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STUDIES ON PREPARATION AND SENSORY EVALUATION OF WHEY BEVERAGE

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ABSTRACT

Utilization of whey for the conversion into best beverage would be one of the important ways to utilize it. Nutritive value of whey may be increased by the addition of some simple ingredients. Paneer (Cheese) whey is collected and analysed for sensory evaluations. Three level of sugar combinations were used for the standardization of whey beverage i.e. S(10%), $S_1(12\%)$ and $S_2(14\%)$. Three colours i.e. pink, red and saffron were used. *Jeera* (Cumin) was used as flavouring agent. Stabilizer like CMC was added @0.1% to the initial volume of whey. This beverage was packed in bottles and stored at 5°C for 5 days and used for further investigation. From the present investigation it is concluded that the whey can very well be utilized for preparation of acceptable whey beverage. The whey beverage prepared from *Channa* or *Paneer* whey (14% sugar + pinch of *Jeera*) was most acceptable.

Key Words: Whey Beverage, Jeera, Channa

INTRODUCTION

Whey is the watery component removal after cutting of the curd in cheese manufacturing. After the drainage of curd while shrikhand making and when acid coagulated dairy products like Paneer and Channa are prepared. Day to day production of paneer is increasing resulting in an increased whey production is estimated at 1, 50,000 tones of paneer (Aneja et al., 2002). Whey is generally classified as sweet, sour or acidic. It is depend on its titrable acidity and pH. Whey is containing almost all water soluble nutrients present in milk, particularly lactose, whey proteins, vitamins and minerals (Goyal and Gandhi, 2009). Most of the dairy plants are draining it as a sewage. By adding some simple ingredients in the whey like sugar, colour, flavor it improves the nutritive value, taste and acceptability. Dairy waste is major issue in the dairy industry. Therefore various techniques are they using to convert such waste into valuable products. So utilization of such whey for the conversion into best beverage would be one of the important ways to utilize it. Nutritive value of whey may be increased by the addition of some simple ingredients. Many attempts have been reported on utilization of whey in the formulation of various dairy products (Singh et al., 1994; Cruz et al, 2009; Naik et al., 2009). There is a lot of scope to explore the possibility of its utilization in beverage industries (Sakhale et al., 2012). Therefore present investigation was carried out by keeping both views that utilization of whey and utilization of such for best quality production of beverage.

MATERIALS AND METHODS

Paneer whey is collected and analysed for fat, acidity, total solids and moisture contain. Three level of sugar combinations were used for the standardization of whey beverage i.e. S(10%), $S_1(12\%)$ and $S_2(14\%)$. Three colours i.e. pink, red and saffron were used. *jeera* is very chief and easily available therefore it was used as flavouring agent. Stabilizer like CMC was added @0.1% to the initial volume of whey. All these ingredients were mixed homogenized by using home food processor. At last when beverage got ready it was packed in sterilized glass bottles and sealed with the help of crown capper. Then this beverage was stored at 5°C for 5 days and used for further investigation. The details regarding preparation of whey beverage is given in figure 1. The product was evaluated for its sensory quality by a panel of 6 judges selected from the staff of Department of Dairy Science, Maharashtra Udaygiri College,

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Udgir Dist. Latur Maharashtra (India) using 9 point Hedonic scale as described by Amerine *et al.*, (1995). Results were analyzed using complete randomized design to test the statistical significance as per recommended by Snedecor and Cochran (1994).

Preparation of Whey Beverage

Whey beverage was prepared as per method described by with slight modification. The diagram of preparation of custard apple milk shake is depicted (Figure 1).



Treatments	Colour and appearance	Flavour	Consistency	Overall acceptability
S	7.16±0.75	6.50±1.04	6.16±0.75	6.61±0.50
S_1	6.83±0.47	7±0.63	6.50±1.22	6.77±0.25
S_2	7.5±0.54	7.83±1.16	7.16±0.98	7.5±0.33
Mean±SD of three replications				

Sensory evaluation of beverage prepared from different levels of custard sugar were subjected to sensory evaluation for colour and appearance, flavour, consistency and overall acceptability by trained judges, using 9 point hedonic scale.

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Colour and Appearance: It is evident from Table 1 that, the mean colour and appearance score for different treatment of whey beverage ranged from 6 to 7.50. The data shows that treatment S_2 scored the highest score followed by S, and S_1 . It was observed that addition of sugar increases the colour and appearance score of whey beverage. There were no significant differences amongst all the treatments for colour and appearance score. The present investigation corroborates with that of.

Flavour: Mean score for flavour ranged from 6.50 to 7.83. The score of flavour for treatment S_2 scored the highest score. The treatment S scored lowest score followed by S_2 , and S_1 . All the treatments were ranked in between like very much to like extremely. It was observed from above findings that as the percentage of sugar increased in the blend, the flavour score of the product also increased. This is due to sugar which enhanced the flavour of the milk shake.

Consistency: Table 1 shows the mean score for the consistency attributes of whey beverage it was in the range of 6.16 to 7.16. The score of consistency for treatment S_2 scored the highest score. The treatment S scored lowest score followed by S_2 , and S_1 .

Overall Acceptability: It is evident from Table 1 that the overall acceptability score of whey beverage for various treatments varied between 6.61 to 7.50. The mean overall acceptability score for treatment S, S_1 and S_2 was 6.61, 6.77 and 7.50, respectively. The treatment $S_2(7.50)$ was most acceptable by the judges, so blending of 14 per cent sugar in the blend was most acceptable than other treatment combinations. The present findings are in conformity with the results reported by Pandiyan *et al.*, (2011), Dhamsaniya and Varshney (2013).

Conclusion

Based on the above results, it may be concluded that the whey can very well be utilized for preparation of acceptable whey beverage. The whey beverage prepared from channa or panir whey (14% sugar+pinch of jeera) was most acceptable.

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