Preparation and sensory evaluation of papaya milk shake

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Abstract

The present investigation was undertaken with the object of studying the standard procedure of preparation of milk shake from buffalo milk blended with papaya and studied for its acceptability. Milk shake was prepared from different proportions of buffalo milk and papaya pulp i.e. 100:0 (T0), 90:10 (T1), 85:15 (T2) and 80:20 (T3). The sensory score for overall acceptability of papaya milk shake of treatments T0, T1, T2 and T3 were 8.18, 8.56, 8.23 and 8.03, respectively. It was observed that the papaya milk shake prepared from 90 parts of buffalo milk and 10 parts of papaya pulp was most acceptable and ranked between like very much to like extremely. The addition of higher proportion of pulp in the blend scored towards lower side by a panel of judges.

Key words: Buffalo milk, Milk shake, Papaya, Sensory evaluation.

Introduction

Nutrition scientists and dieticians have recommended minimum level of milk and milk product to be included in the items of daily consumption. India is the largest milk producer in the world with a recorded production level of 94.0 million tonnes during 2005 (Anonymous, 2006).

Milk shake is obtained by freezing a mix very similar to soft serve ice-cream mix and speedy mixing of the frozen product in a mixer to make it pourable and generate foam in it (Sharma and Gupta, 1978). Although, Milk shake is one of the important fluid milk products mainly in western countries, there has been a limited research work on different aspects of this product.

Papaya (*Carica papaya L.*) is good for balanced nutrition; it has no cholesterol, not saturated fat and content carbohydrates (Bose, 1985). Papaya is very nutritious, it contains high quantities of vitamin A, fair quantities of vitamin C, some riboflavin, niacin and it is a good source of calcium, phosphorus and iron. The use of ripe fruit cures the constipation, bleeding, piles and chronic diarrhea. (Rana 2002). So an attempt was made to prepare milk shake from buffalo milk from varying amount of papaya pulp and further studied for sensory characteristics.

Materials and Methods

Buffalo milk required for the study was obtained from University Dairy Farm. Milk was standardized to four per cent fat using Pearson's square formula. Papaya of Tawan-768 variety required for preparation of milk shake was obtained from Dept. of Horticulture, M.A.U., Parbhani. The milk shake mix was kept in freezer at -2 to -6oC for 7 min. for freezing. Sodium alginate was used as stabilizer. For preparation of papaya milk shake, following blends of papaya pulp (puree) and buffalo milk was prepared.

T0 100 % buffalo milk by weight (Control)
T1 10 % papaya pulp + 90 % buffalo milk by weight
T2 15 % papaya pulp + 85 % buffalo milk by weight
T3 20 % papaya pulp + 80 % buffalo milk by weight

For preparation of papaya pulp (puree), first papaya fruit was washed with clean water. The skin was peeled. Slices were made with the help of knife and finally it was converted in to homogenous mass of pulp by putting into mixer.

Preparation of Papaya milk shake

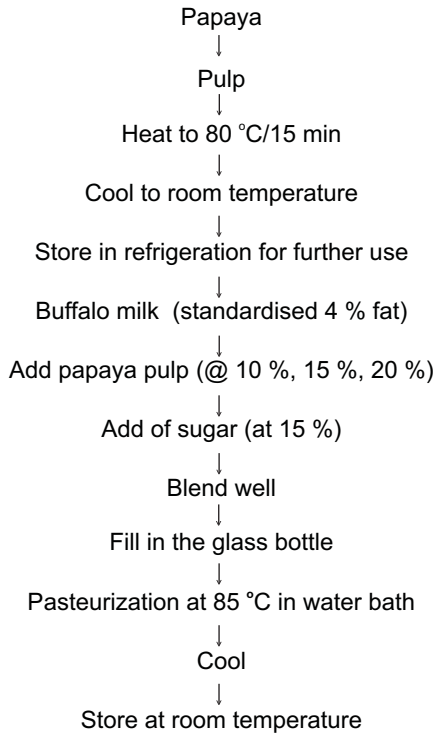
Papaya milk shake was prepared by following the procedure as described by Sharma and Gupta (1978) with slight modification. The buffalo milk was standardized to 4 per cent fat. Stabilizer (sodium alginate) was added @ 0.4 per cent. The flow chart of preparation of papaya milk shake is depicted (Fig.1).

The Papaya milk shake was subjected to sensory evaluation by a panel of five trained judges from Dept. of Animal Husbandry and Dairy Science, MAU, Parbahni, using 9 point Hedonic scale as described by Gupta (1999).

It was judged for colour and appearance, flavour, consistency, mouthfeel and overall acceptability. The results obtained during the course of investigation were

subjected to statistical analysis by using Completely Randomized Design (CRD) as described by Panse and Sukhatme (1967).

Fig.1: Flow diagram for preparation of Papaya milk shake.



Results and Discussion

Sensory evaluation of Papaya milk shake:

The papaya milk shake prepared from different blends of papaya pulp and buffalo milk were subjected to sensory evaluation and scores recorded for different parameter are presented in Table 1.

Colour and appearance:

The mean colour and appearance score for different treatment of papaya milk shake ranged from 8.07 to 8.33. The treatment T1 (8.33) was found to be significantly superior over the rest of the treatments. It was observed that increased level of papaya pulp in papaya milk shake decreased the score of colour and appearance slightly.

Flavour:

It was observed that mean score for flavour of papaya milk shake for treatments T0, T1, T2 and T3 was 8.15, 8.52, 8.24 and 8.48, respectively. The treatment T1 was significantly superior over T0 and T2 treatments. However, the flavour score of treatment T3 was at par with treatment T1. It was observed from above findings that 90 per cent buffalo milk blended with 10 per cent papaya pulp gave rich flavour to milk shake.

Consistency:

The mean score for the consistency attributes of papaya milk shake it was in the range of 7.90 to 8.66. The treatment T1 (8.66) was significantly superior over rest of the treatments. The consistency score for treatment T0 and T2 were at par with each other. The addition of papaya pulp in the blend, naturally reduce the score of consistency, higher level of pulp was not preferred by the judges.

Mouthfeel:

The highest mouthfeel score was observed for treatment T1 (8.74) followed by T2 (8.20), T0 (8.18) and T3 (7.60). It was also observed that increasing the per cent of papaya pulp in the blend was not much accepted by the judges. Papaya pulp blending of 10 per cent (T1) was most accepted.

Overall Acceptability:

The mean score for treatment T0, T1, T2 and T3 was 8.18, 8.56, 8.23 and 8.03, respectively. The treatment T1 (8.56), T2 (8.23) and T0 (8.18) ranked between like very much to like extremely. The treatment T1 (8.56) was most acceptable by the judges so blending of 10 per cent papaya pulp in the blend was most acceptable than the other treatment combinations.

Conclusion

Incorporation of their fruit pulps was found also to improve the quality of milk shake. The optimum level of papaya pulp could be incorporated in the blend up to 10 per cent. The higher proportion pulp utilization in the blend scored towards lower side by panel of judges.

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Table-1. Sensory evaluation for papaya milk shake

Treatments	Colour and appearance	Flavour	Consistency	Mouthfeel	Overall acceptability
T0	8.07	8.15	8.35	8.18	8.18
T1	8.33	8.52	8.66	8.74	8.56
T2	8.20	8.24	8.28	8.20	8.23
T3	8.15	8.48	7.90	7.60	8.03
CD at 5 %	0.075	0.160	0.37	0.30	0.226

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