



Effect of type of milk on yield and qualities of khoa

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ABSTRACT : The experiment was conducted to study the suitability of different types of milk for khoa making. Twenty samples of milk were obtained each from local cow, cross bred cow and buffalo milk. It was concluded that khoa prepared from buffalo milk was of higher yield with better quality both in physical and chemical characteristics.

KEY WORDS : Khoa, Yield, Qualities, Local cow milk, Cross bred cow milk, Buffalo milk

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INTRODUCTION

It is estimated that about 6.0 lakh tones of khoa is produced annually, which is equivalent to 7.0 per cent of India's total milk production (Rajarajan *et al.*, 2007). According to Prevention of Food Adulteration Act as amended up to March 2006, khoa is the product obtained from cow or buffalo milk or a combination thereof, by rapid drying containing milk fat content not less than 30 per cent on dry weight basis of the final product (Reddy, 2007). The present study was carried out to understand the best suitable type of milk for getting higher yield and better quality of khoa.

MATERIAL AND METHODS

To know the suitability of different types of milk for khoa preparation, 20 samples of milk were collected each from local cow, cross bred cow and buffalo milk from local milk producer under personal supervision. The milk was tested and analyzed by A.O.A.C. (1970). After analysis milk was considered ready for khoa making. The appliance of khoa making was kept ready after cleaning and sterilization. The 2.0 litre of milk was transferred to stainless steel pan and allowed to boil

continuously with stirring vigorously and constantly with a circular motion by khunti. During this operation, all parts of pan with which milk comes into contact were lightly scrapped to prevent the milk from scorching. As a result of constant evaporation, moisture takes place and milk thickens progressively. At a certain stage, the thickened mass shows an abrupt change of colour indicating occurrence of heat coagulation of milk protein. The vigorous stirring and desiccation was continued till the viscous product reached a pasty/semi solid consistency and began to dry up. Very close attention was given at the later stages. The final product was considered to be ready when it showed signs of leaving the sides and bottom of pan and sticking together. The khoa pat is invariably made after removing the pan completely from the fire and working the contents up and down into a compact mass. Khoa is finished in the form of circular pats. After preparation, khoa was examined and analyzed for yield and physico-chemical qualities as described by A.O.A.C (1970).

Yield: Yield of khoa

Physical qualities :

- Colour and appearance
- Body and texture
- Flavour

Chemical quality :

- Moisture percentage
- Total solids percentage

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Table 1: Effect of type of milk on the yield, physical and chemical qualities of khoa

Sr. No.	Yield and physico-chemical qualities of khoa	Type of milk		
		Local cow milk	Crossbred cow milk	Buffalo milk
1.	Colour and appearance	Whitish moist	Yellowish dry	Whitish oily
2.	Body and texture	Soft slightly sandy	Hard sandy	Soft smooth
3.	Flavour	Nutty sweet	Nutty salty	Rich nutty sweet
4.	Yield percentage	24.41	23.25	26.58
5.	Moisture percentage	29.67	32.85	27.93
6.	Total solids percentage	70.33	67.15	72.07
7.	Fat percentage	26.16	19.49	33.15
8.	Lactose percentage	25.99	24.85	18.45
9.	Protein percentage	14.21	19.07	16.48
10.	Ash percentage	3.97	3.74	3.99

- Fat percentage
- Lactose percentage
- Ash percentage of khoa

RESULTS AND DISCUSSION

The yield and physico- chemical qualities of khoa prepared from different types of milk are presented in Table 1.

As regard the colour and appearance, the khoa of local cow milk was whitish and moist, that of cross bred cow milk khoa was yellowish and dry while the khoa prepared from buffalo milk was whitish and oily. The yellowish colour of khoa prepared from cross bred cow milk was due to higher carotene content. The body and texture of khoa prepared from local cow milk was soft and slightly sandy, the khoa prepared from cross bred cow milk was hard and sandy while the khoa prepared from buffalo milk was soft and smooth due to higher total solids content. The flavour of khoa was markedly influenced by the effect of fat level in milk. The intensity of flavour increased with increase in fat level in milk. The flavour of the khoa prepared from cross bred cow was nutty and salty while that of khoa prepared from buffalo milk was rich nutty and sweet.

The yield of khoa prepared from buffalo milk was higher which was followed by local cow and cross bred cow milk. This is due to high total solids content in buffalo milk. The yield of khoa prepared from cow milk (local and cross bred) has practically insignificant difference but difference may be due to the higher total solids content in milk used and to the extent of desiccation.

The moisture per cent value was quite high in khoa samples prepared from cross bred cow milk and low in local cow and buffalo milk. This variation in moisture per cent in khoa prepared from local cow milk and cross bred cow milk has less total solids per cent as compared to buffalo milk. Total solids per cent in khoa is influenced by the type of milk. The total solid per cent is directly related with moisture per cent of khoa. Increase in one was associated with decrease in other. The total solids per cent was higher in khoa prepared from buffalo milk. The fat per cent in khoa samples from buffalo's

milk was understandably higher than from local cow milk and cross bred cow milk. The fat per cent of khoa is mainly due to original fat per cent in milk from which the khoa was prepared. Lactose per cent of khoa in all samples was with quite higher variation. A significant effect of type of milk was observed in lactose per cent. The lactose per cent was practically similar in khoa prepared from local cow milk and cross bred cow milk but significantly higher than khoa samples prepared from buffalo milk. Protein per cent of khoa was very slightly higher in cross bred cow milk and lowest in buffalo milk but this difference was practically insignificant. The type of milk has no significant effect on protein per cent of khoa. The type of milk has little affect on the ash per cent of khoa. The ash per cent was practically same in all samples prepared from cow milk and buffalo milk and was found to be insignificant. Similar effect of type of milk quality on the chemical, sensory and rheological properties of khoa was studied by Rajoria *et al.* (1990).

Conclusion :

On the basis of above results, in a nut shell it can be concluded that for getting higher yield and best physico- chemical qualities of product, khoa should be prepared from buffalo milk.

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