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Composition and Nutritive Value of Milk of Molai Breed Doe, Tamil Nadu, India

A. Kirubakaran[1*], N. Karthikeyan[2], R. Chitra[2] and T. Ravimurugan[3]

[1]Veterinary University Training and Research Centre, Erode, India
[2]Veterinary College and Research Institute, Namakkal, India
[3]Veterinary College and Research Institute, Tirunelveli, India

**Corresponding author*

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A B S T R A C T

An unrecognized breed of Molai goat is seen in some taluk of Erode district and certain parts of Namakkal and Salem Districts. A total of 20 milk samples were collected from different places of home tract of Molai goat breed. Composition and nutritive value of milk collected from Molai goat breed doe was studied. The Molai breed doe milk's crude protein (%), fat (%), lactose (%), Ash (%), Total solids (%), Solid non-fat (%) and density levels are 4.73±0.06, 4.80±0.36, 5.06±0.20, 0.77±0.02, 15.32±0.12, 8.65±0.08 and 29.18±0.58. The Molai goat doe milk have better nutritive value.

Introduction

In the world, around 500 breeds of goats are identified and only six breeds are popularly raised for milk production purposes (Kris, 2008). The major species of dairy goats are Anglo-nubian, British alpine, Toggenburg and Saanen. Toggenburg is the best breed that can produce a lot of milk; it is not uncommon to find a two gallon (7.57 liters) milk per day (Galal 2005). In India, 13.51 million goats present in both urban and rural areas. Tamil Nadu is one of the state present in India. Tamil Nadu has 81.43 lakhs of goats (19th livestock census). It comprises native breeds of Kanni, Kodi and Salem black goats, North Indian breeds and exotic breeds like Boer cross goats. Kanni goat breed found in Thirunelveli and Ramanadhapuram districts of Tamil Nadu.

Kodi goat breed are mostly found in the districts of Sivagangai, Ramanadhapuram and Tuticorin districts of Tamil Nadu. Salem Black breed are present in Omaloor and entire Salem district of Tamil Nadu. In addition to this recognized breeds, Molai goat breed are prevalently present in Perundurai,

Gobichettipalayam and Erode blocks and certain parts of Namakkal and Salem Districts. The composition of goat milk has been reported from various parts of the world (Jenness, 1980, Loewenstein, 1982, Olmedo *et al.,* 1979). In this investigation, an attempt was made to study composition and nutritive value of goat milk of Indigenous Molai breed doe of Tamil Nadu. Goat's milk is the most complete food known which highly compatible and nourishing natural food. So it is highly nutritious that it can actually serve as a substitute for a meal. It is also preferred due to its low fat content and its capability to neutralize the acids and toxins present in the body.

It differs from cow or human milk in higher digestibility, distinct alkalinity, higher buffering capacity, and certain therapeutic values in medicine and human nutrition. The nutritional and health benefits of goat milk are related to a number of medical problems, foremost being food allergies and also a substitute for those who suffer from cow milk allergy (Morgan *et al.,* 2012).

Goats are naturally immune to diseases, such as tuberculosis, and are used in some countries to actually cure tuberculosis because of their inherent antibodies (*http://www.nourishingourchildren.wordpress .com/2012/06/11/got-goat-milk/*)

Materials and Methods

Milk samples were collected from Molai goat breed doe present in three villages of Perundurai taluk and three villages of Gobichettipalayam taluk of Erode district, Tamil Nadu. These villages are the main home tract for this Molai breed. In total, 20 milk samples were collected from 20 Molai goat breed healthy does, after discarding the initial milk which let down from teat. Samples collected from those does, were kept under refrigerator for analysis. Total solids, Solid not fat, lactose, fat, crude protein (N × 6.38) was analyzed according to the procedure prescribed by AOAC (1980) within 24 h of collection.

Results and Discussion

Composition and nutritive value of Molai goat doe's milk samples results are shown in Table 1. Molai goat breed doe's milk is slightly richer in protein and fat than other native breeds of Tamil Nadu. A comparison of the results of this study with results reported by Parkash and Jenness (1968) shows that milk constituents of Molai goat are slightly below those of most other goat milk in various parts of the world.

In general, the relatively fewer milk constituents of Molai breed as compared with those of other goats' milk might be due to the harsh environment under which these animals exist Jenness (1980). The Molai breed doe milk's crude protein (%) and fat (%) are 4.73±0.06 and 4.80±0.36. Jenness (1980) reported that several European breeds produce milk of lower fat content in the tropics than in temperate zones. However, more studies are needed to explore factors that influence Molai breed goat's milk composition under existing environment and the magnitude of observed variations. Percent of fat and protein were similar to cow's milk.

The average total fat content in the milk is similar to that found in other ruminant species, despite percentage of fat in Molai breed doe's milk exceeds that of the cow. Such a controversy most likely derived from the fact that the average percentage of milk fat, as with cow's milk fat, is a variable component, often ranging between 3.0 and 6.0 percent. There are also distinct breed differences in fat composition. It should be remembered, however, the quality and

quantity of feeds, genetics season, stage of lactation, etc all influence the average percentage of goat milk fat (Getaneh *et al.,* 2016). The lactose value of the milk from Molai goat breed doe is 5.06±0.20.The gross composition of goat milk is higher than that in bovine milk, except for lactose which is low. Fat globules are smaller and probably one of the reasons for easy digestion of this milk.

Its products are high source of protein, fat, phosphate and calcium. Its composition varies with factors such as diet, breed, environment, and management (Malau-Aduli *et al.,* 2001).

Table.1 Mean (± S.E.) Composition and nutritive value of Molai breed Doe's milk

Constituents	Mean	Minimum	Maximum	Standard Error
Crude Protein (%)	4.73	4.7	4.9	0.06
Fat (%)	4.80	2.90	5.90	0.36
Lactose (%)	5.06	4.00	5.70	0.20
Ash (%)	0.77	0.70	0.90	0.02
Total solids (%)	15.32	15.00	16.00	0.12
Solids nonfat (%)	8.65	8.30	9.00	0.08
Density	29.18	28.0	32.60	0.58
Water	0	0	0	0

Lactose is the major free carbohydrate that has been identified in the milk of the goat, though small amounts of inositol are also found. The lactose concentration is usually found to be lower than that found in cow's milk (Getaneh *et al.,* 2016).

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