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Effect of Different Fat Levels of Cow and Buffalo Milk on the Acceptability and Shelflife of Penda

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Penda is a product obtained by addition of sugar to the partially desiccated milk known as khoa. Limited amount of research work has been reported on penda, however, recently the organised dairy sector has started taking interest in manufacture of sweetmeat like penda, on commercial scale. The study was planned to evaluate a few aspects of penda-making. The criteria studied were, effects of levels of fat on acceptability and chemical qualities of the product during storage.

Penda was prepared from cow milk and pooled buffalo milk, adjusted to different levels of fat viz. 3.0, 4.5 and 6.0 per cent. Sugar was added at the rate of 7 per cent (W/W) of milk at-pre-pat formation stage. The stage of sugar addition was decided after conducting various preliminary trials with 5 to 10 per cent sugar level and was kept constant throughout the study. Desiccation was carried out in jacketed vessel keeping 0.5 to 1.0 kg/cm^2 controlled steam pressure and was continued upto pat formation stage.

The product was cooled partially, worked, sufficiently, converted into penda, weighed to determine the yield and packed in vegetable parchment paper. Whenever necessary food grade yellow colour was used to give uniform shade to cow and buffalo milk penda.

Sensory evaluation of fresh penda and penda stored for 7 and 15 days at room temperature was carried out. The chemical analysis for fat content (Hyde and Rothwell, 1973), moisture content (IS 1165-1975) acidity, expressed as per cent lactic acid, (IS 1165-1975) and acid degree value (Deeth and Fitz-Gerald 1976) was carried out on all the samples. The average values of three replications for different attributes studied are represented in the Table.

The moisture content in penda decreased through out the storage period for cow and buffalo milk penda. Loss of moisture was about 2.22 per cent on an average (range 1.590 to 3.3073) during 7 days storage period, but remained unchanged upto 15 days.

Similarly, the acidity (per cent lactic acid) and acid degree value (ADV) remained almost constant upto 7 days and then both showed an increasing trend, this was true for both types of milk.

The product prepared from both types of milk at all the fat levels studied was acceptable. However, the average sensory score was more in the product prepared from buffalo milk at all fat levels, indicating superiority of the product made from buffalo milk. The fat level of 4.5 per cent in buffalo milk gave highest sensory score, and increasing fat levels of buffalo milk from 4.5 per cent to 6.0

TABLE 1

Changes in penda during storage at ambieant temperature.

Type of milk	*Treatment (% fat in milk)*	*Changes during storage*											
		Moisture			*Acidity (As % Lactic acid)*			*Aicd degree value*			*Sensory score (out of 9 points)*		
		Fresh	*7 days*	*15 days*	*Fresh*	*7 days*	*15 days*	*Fresh*	*7 days*	*15 days*	*Fresh*	*7 days*	*15 days*
Cow milk	3.0	17.358	15.652	15.515	0.590	0.621	0.729	1.186	1.171	1.745	6.16	6.00	5.66
	4.5	16.793	14.458	14.369	0.594	0.594	0.720	0.937	1.099	1.871	6.00	6.30	6.00
	6.0	14.621	12.802	12.280	0.540	0.54	0.694	1.269	1.417	1.652	6.33	5.16	6.83
Buffalo milk	3.0	15.770	12.697	12.405	0.432	0.504	0.694	0.856	0.800	1.094	7.16	6.83	6.16
	4.5	14.825	13.235	11.558	0.4999	0.405	0.540	0.922	1.227	1.898	7.83	7.00	4.33
	6.0	15.621	13.392	11.657	0.380	0.415	0.630	1.037	1.426	1.775	7.00	6.83	5.66

per cent did not increase the acceptability of product. In case of cow milk highest score was obtained at 6.0 per cent fat level in milk. The sensory score of product remained nearly constant upto 7 days but decreased after 15 days.

The results of sensory evaluation thus correlated with the increase in acidity and acid degree value of product after 15 days of storage.

Finally it can be concluded that acidity and acid degree value, can be used as a criteria for judging the shelf-life of penda.

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