



Effect of morning and evening milking interval on chemical quality of milk of Murrah breed

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ABSTRACT : A study was conducted at Chitrakoot–Satna (M.P.) and Smriti Products (Pvt.) Ltd., Saha, Ambala (Haryana), during April to June 2014 to evaluate the chemical quality of raw milk of Murrah breed. The objective was to find out the compositional quality of raw milk of Murrah breed, and to find out the effect of morning and evening milking on compositional quality of raw milk. All sanitary precautions were followed to produce clean milk. The samples of raw milk collected for ten days, were tested to determine the percentage of fat, protein, lactose, ash, total solid, water, solid not fat (SNF); and specific gravity. The data obtained for the aforesaid tests were subjected to statistical analysis. The results of the statistical analysis showed that the differences in percentage of fat, protein, ash, total sugar and water in the raw milk of Murrah breed were significant and the results of F-test were also found significant. The differences in percentage of lactose and SNF; and specific gravity were, however, non-significant. It was, therefore, concluded that effect of morning and evening milking interval on chemical quality of milk of Murrah breed was significantly influenced. Morning milk was better than evening milk.

KEY WORDS : Morning and evening milking, Chemical quality, Murrah breed

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Minerals like Ca, P, Na, K, and Mg are present in appreciable quantities. This increased value of milk is being produced by small - scale dairy farmers.

Supply of dairy products have to be addressed as part of any debate on food security several measures need to be adopted in order to successfully meet the challenges in keeping in quality of raw milk. Traditional unorganized marketing of milk in smallholder system need to be gradually shifted towards organized marketing, better and sustainable remuneration to producers. Population growth, increasing urbanization and rising incomes or fuelling a massive increase in demand is needed for food of animal origin (milk, meat and eggs) in developing countries. An increasing number of people, even in poverty stricken developing countries, are looking for quality,

healthy and natural food stuff and do not mind paying a little extra for quality assurance. Buffaloes are preferred over other cattle because of their high fat content, which gives higher market price as also for their ability to utilize coarse feed better than cattle. The demand for bullock power has also decreased due to mechanization of agriculture further tilting the balance in favour of buffaloes India is home to some of the best riverine breeds of buffaloes like Murrah, Nili-Ravi, Jaffarabadi, Surti, Mehasana, Badhawari, Nagpuri, Marathwadi, Pandharpuri, etc.

The buffalo species originated in India. Therefore, it is imperative to obtain firsthand information the existing buffalo housing management practice being followed by the buffaloes keepers. India has emerged as a largest production of milk in the world Annual production in India was 139 million tonnes in 2012. However, per capita availability of 290 ml milk per day is considered as the most satisfactory single food (Makwana *et al.*, 2013).

The study was conducted in the Department of Animal Husbandry and Dairying, Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot–Satna (M.P.), and Smriti Products (Pvt.) Ltd., Saha, Ambala (Haryana) during April

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Table 1 : Chemical composition of raw milk of Murrah breed for morning and evening milking

Composition	Morning	Evening	Result
Fat (%)	5.55	5.25	Significant
Protein (%)	3.64	3.50	Significant
Lactose (%)	4.56	4.25	Non-significant
Ash (%)	0.68	0.67	Significant
Total solids (TS)(%)	14.41	13.67	Significant
Water (%)	85.59	86.33	Significant
Solid not Fat (SNF) (%)	8.88	8.62	Non-significant
Specific gravity (cc)	1.02	1.02	Non-significant

to June 2014 to study the effect of morning and evening milking on compositional chemical quality of raw milk of Murrah breed. All sanitary precautions were followed to produce clean milk. The samples of raw milk were collected for ten days. 200 ml of raw milk from healthy buffalo of Murrah breed was collected each time in clean and sterilized conical flasks. The samples were then brought to laboratory for chemical analysis for determining fat, protein, lactose, ash, total solids, water, solid not fat and specific gravity, as per the procedure and normal set by AOAC (2000).

Fat (%) in raw milk of Murrah breed in morning and evening milking ranged from 5.30-6.00 and 5.10-5.90, with mean of 5.55 and 5.25, respectively. Protein (%) from 3.55-3.70 and 3.20-3.68 with mean of 3.64 and 3.50 in morning and evening milking, respectively. Lactose (%) in morning and evening milking interval ranged from 3.99-5.81 and 4.05-4.65 with mean of 4.56 and 4.25, respectively. Ash (%) ranged from 0.66-0.70 and 0.65-0.70 in morning and evening milking interval with a mean of 0.68 and 0.67, respectively. Per cent TS in raw milk in morning and evening milking interval ranged from 13.57-15.84 and 12.86-14.75 and mean of 14.41 and 13.67, respectively. Percentage of water ranged from 84.16-86.43 and 85.57-87.14 with mean of 85.59 and 86.33, respectively. S.N.F. in ranged from 7.97-10.80 and 7.92 - 8.95 in morning and evening milking with mean of 8.88 and 8.62, respectively. Specific gravity of the

morning and evening milk ranged from 1.01-1.03 and 1.01-1.03 with mean of 1.02 and 1.02, respectively (Table 1).

Difference in the mean values for percentage of fat, protein, ash, total solids and water in morning and evening milking was significant, whereas, the results for lactose, SNF and specific gravity had non-significant effect.

The overall influence of morning and evening milking interval on chemical qualities of raw milk of Murrah breed of buffalo was significant. The quality of morning milk was also better than evening milk.

Based on the results obtained for different chemical qualities of raw milk, it was concluded that morning and evening milking interval significantly influenced the chemical composition of raw milk of Murrah breed of buffalo, and also the morning milk was better in quality in comparison to evening milk, due to higher percentage of fat, protein, lactose, ash, total solids, solid not fat and specific gravity (cc) and lower percentage of water.

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