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Development of herbal nectar fortified with mint, pineapple and sugar syrup

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Abstract

Nectars are beverages formulated with the juice or pulp of one or more herbal juice, plus water and sugar in concentrations resulting in a “ready-to-drink” product. The market for such products has greatly expanded fruits mixtures present of series of advantages such as the combination of different aromas and flavours and the sum of their nutritional component. The objective of this work was to develop herbal nectar based on pineapple, mint thus helping in improving overall health, optimizing the formulating using sensory consumer test. The sensory tests were carried out with 10 non-trained panellists using a structured 9 point hedonic scale of evaluate overall acceptance.

Keywords: Beverage, ready to drink, blend, sensory, pineapple, mint, sugar syrup

Introduction

Nectar is a non-fermented beverage, produced from the dissolution of the edible portion of the fruit and sugars in water, for direct consumption, and could be added of acid, respecting the characteristics and compositions established for each fruit, such as sensory attributes, juice content, soluble solids, total acidity, and total sugar (Brasil, 2003). Fruit blends present a series of advantages, such as the possibility of combining different aromas and flavours, plus the sum of nutritionally different components. Fruit and vegetable nectars are beverages produced from purees, juices, or concentrates of either, blended with water and sugar, honey, syrups, or sweeteners. 83 Fruit-vegetable nectar blends are reported under their components (i.e. fruit nectar and vegetable nectar). Pineapple [*Ananas comosus* (L.) Merr. Family- Bromeliaceae] is one of the most important commercial fruit crops in the world. It is known as the queen of fruits due to its excellent flavour and taste. Pineapple is the third most important tropical fruit in the world after Banana and Citrus. Pineapples are consumed or served fresh, cooked, juiced and can be preserved (Sreenath, 1994) [8]. This fruit is highly perishable and seasonal. Mature fruit contains 14% of sugar; a protein digesting enzyme, bromelin, and good amount of citric acid, malic acid, vitamin A and B. Pineapple juice's composition varies depending on geography, season, process and time of harvest. Its balance of sugar and acid contributes to the fruit's refreshing flavor. Thailand, Philippines, Brazil and China are the main pineapple producers in the world supplying nearly 50 % of the total output. Other important producers include India, Nigeria, Kenya, Indonesia, Mexico, Costa Rica and these countries provide most of the remaining fruit (Anonymous. 2014). Mint is packed with antioxidants and phytonutrients that can work wonders for our stomach. The menthol present in pudina helps the enzymes necessary for digestion. The herb parts contain many essential volatile oils like menthol, menthone, menthol acetate. Mint leaves are packed with anti- bacterial and anti-inflammatory properties. Mint contains rosmarinic acid that acts as a powerful antioxidant. Mint composes numerous plant derived chemical compounds that are known to anti-oxidant, disease-preventing and health promoting properties (Anne O *et al.*, 2001) [5]

Material and Method

The experiment entitled “Development of herbal nectar fortified with mint, pineapple and sugar syrup” was carried out at Division of Food Science and Technology, University of Jammu.

Raw materials

Pineapples were procured from the fruit mandi Jammu. Fresh fruits which were uniform in size and shape, free from transportation injuries, bruises, insect damage, diseases and uniformly ripened were selected.

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Chemicals and additives

Most of the chemicals used in this investigation were of analytical grade. Mint, Sugar and citric acid was obtained from local market and used as main ingredients as well additives for the preparation of nectar.

Equipment

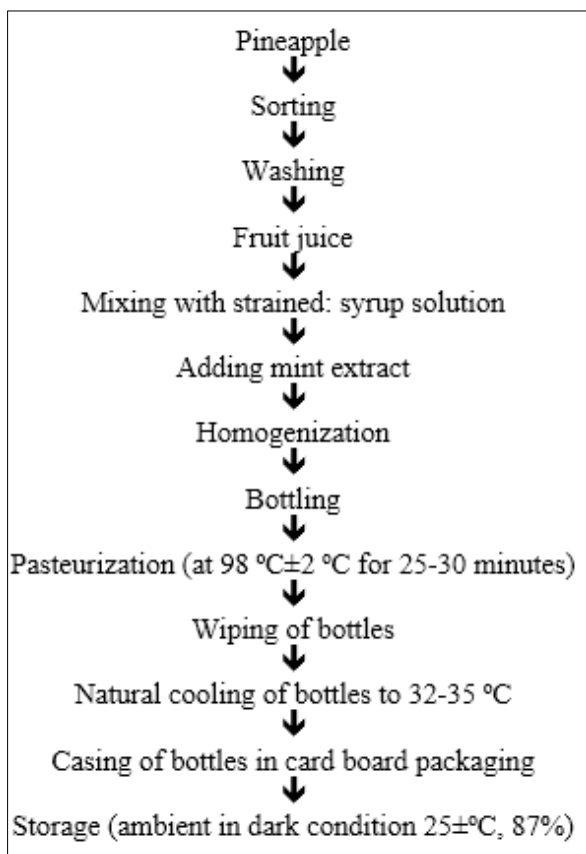
An electrical heater, pulper, and other utensils were needed during the preparation of nectar.

Method for preparation for herbal pineapple fruit nectar

Sound, healthy matured and ripe firm pineapple fruits were selected and then washed thoroughly under potable water and fruit peel was removed if necessary and then pulp was extracted by using laboratory pulper machine, pulp was

strained through stainless steel sieve or muslin cloth to get clear juice. The total soluble solids (TSS) and acidity of strained juice was determined by using standard procedure as per Raganna, 1982 and to adjust the TSS and acidity of pineapple fruit nectar as per FPO specification, the additional required amount of mint, sugar and acid was added. The prepared pineapple fruit nectar was pasteurized at 85°C for 15 minutes and class II type preservative such as potassium metabisulphite @ 350 to 600 ppm was incorporated in final product and filled into the clean and sterilized either plain bottle or pouch. Then, the bottle was sealed with crown cork immediately. The filled bottle was exhausted in boiling water for 15 minutes and cooled then stored in room temperature.

Flow sheet for the preparation of herbal pineapple nectar



Titrateable acidity

For titrateable acidity a known wt. of sample was boiled for 30 minutes with small quantity of distilled water, loss of water during evaporation was made up by addition of distilled water. The solution was filtered through Whatman No.4 filter

paper and volume was made up to 100 ml. with previously boiled distilled water. A Known aliquot of the above extract was titrated against standard 0.01N. NaOH using phenolphthalein as indicator and acidity was calculated using equation 3.4.

$$\text{Titrateable acidity (\% as citric acid)} = \frac{\text{Titre value} \times \text{Normality of alkali} \times \text{dilution} \times 67}{\text{Weight of sample} \times \text{aliquot taken} \times 1000} \times 100$$

Total soluble solids

The total soluble solids in nectar were determined with the help of a Hand refractometer (A.O.A.C. 1990). The drop of extracted juice was placed on the surface of the prism and the hinged part was placed back. The refractometer reading was taken and the average of reading was calculated (%) for each replication.

the standard procedure Amerine *et al.* (1965) [3] on a 9 point Hedonic scale. The mean score of minimum 10 semi trained judges for each quality parameter viz., colour, appearance, texture, flavour and overall acceptability was calculated.

Statistical - Method for analysis of data

All experiments were carried out by using completely randomized design CRD. The data obtained in the preset investigation were analyzed for the statistical significance according to the process given by Panse *et al.* (1967) [6].

Sensory evaluation of herbal nectar

The sensory evaluation of nectar was carried out according to

Results and Discussions

Total soluble solids of herbal nectar

The total soluble solids of fresh herbal pineapple nectar was 15.40 % (Table 1)

Acidity of pineapple herbal nectar

The titrable acidity of herbal nectar was 0.031 % (Table 1).

Sensory evaluation of herbal Nectar

The sensory evaluations of nectar were carried out according to the standard procedure Amerine *et al.* (1965) [3] on a 9 point hedonic scale. The mean score of minimum 6 semi-trained judges for each quality parameter via appearance, flavour, taste and overall acceptability was calculated. The sensory scores of nectar for parameters like appearance, flavour, taste and overall acceptability on 9 point hedonic scale.

Appearance

The results of appearance of fresh herbal pineapple nectar are

presented in below Table (2). The score for appearance was recorded as 8.00

Taste

The results of taste score of herbal pineapple nectar are presented Table (2). The average score for taste of herbal pineapple nectar was 8.01

Flavour

The results of flavour of herbal pineapple nectar are presented in Table 2. Flavour score for herbal pineapple nectar was 8.40

Overall acceptability

The results of overall acceptability score of fresh herbal pineapple nectar are presented Table 2. The nectar of treatment was recorded as 8.40. This might be due to better appearance, texture and flavour at different level of ingredients in juice.

Table 1: Physico chemical evaluation of herbal nectar

Treatments	TSS (%)	Acidity (%)
T ₁ (Pineapple juice 400ml: Sugar 150gm: Mint extract: 20ml: Water 600ml: Citric acid 1gm)	15.40	0.031

Table 2: Sensory evaluation of herbal pineapple nectar

Treatments	Appearance	Taste	Flavour	Overall acceptability
T ₁ (Pineapple juice 400ml: Sugar 150gm: Mint extract: 20ml: Water 600ml: Citric acid 1gm)	8.00	8.01	8.40	8.40

Conclusion

The blend selected is a rich source of antioxidants. Therefore, the blend can be successfully utilized for the preparation of ready-to-serve herbal nectars and other value added products. The pineapple, mint and sugar syrup based nectars further enhanced its medicinal properties.

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