



COW MILK GAINS A QUALITY EQUIVALENT TO GOAT MILK - A REFERENCE IN SIDDHA TEXT

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ABSTRACT Siddha system of medicine is one of the oldest system of medicine with a history of centuries back with its unique aspects of theories. It is a wide branch of science which is based on the theory of Panchabhoota (earth, water, fire, wind and aakash).¹ It has its source of medicine from plant kingdom, mineral kingdom and animal kingdom. It widely explains the types of milk from various animals like cow, goat, camel, elephant, donkey, etc. and its uses in various kinds of diseases.² There are many varieties of milk currently in consumption for all the ages of people right from childhood to old age. Mothers Milk, serves as a primary source of biomolecules to a child during the stage of infant and according to World Health Organisation the breast feed should be continued until infant to complete two years old.³ In unavoidable situation the child is given cows milk apart from mothers milk. Cows milk is an rich and cheap source of protein and calcium and also good for bone health.⁴ But the protein present in the cow milk is encountered with allergy in children with incidence estimated as 2% to 7.5% in the first year of life.⁵ There is an evidence from an article that protein from goats milk can be a suitable protein source for infant and it is also recommended by European Food Safety Authority for an infant formula.⁴ Hence in this context I like to cite a reference from the Siddha literature that if the herbal ingredient is added to cows milk and boiled it gains its quality equivalent to goats milk. The data will be a boon to the future generation if evaluated pharmacologically.

KEYWORDS : Siddha, Human milk, Goat milk, Cow milk.

Composition of Human milk:

According to Olivia Ballard et al 2013, the macro and constituents of the milk varies between term and preterm milk. Term milk is estimated to be approximately 0.9 to 1.2 g/dL for protein, 3.2 to 3.6 g/dL for fat, and 6.7 to 7.8 g/dL for lactose. Energy estimates range from 65 to 70 kcal/dL, and are highly correlated with the fat content of human milk. It is said that preterm milk tending to be higher in protein and fat when compared to term milk.⁶

Composition of Whole Milk

One full cup of whole milk has 3.25 % of milk fat and is also good source of vitamin D. It has 149 calories and about 7.9 g fat and 4.6 g of saturated fat. Whole milk contains 7.7 g protein and 11.7 g of carbohydrates. Whole milk as 0 fiber content and 28% of DV calcium. It contains 8% DV vitamin A and about 31% DV of vitamin D.⁷ Milk is a good source of the macro minerals Ca, Mg, P and K as well as three micro minerals I, Se and Zn.^{8,9}

Reference To Support The importance of Goat Milk compared to cow milk

Olivia Ballard et al (2017) reported that the kinetics of protein digestion of the goat milk infant formula is more when compared to human milk and cow milk infant formula even though there is no difference between the protein quality.¹⁰

Sokratis et al (2019) concluded that goat milk when administered for children (years 1–18) and adults (>19 years) would reduce the intakes of the nutritionally undesirable C12:0, C14:0 and C16:0 (by –301 and –330 mg/day, respectively), and trans FA (–72.9 and –79.9 mg/day, respectively) and increase the intakes of nutritionally beneficial cis PUFA (by +83.7 and +91.8 mg/day, respectively) and EPA + DHA (by +0.43 and +0.48 mg/day, respectively) and also when compared with cow milk, consumption of goat milk would increase the contribution to the upper recommended limit (10% of total energy intake). Finally they suggested that goat milk would also increase the contribution of milk to the dietary requirements for Cu, Mg, P, and K, which can be considered nutritionally beneficial, although the extent of these differences are smaller (from 0.8% to 1.5%, from 10.0% to 12.7%, and from 12.9% to 17.2%, respectively).¹¹

Strain, J.J et al (2009) concluded that goat milk for children (years 1–18) and adults (>19 years) would increase the intakes of Cu (by +6.3 and +5.6 µg/day, respectively), I (by +55.9 and +49.7 µg/day, respectively), Mg (by +5.6 and +5.0 mg/day, respectively), P (by +14.1 and +12.5 mg/day, respectively), K (by +91.8 and +81.6 mg/day, respectively), Mn (by +5.2 and +4.6 µg/day, respectively), and B (by +15.7 and +13.9 µg/day, respectively). which are highly beneficial to human health.¹²

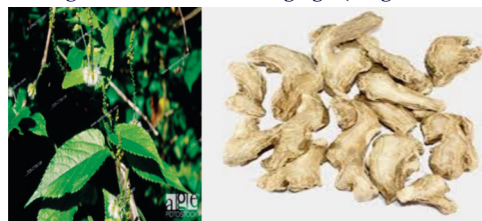
According to Bath, S.C et al (2013) and Andersson, M et al (2007) goat milk will increase the contribution of milk to I dietary requirements for children (years 1–18; from 62.4% to 115.7%) and adults (>19 years; from 41.6% to 77%). Which is beneficial in adults. because I deficiency is among the most widely documented deficiencies globally (including the

UK), and the world's greatest single cause of preventable brain damage, impaired intellectual ability, low IQ scores, and poor school and work performance, with such problems being documented even in populations classified as mildly I deficient^{13,14}

Evidence in Siddha literature

The cows milk is boiled by adding the herbs dried ginger (*Zingiber officinale*) along with the root of sirukaanchori (*Tragia cannabina* L.F) to get the quality of goat's milk composition.²

image of *Tragia cannabina* and dried ginger (*Zingiber officinale*)



CONCLUSION:

Hence if this is evaluated pharmacologically it will be a boon to the future to prevent many complications like cardiovascular diseases, diabetes mellitus etc, which is due to the intake of cows milk.

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