

UTILISATION OF SKIM MILK FILLED WITH COCONUT MILK FOR PREPARATION OF RASOGOLLA*

J. Mini, M. Mukundan and K. Pavithran

Department of Dairy Science, College of Veterinary and Animal Science, Mannuthy

Rasogolla has become a very popular milk sweetmeat, because of its pleasant and delightful taste. In order to bring down the price of rasogolla, attempts have been made to prepare them from filled milk. As skim milk filled with coconut milk is comparatively cheaper than whole milk, the paneer prepared from a combination of these two may result in the production of low cost rasogolla. It would also provide a good avenue for the utilisation of skim milk to produce a high quality protein-rich product.

As the textural characters of rasogolla indirectly gives an idea of its quality, measurement of textural quality by a simple method is a necessity. Here, an effort is made to compare the textural and organoleptic qualities of rasogolla prepared from coconut fat filled milk with those prepared from whole cow milk. A simple method to measure the textural character of rasogolla has also been evolved.

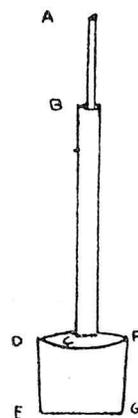
Materials and methods

The control samples of rasogolla were prepared using cow's milk standardised to four per cent fat while filled milk prepared by mixing skim milk with coconut milk and standardised to four per cent fat was used for the preparation of experimental samples of rasogolla.

Fresh cow's milk collected from the University Live stock Farm, Mannuthy were used for the preparation of control rasogolla. Matured coconut kernel was grated and coconut milk was extracted by pressing it under a screw press. The

extracted coconut milk was added to skim milk for preparation of filled milk with four per cent fat. The control and experimental rasogolla were prepared as per the method suggested by Verma (1989). Eight replications were done for each item and average values were calculated. The values were statistically analysed using 't' test (Snedecor and Cochran, 1968) to arrive at a conclusion.

Springiness of rasogolla was measured by a 'Precision Peneterometer' devised for the purpose. The peneterometer has a vertical pressing device of 155 grams as shown in Fig. 1.



AB - 20 x 3 mm; BC - 65 x 12 mm
DE - 25 mm; DF - 27 mm
EG - 21 mm

Fig 1. Peneterometer

* Part of the thesis submitted to the Kerala Agricultural University, for the award of M.V.Sc. Degree (1993)

To measure the springiness, rasogolla ball of 10g. was placed in a petridish and pressing assembly was adjusted in such a position that it just touched the upper surface of the sweet ball (initial reading). The pressing assembly was then released and the ball was allowed to remain under pressure exactly for 15 seconds. The distance (D_1) to which the assembly moved from the initial position was measured on the scale. The pressure on the ball was then released for exactly 60 seconds by lifting the assembly. The pressing assembly was adjusted so that it touched the surface of the ball again. The distance to which the assembly moved from initial position (D_2) was recorded from the scale. Springiness was then expressed as:

$$\text{Percentage springiness} = \frac{D_1 - D_2}{D_1} \times 100$$

Organoleptic evaluation was done by a panel of five judges on the first, second and third day of storage to know its keeping quality. The proforma adopted was that proposed by Patil and Gupta (1986).

Results and Discussion

The mean value of springiness of control rasogolla did not show any significant difference with that of experimental rasogolla (Table 1), in agreement with the findings of Babje *et al.* (1992).

Use of whole milk standardized to four per cent fat resulted in the production of excellent quality rasogolla with 'excellent' flavour, body and texture and colour and appearance, (Table 2) on the first day of storage. Experimental rasogolla prepared from filled milk got a lower score for flavour and colour and appearance and was graded as 'good'. No significant difference was observed between the scores obtained for body and texture of control and experimental rasogolla. This is in agreement with the findings of Singh

and Ganesh (1988) who reported that filled rasogolla was comparable in body, appearance, texture and overall quality to the conventional one.

Table 1 Springiness of control and experimental rasogolla

Replication	Percentage	
	Control	Experiment
1	67.57	60.00
2	75.00	60.00
3	66.66	60.00
4	62.62	63.33
5	66.66	66.97
6	67.50	66.96
7	61.82	62.50
8	68.01	68.45

The comparatively lower score obtained for flavour for experimental rasogolla may be due to the coconut flavour which might have been mistaken as a foreign flavour. Colour and appearance of experimental rasogolla scored less which may be due to a dull surface observed in case of experimental samples. Dull appearance may be due to the difference in source of fat in the milk used for rasogolla preparation.

Rasogolla prepared using control sample of milk was graded high on the second and third day of storage at room temperature. Similarly the experimental rasogolla maintained their 'good' quality on the second and third day of storage (Table 2). Storage period was found to have no effect on flavour, body and texture and colour and appearance of both control and experimental rasogolla. This observation is in accordance with that reported by Jagtiani *et al.* (1960) who studied the keeping quality of rasogolla. Mould growth was observed in the samples stored for more than 3 days.

Table 2 Mean value of scores obtained for control and experimental rasogolla on the first, second and third day of storage

Sample	Storage day	Flavour	Body & Texture	Colour & appearance	Total
Control	1	48.10	38.00	9.90	96.00
	2	47.00	38.50	9.90	95.40
	3	45.40	38.60	10.00	94.00
Experimental	1	43.80	36.10	9.40	89.30
	2	43.80	36.50	9.50	89.30
	3	42.00	36.90	9.38	88.30

Summary

The control samples of rasogolla were prepared using cow's milk, while experimental samples were prepared using skim milk filled with coconut fat. The milks were standardised to four per cent fat. Springiness of control and experimental rasogolla measured by using precision penetrometer was found to be similar. Control rasogolla obtained higher score for flavour, colour and appearance but obtained similar scores for body and texture on the first day of storage at room temperature as compared to experimental rasogolla. On the second day and third day of storage also quality of experimental rasogolla resembled that of the control rasogolla in flavour, body and texture and colour and appearance. Thus control and experimental rasogolla samples were found to be of good quality on all the three days of storage.

References

- Babje, J.S., Ratahi, S.D. Ingle, U.M. and Syed, H.M (1992). Effect of blending soymilk with buffalo milk on qualities of Paneer. *J. Fd. Sci. Technol.* **29**(2): 119-120
- Jagtiani, J.K. Iyengar, J.R. and Kapur, N.S. (1960). Studies on the preparation and preservation of rasogollas. *Fd. Sci.* **9**(2): 46-47. (*Dairy Sci. Absstr.*, (1960). **22**(9): 2461
- Patil, G.R. and Gupta, S.K. (1986). Some aspects of sensory evaluation of paneer. *Indian Dairy.* **38**(3): 135-140
- Singh, U. and Ganesh. (1988). Preparation of filled rasogolla utilizing sweet cream butter milk solids. *Indian Dairy.* **30**(8): 445-447
- Snedecor, G.M. and Cochran, W.G. (1968). Statistical methods. Oxford and IBH Publishing Co. New York
- Verma, B.B. (1989). Technological studies on production of rasogolla from buffalo milk. M.Sc. Thesis submitted to Kurukshetra University