

Sensory analysis of whey based mango beverage using betel leaves distillate

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■ **Abstract** : Whey based mango beverage was prepared by using from chhana whey and mango juice with the addition of betel leaves distillate. Mango juice available in the market was used in the present investigation. In the preparation of beverages the volumes of Mango juice (12%), sugar (7%) and different concentration of Betel leaves distillate (0, 1, 2, 3%) into chhanna whey (78-75 %). The overall acceptability was rated as 7.8, 8.0, 8.5 and 8.00 in the treatment of T₀, T₁, T₂ and T₃, respectively. Sensory analysis of product includes colour and Appearance, Flavour and Mouthfeel. After sensory analysis on the basis of 9 point Hedonic Scale T₂ treatment is mostly liked by judges.

■ **Key words** : Whey beverage, Mango, Betel leaves distillate

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Beverages are very popular across the country and people from all age groups drink either hot or cold beverages regularly. Whey beverages which are also having good nutritional value and obtained from paneer or cheese after pressing it. It is high source of protein which are important for body build up. whey as a beverage in human nutrition, especially for therapeutic purposes. Now-a-days there are so many research is done on the whey beverage with addition of herbs. The role of herbal roots, flowers, extracts or distillates, that they play in functional beverages; a newly classified group of beverages that go beyond normal nutrition to give consumers something extra health benefits. As herbs are natural products they are free from side effects, comparatively safe, eco-friendly and locally available. Medicinal plants have been identified and used from prehistoric times. From ancient period India has been known to be rich repository of medicinal plants such

as *Aloe*, *Tulsi*, *Neem*, Turmeric, Ginger, sandalwood, clove, cinnamon, betel leaf, pudina, cardamom. These remedies are in sync with nature, which is the biggest advantage. These are considered as home remedies in many parts of the country. Many herbs are used as blood purifiers to alter or change a long-standing condition by eliminating the metabolic toxins and known as 'blood cleansers'. Certain herbs improve the immunity of the person; some are also having antibiotic properties and many more. So, addition of herbs in whey beverage play a key role to improve product's quality as well as provide health benefits to people.

Preparation of chhana whey:

The chhana whey was obtained during the manufacture of chhana using milk containing 3.5 per cent fat and 8.5 per cent solid not fat (SNF). Milk was coagulated using 1.5 per cent citric acid (Eagle Brand)

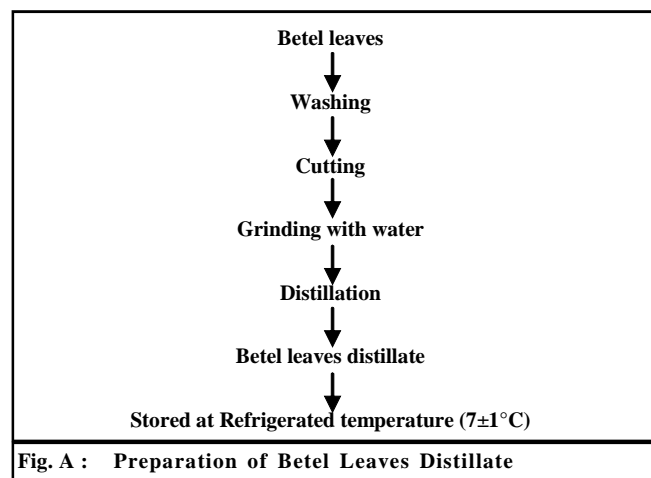
solution as coagulant. The whey was filtered and centrifuged to remove the fat. Fat separation was done at 45°C. To precipitate proteins whey was heated to 105°C at pH 4.6 and then was filtered and stored under refrigerated condition until use.

Preparation of mango juice:

The mango juice was prepared by ripened Mango. Fruits were washed thoroughly under tap water and dip in chlorine water for sanitation; then swiped with sterile, clean and dry cloth and then kept under room temperature in properly dry place. After cleaning the fruits were peeled and cut into pieces then remove the seeds and rind, juice was extracted by juicer and it was filtered through the muslin cloth. The juice was kept under refrigerated condition for further use.

Preparation of betel leaves distillate:

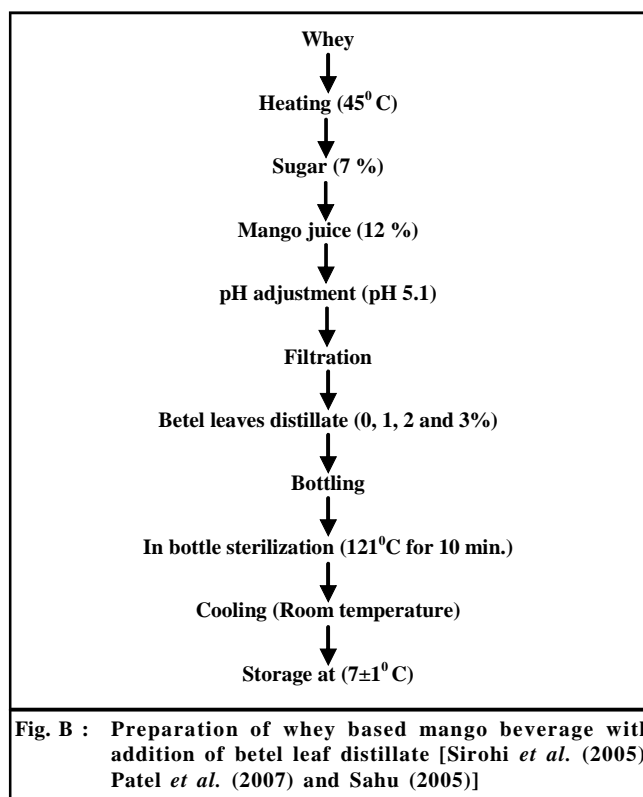
Fresh betel leaves were washed under tap water to remove dust and dirt and were sanitized by chlorine water. Afterwards, leaves were cut into pieces and grinded in a mixer. The distillate was collect after the distillation of crude betel leaves extract. The distillate was kept under refrigerated condition for further use method shown in Fig. A.



Preparation of whey based mango beverage using betel leaves distillate:

The whey based mango beverages were prepared by method indicated in Fig. B, taking mango juice(12%), different levels of betel leaves distillate(0-3%), whey(75-78%) and sugar (7%). In each lot about 2-3 lit. of beverages were prepared and experiment was repeated

for three times. During the preparation of beverage different amount of betel leaves distillate were added to get different concentration in the final product. Whey was heated to dissolve sugar. Thereafter juice was mixed thoroughly with above mixture and then whole mixture was filtered. The beverage obtained were filtered and filled into glass bottles then sealed by crown corking. In-bottle sterilization was done at 121°C for 10 minutes. Bottles were cooled at room temperature and then stored under refrigerated conditions (7±1°C) as per Sirohi *et al.* (2005), Patel *et al.* (2007) and Sahu (2005).



Sensory evaluation:

The beverage sample prepared from the varying levels of betel leaves distillate

Freshly prepared beverages were subjected to sensory evaluation using 9 point hedonic scale by the panel of five judges (BIS, 1981)

Conclusion :

From the present investigation Beverage prepared from 12 per cent mango juice, 7 per cent sugar, 2 per cent betel leaves distillate, 76 per cent whey was found

Table 1 : Effect of betel leaves distillate concentration on sensory characteristics of fresh beverages

Sr. No.	Betel leaves distillate concentration (%)	Sensory characteristics			
		Colour and appearance	Flavour	Mouth-Feel	Overall acceptability
1.	Control (T ₀)	8.5	7.5	7.6	7.8
2.	1 % (T ₁)	8.4	8.0	8.0	8.0
3.	2% (T ₂)	8.2	8.5	8.4	8.5
4.	3% (T ₃)	8.5	7.6	7.8	8.0

quite acceptable to the consumer. Whey contains about half of the milk solids in which nutritional components such as lactose, protein and minerals, high amount of antioxidant in mango increase the deliciousness and nutritional value of the product. The Addition of betel leaf distillate in which contain active ingredients like chavicol and eugenol provides preventive and curative properties to the product along with its extended shelf-life.

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