

Economics of preparation of sapota whey beverage

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Introduction

Beverages based on whey continue to receive a considerable amount of attention reflecting a growing awareness of the potential of these products in the market place. These beverages have high nutritional quality and increased energy value. These could be particularly useful in place where there is lack of food and improper nutrition leading to deficiencies of certain nutrients. Whey possesses preventive and curative elements and is especially used to treat a wide variety of ailments such as arthritis, anemia and liver complaints. Beverages based on fruits and milk products are currently receiving considerable attention as their market potential is growing. Besides being delicious, these beverages are highly nutritious. They may be particularly useful in places where there is inadequate nutrition, which could lead to nutritional deficiency diseases. (Sakhale *et al.*, 2012)

Therefore, the development of any process for its economical utilization would be of great benefit to the dairy industry. The development of nutritionally value added product could therapeutically help on improving the health of consumers. Sapota pulp and dairy whey can be utilized to make the product therapeutic, prophylactic and nutritionally rich which may increase its demand in food and beverage industry. Introduction of new types of value added beverages might improve socio-economic status of the country.

Objective

To study the cost structure of sapota whey beverage.

Methodology

The experiment was planned to study the effect of different levels of sapota pulp on physico-chemical properties and sensory parameters of sapota whey beverage, in four treatments each with four replications. Sapota whey beverage was prepared by three different levels of sapota pulp *i.e.* 5 (T₁), 10 (T₂) and 15 (T₃) and one control treatment *i.e.* without sapota pulp (T₀). Whey beverage was prepared by heating 4% standardized cow milk up to 80°C for 5 minutes and gradually cooled upto 25 – 30°C. Addition of 1% citric acid was used for coagulation of milk. Then whey was strain through muslin cloth, it appears clear and greenish yellow in colour and cooled at room temperature. *Dahi* starter were used for fermentation @ 1% of milk. The sterilized conical flask of 150 ml capacity were filled with 100 ml of inoculated milk and covered with cotton plug. The filled cups were incubated at 35°C for 12-16 h in BOD incubator (Your Scientific Industries) to obtain good quality fermented whey. The product was bottled, sterilized, cooled and then stored in refrigerator at 5-7°C.

Result and Discussion

All the ingredients required for preparation of sapota whey beverage were rated as per the prevailing market prices. According to the table 1, the cost of production per litre of sapota whey beverage was found less in treatment T₀ (16.94) and highest cost per litre sapota whey beverage was observed in treatment T₃ (20.16) per kg. The increase in the cost of production in treatment T₁, T₂ and T₃ was due to addition of sapota pulp.

Cost of one litre sapota whey beverage for treatment T₀ was worked out as Rs. 16.94 which is lowest in all the treatments, whereas the cost of production for 1 litre sapota whey beverage in treatment T₁ was



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Rs. 18.01 for treatment T₂ the cost was Rs. 19.06 and for treatment T₃ was Rs. 20.16 only which is less than the market price of available juices/drinks. Our study agreed with the findings of Sahu *et al.*, (2005) studied the cost structure of manufacture of whey based mango herbal (lemon grass) beverage. The value added soft herbal beverage had cost of Rs. 5 per 250 ml of mango herbal beverage.

Conclusion

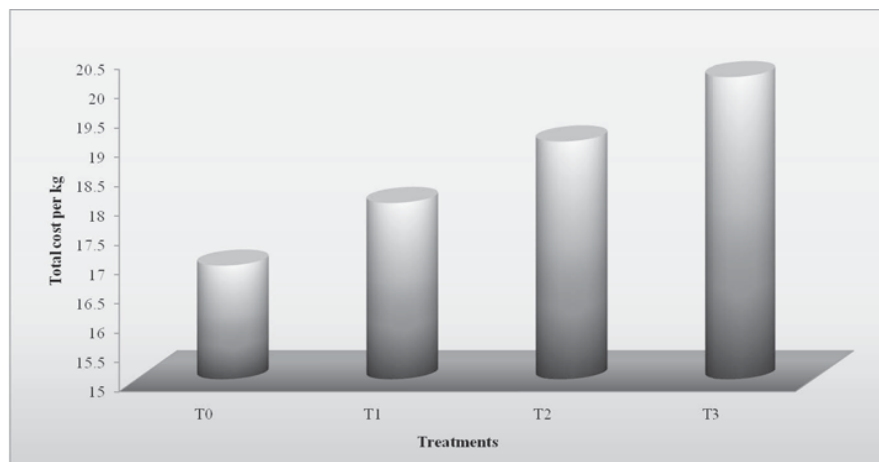
It can be concluded that we can prepare good quality sapota whey beverage by adding 5 per cent sapota pulp which was found to be less than market price of different type of milk shakes and whey beverages available in the market.

Table 1. Cost structure of sapota whey beveage

| Sr. No. | Particulars | Cost (Rs.) | | | |
|---------|---|----------------|----------------|----------------|----------------|
| | | T ₀ | T ₁ | T ₂ | T ₃ |
| 1. | Qty. of whey used (lit.) | 500 ml | 475 ml | 450 ml | 425 ml |
| 2. | Cost of whey per lit. | 5.50 | 5.50 | 5.50 | 5.50 |
| 3. | Cost of whey used (Rs.) | 2.75 | 2.61 | 2.47 | 2.33 |
| 4. | Qty. of Sapota pulp used (Kg.) | - | 0.025 | 0.050 | 0.075 |
| 5. | Cost of sapota pulp (Rs. / Kg.) | - | 30 | 30 | 30 |
| 6. | Cost of sapota pulp used (Rs.) | | 0.75 | 1.50 | 2.25 |
| 7. | Qty. of sugar used (Kg) | 0.040 | 0.038 | 0.036 | 0.034 |
| 8. | Cost of sugar (Rs. / Kg.) | 35.00 | 35.00 | 35.00 | 35.00 |
| 9. | Cost of sugar used (Rs.) | 1.40 | 1.33 | 1.25 | 1.19 |
| 10. | Other charges i.e. labour, fuel, etc. (Approx.) | 5.00 | 5.00 | 5.00 | 5.00 |
| 11. | Total cost (Rs.) (3+6+9+10) | 9.15 | 9.69 | 10.22 | 10.77 |
| 12. | Yield of whey beverage (ml) | 0.540 | 0.538 | 0.536 | 0.534 |
| 13. | Cost of whey beverage (Rs./ litre) | 16.94 | 18.01 | 19.06 | 20.16 |

References

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- Sahu, C., Chaudhary, P.L. and Patel, S. (2005). Techno-economic feasibility of RTS whey based Mango Herbal (Lemongrass) Beverage. *Indian J. Dairy Sci.* **58**(4): 258-263.



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