

RESEARCH PAPER

Effect of stage of lactation on physico-chemical properties of local goat milk

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ABSTRACT

The main objective of present investigation was to study the effect of stage of lactation on composition and physico-chemical properties of local goat milk. The samples of local goat milk were collected on 5th, 15th, 30th, 45th and 60th days of lactation and were analyzed for physico-chemical properties. The stage of lactations had significant increasing effect on fat, protein, ash, total solids, SNF, titratable acidity, viscosity except lactose, pH and specific gravity. All the milk components are gradually increased from 5th to 60th days of lactation with exception of lactose and pH.

Key words : Goat milk, Lactation, Physico-chemical properties, Fat, Protein.

India is one of the largest agricultural countries in the world. Goat keeping in India constitutes an important rural business of small marginal farmers and landless labours due to multifold advantages like short generation interval, high rate of prolificacy, easy in management and marketing over large ruminants in the world.

India ranks first for goat population in the world. The goat population in India was 124 million which is 1.38 % annual growth rate of goat. The share of goat milk is 2550 thousand million tones annual total milk produced of our country. Goat milk like cow milk has high concentration of major nutrients in relation to caloric value and it resembles human milk in composition. Goat milk has higher medicinal value and it also contains 4.4 per cent fat, 0.137 per cent Ca, 0.112 per cent P, 0.017 per cent Mg, 0.170 per cent K and 3.4 per cent milk protein. A brief knowledge of physico-chemical properties of goat milk will help in understanding the effect of various methods of processing on the quality of goat milk and milk products. In present investigation an attempt was made to study composition of local goat milk and the effect of lactation on composition of local goat milk.

MATERIALS AND METHODS

The present research work was undertaken at Department of Animal Husbandry and Dairying, Dr.PDKV., Akola during the year of 2004-2005. In the study, 16 local goats were selected from flock maintained at the University Livestock Instructional Farm. The selected goats were kept under standard uniform conditions of feeding and management with semi stallfed. During this period, individual local goats were milked completely. The samples of local goat milk were collected

on 5th, 15th, 30th, 45th and 60th days of lactation. The samples were kept in a refrigerator at 5°C until they were analyzed. Local goat milk was analyzed for fat, protein, lactose, SNF, ash and total solids as per BIS standard specifications. Viscosity was determined by Hoppler-Viscometer at 30°C to the procedure mentioned by Tambat (1975). The milk samples were analyzed for physico-chemical and chemical properties. The observations were statistically analyzed using analysis of variance technique with precision to stage of lactation.

RESULTS AND DISCUSSION

Effect of stage of lactation on chemical properties of local goat milk:

Fat:

Table 1 indicates that the average fat content was 3.861, 3.898, 3.971, 4.009 and 4.048 per cent on 5th, 15th, 30th, 45th and 60th day of lactation, respectively. It is observed that fat content of milk significantly increased from 5th, to 60th days of lactation. The fat content on 5th to 60th days of first lactation, 5th to 45th days of second lactation, 5th to 15th days of third lactation and 5th to 60th days of fourth lactation in respective lactation did not differ significantly. The findings of present investigation are in agreement with Ali and Hassan (1991) who reported that the maximum daily yield was obtained in the 10th – 12th weeks of lactation period.

Protein:

The average protein content was 3.472, 3.495, 3.631, 3.758 and 3.895 per cent on 5th, 15th, 30th, 45th and 60th day of lactation, respectively. Hence, it was revealed that the protein content of milk significantly affected due to