

Research Article

***SOLANUM TRILOBATUM* HERBAL EXTRACT BASED WHEY BEVERAGE**

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ABSTRACT

Whey is the by-product obtained during the manufacturing of cheese, channa and panner. The by-product whey is utilized for making herbal beverage which is rich in nutritional content. The herbal based whey beverage were prepared with the incorporation of *Solanum trilobatum* leaves (Thuthuvalai in tamil). The leaves have the medicinal values of producing blood, increasing blood flow and prevent blood thickening which causes many types of sickness and neutralizing the excess heat in the body. And it is effective in fever, cough, heart diseases, asthma and chest pain. Tea is rich in antioxidants and large number of possibly bioactive chemicals, including flavonoids, amino acids, vitamins, caffeine and several polysaccharides which have a wide range of health benefits. Hence combining tea, *Solanum trilobatum* with whey in the acceptable range yields a healthy beverage enriched with essential nutrients. *Solanum trilobatum* (12g), tea powder (5g) and sugar (49g) were added to the whey and boiled and filtered. The prepared product is analyzed for sensory evaluation on a 9 point hedonic scale by a panel of 20 semi trained members. The beverage samples were evaluated for colour, appearance, flavour, taste and overall acceptability. The results revealed that, colour, flavour, taste, packaging and overall acceptability were found to be good and widely accepted.

Keywords: *Whey - Solanum trilobatum - Sensory Evaluation*

INTRODUCTION

Whey is the valuable by-product obtained during the preparation of dairy products such as *Cheese, Channa, Paneer, and Shrikhand*. In India, there is an increase in the production of direct acidified indigenous milk products such as channa resulting in an increased availability of whey (Sukumar, 2002). About 2 million tones of whey, containing about 130,000 tones of valuable milk nutrients, are produced annually in India (Khamrui and Rajorhia 1998). Whey constitutes 45-50% of total milk solids, 70% of milk sugar (lactose), 20% of milk proteins and 70-90% of milk minerals and mostly, almost all the water soluble vitamins originally present in milk (Horton, 1995). The conversion of whey into beverages by either fermentation or without fermentation is one of the attractive ways to utilize the whey for consumption (Goyal and Gandhi, 2009).

And in terms of functionality; whey protein enhances protein content of beverage while improving its quality.

The role of herbal extracts gives the consumer a perceived benefit and therefore creates awareness of the product. In this study thuthuvalai (*Solanum trilobatum*) the herbal plant is used to nourish the whey beverage. This plant is a thorny creeper that bears small sized fruits and effective in balancing the function of tridosha i.e. vata, pitta and kappa. The leaves are also effective in neutralizing the excess heat and gas trapped or formed in the womb. The leaves have the medicinal values of; takes away all phlegm and mucus, purifies blood, calms hyper sensibility, takes away pain, regularizes nervous agitation and anxiety, good for liver, asthma, takes away the beginning symptoms of cancer, typhoid, fever, trembling fever. It is good to reduce cough, body pain, chest cold can be reduced. According to siddhar's it is a kayakalpam and used for longitivity. Due to its effective medicinal property and its cost economic the plant is used for preparing the whey based herbal beverage.

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MATERIALS AND METHODS

The raw materials such as branded pasteurized milk, *Solanum trilobatum*, branded tea powder and sugar were purchased from a local market were used for the study.

Preparation of Herbal Extract based Whey Beverage and its Evaluation

Milk is boiled (80°C) citric acid (2%) is added for acidification and continuously stirred till milk casein protein coagulates. The liquid whey was filtered using a muslin cloth. Herbal Extract based Whey Beverage is prepared by infusion of whey to the *Solanum trilobatum* (12g) herb, leaving it to soak and then and then straining off the resultant liquor. Tea (5g) was used to take tea decoction and it was added to the extract with sugar (49g). The nutrients enriched herbal based whey beverages were tested for its sensory qualities by the standard methods. To increase the shelf stability of the herbal based whey beverage it is essential to pasteurize and de-fatten the whey before utilizing it.

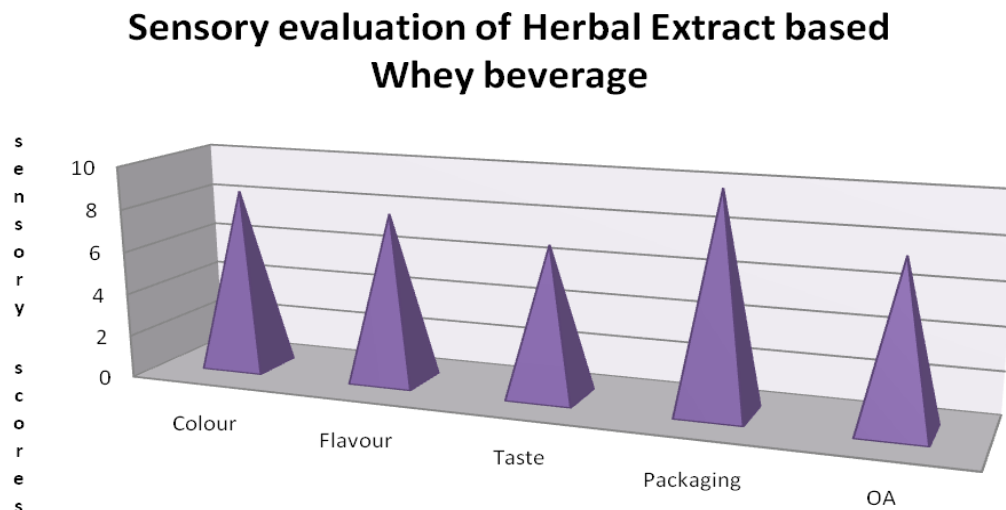
RESULTS AND DISCUSSION

Whey proteins comprise approximately 20% of the total milk proteins. Whey proteins (or milk serum proteins) are defined as proteins in milk that remain soluble after acid or after rennet casein precipitation (Goyal and Gandhi, 2009). The former whey protein source is known as acid whey, the latter is referred to as sweet or rennet whey. Whey proteins are globular proteins that are soluble over a broad pH range (Rupnar *et al.*, 2009).

“Herbal Extract based Whey Beverage” is the healthy drink prepared by combining *Solanum trilobatum*, tea with whey as the prime ingredient instead of milk and water used in routine tea preparations. Sensory evaluations of the beverage were done for colour, appearance, flavour, taste and overall acceptability. And the sensory score of 20 semi-trained panelists were given in the table.1 and the graphical representation were in figure.1 below.

Table 1: Sensory score of herbal beverage given by panelist

PARAMETERS	MEAN AND SE
Colour	8.5±0.2
Flavour	7.9±0.3
Taste	7±0.2
Packaging	10±0
OA	7.65±0.2



Parameters

Figure 1:

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The Herbal whey tea received wide acceptability in terms of appearance, colour, flavour and taste. The experiment targets to provide consumers health with non alcoholic herbal whey based beverage. The graph was plotted between the parameters and the sensory scores. The results revealed that, colour, flavour, taste, packaging and overall acceptability were found to be good. The beverage is healthy for consumption though it contains the herbal extract (*Solanum trilobatum*). Singh *et al.*, (1999) showed that whey could be incorporated in beverages. The research findings of the present study coincided well with the findings of the author. The herbal based whey tea has showed to be a good nutritional beverage with appreciable sensory properties. Sirohi *et al.*, (2005) reported the whey-based herbal beverage prepared with *Solanum trilobatum* extract has been found to exhibit highest overall acceptability related in our study. The acceptability of whey in the form of herbal beverage coincides with the suggestion of Baljeet *et al.*, (2013) that the utilization of whey for the production of instant energy beverage. Perasiriyana *et al.*, (2013) studied the whey tea prepared received wide acceptability in terms of colour, flavour, taste, packaging and overall acceptability which is closely related to our studies.

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