkey milk is renowned for its exceptional digestibility, making it an ideal option for people with lactose intolerance or sensitive digestive systems. It contains a unique protein profile that is structurally different from cow's milk, making it easier to digest. Additionally, the smaller fat globules in donkey milk can contribute to better digestion and absorption of nutrients. Donkey milk boasts immunological properties that can enhance immune system function and support overall health. It contains high levels of lysozyme, lactoferrin, and immunoglobulins, which

possess antimicrobial and antibacterial properties. Donkey milk exhibits higher antibacterial activity against *Listeria monocytogenes* and *Staphylococcus aureus* bacteria, making it potentially effective in the treatment of listeriosis and staphylococcosis. (Madhusudan et al., 2017). These components help protect against infections and boost the body's immune response. For individuals allergic to cow's milk or soy-based products, donkey milk can serve as a safe and nutritious alternative. It lacks the proteins (e.g., casein) and sugars (e.g., lactose) found in cow's milk that commonly trigger allergies. Its hypoallergenic nature makes it an appealing option for infants, children, and adults with known milk allergies or sensitivities. Donkey milk has a long-standing reputation for its positive effects on the skin. The milk's rich vitamin and mineral content, coupled with its gentle nature, make it a sought-after ingredient in various skincare and cosmetic products. Donkey milk-based soaps, lotions, and creams are known for their moisturizing, anti-aging, and soothing properties, helping to nourish and revitalize the skin. The bioactive and immune-supportive properties of donkey milk make it a beneficial fortifier for formula-fed infants. (Souroullas et al., 2018)

Role in Brain development

The role of donkey milk in brain development of humans is an area that requires further research and scientific investigation. While donkey milk is known for its nutritional composition and potential health benefits, limited studies have specifically examined its effects on brain development in humans. However, based on the nutritional profile of donkey milk, it can be inferred that it may have some positive contributions to brain health and development. Some of the key factors are Omega-3 Fatty Acids particularly docosahexaenoic acid (DHA), Essential Vitamins and Minerals, Bioactive

Compounds: such as lactoferrin and immunoglobulins and Allergen-Friendly Nature.

Shelf life

Donkey milk, like other types of milk, has a shelf life that can vary depending on various factors such as the processing methods, packaging, and storage conditions. Generally, donkey milk has a shorter shelf life compared to cow's milk or goat's milk. Fresh donkey milk typically has a shelf life of around 1 to 3 days when stored in a refrigerator at a temperature of 4°C (39°F) or below. However, it is important to note that this timeframe can vary depending on the initial quality of the milk and the specific conditions during milking, handling, and storage. To extend the shelf life of donkey milk, various preservation techniques can be employed. One common method is pasteurization, which involves heating the milk to kill harmful bacteria and increase its shelf life. Pasteurized donkey milk can last for several weeks when refrigerated properly. It's worth mentioning that there are also powdered forms of donkey milk available on the market. Powdered donkey milk has a significantly longer shelf life, typically ranging from 12 to 24 months or more, depending on the manufacturer and storage conditions.

Donkey Milk Based Products available in world market

While donkey milk products may not be as widely available as those made from cow or goat milk, there are some brands and products that specialize in utilizing donkey milk. Some of the examples are ASINARA skincare products, Asinus Adoramus cosmetics, Mulier SRL dietary supplementation, El Greco Cosmetics, Nanibio facemask, lotions and serums, etc. It's important to note that the availability of these brands and products may vary depending on your location and local retailers. Additionally, new brands and

products may emerge as the demand for donkey milk-based items continues to grow. Checking online marketplaces, specialized retailers, or contacting local distributors can help in finding specific brands and products in your region.

Adverse effects or hazards

Some individuals may have allergies or sensitivities to donkey milk, just like with other types of milk. Allergic reactions can include symptoms such as hives, itching, swelling, difficulty breathing, or digestive issues. If you have known allergies to milk or any other animal products, it's important to exercise caution when consuming donkey milk. Like any raw milk, donkey milk can potentially be contaminated with harmful bacteria such as Salmonella or E. coli. These bacteria can cause foodborne illnesses, especially if the milk is not properly handled or stored. Additionally, maintaining proper refrigeration and storage temperatures is crucial to prevent spoilage and bacterial growth. Donkey milk contains certain proteins and enzymes that may interact with certain medications. If you're taking any medications or have specific health conditions, it's advisable to consult with a healthcare professional before consuming donkey milk to ensure there are no potential interactions. It's important to note that

donkey milk is not a substitute for medical treatments or formulas for infants with specific nutritional needs.

Conclusion

Donkey milk may be an unconventional choice, but its nutritional benefits are undeniable. With its impressive array of essential nutrients, easy digestibility, immunological properties, and potential as an allergen-friendly alternative, donkey milk has carved a niche for itself in the world of dairy products. Whether consumed for its health benefits or applied topically for skincare purposes, donkey milk continues to fascinate and captivate those seeking natural and wholesome options

References

- Madhusudan N. C., Ramachandra C. D., Udaykumar N. D., Sharnagouda H. D., Nagraj N. D. and Jagjivan R. D. (2017). Composition, characteristics, nutritional value and health benefits of donkey milk-a review. Dairy Science & Technology.
- Souroullas K., Aspri M. and Papademas P. (2018). Donkey milk as a supplement in infant formula: Benefits and technological challenges. Food Research International, 109, 416-425.

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