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## Quality characteristics of pineapple and orange nectar

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### Abstract

Nectar was formed by the blends of orange (*Citrus sinensis*) and pineapple (*Ananas comosus*) fruit and pasteurized at 80 °C for 10 min. The physical properties studied included titratable acidity and total solid. The objective of this work was to develop nectar based on pineapple and orange 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, orange sugar syrup

### Introduction

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) [18]. 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.

Orange (*Citrus sinensis*) belongs to the genus citrus of the family Rutaceae. It is a distinguished, widely consumed fresh fruits and particularly appreciated for its tangy taste. Its pulp is an excellent source of vitamin C providing 64% of the daily requirement of an individual. Apart from vitamin C content of orange juice, it's also rich in folic acid, potassium and excellent source of bioactive antioxidant phytochemical and they are important trade commodities in most countries. Pineapple (*Ananas comosus*) is an economically important plant in the Bromelanceae family which encompasses about 50 genera and 2000 species mostly epiphytic. The worldwide total pineapple production is between 16 – 19 million tons.

Making of beverage products will ensure security for pineapple growers as to meet up the high demand throughout the country and the world as a whole. The annual world production of pineapple around 18 million tons, roughly 1/3 is being industrially processed, mainly by canning (30%) and to juice (4%), being 2/3 consumed as fresh fruit. Therefore, studies were made to develop blended nectar from orange and pineapple.

### Material and Method

The experiment entitled "Quality characteristics of pineapple and orange nectar" 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. Sugar and citric acid was obtained from local market and used as main ingredients as well additives for the preparation of nectar.

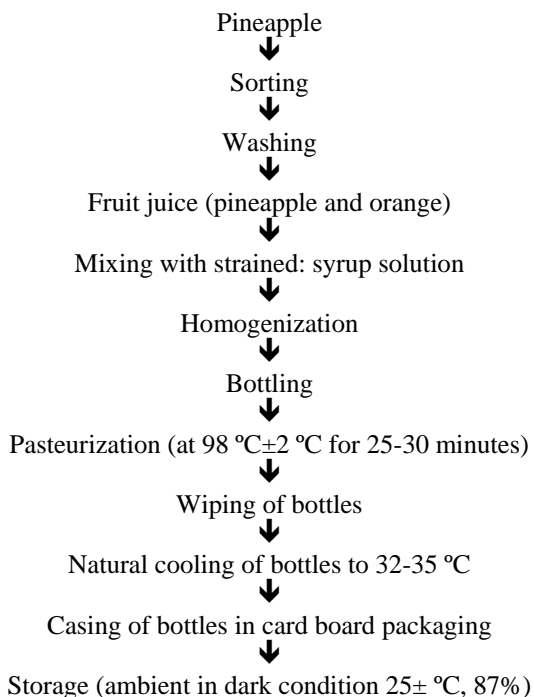
### Equipment

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

### Method for preparation for blend of pineapple and orange fruit nectar

Sound, healthy matured and ripe firm pineapple, orange 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 and orange fruit nectar as per FPO specification, the additional required amount of sugar and acid was added. The prepared pineapple/orange fruit 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 pineapple and orange 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) [1]. The drop of extracted juice was placed on the surface of the prism and the hinged part was placed back. The refract meter reading was taken and the average of reading was calculated (%) for each replication.

### Sensory evaluation of blends of pineapple and orange

The sensory evaluation of nectar was carried out according to 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 present investigation were analyzed for the statistical significance according to the process given by Panse *et al.* (1967) [6].

### Results and Discussions

#### Total soluble solids of pineapple and orange nectar

The total soluble solids of fresh nectar was 15.60 % (Table 1)

#### Acidity of pineapple and orange nectar

The titrateable acidity of nectar was 0.020 % (Table 1).

#### Sensory evaluation of pineapple and orange 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 pineapple and orange nectar are presented in below Table (2). The score for appearance was recorded as 8.40

#### Taste

The results of taste score of pineapple and orange nectar are presented Table (2). The average score for taste of pineapple nectar was 6.00

#### Flavour

The results of flavour of pineapple and orange nectar are presented in Table 2. Flavour score for pineapple nectar was 6.40

#### Overall acceptability

The results of overall acceptability score of pineapple and orange nectar are presented Table 2. The nectar of treatment was recorded as 6.40. This might be due to better appearance, texture and flavour at different level of ingredients in juice.

**Table 1:** Physico chemical evaluation of pineapple and orange nectar

Treatments	TSS (%)	Acidity (%)
T <sub>1</sub> (Pineapple juice 400ml: Sugar 150gm: orange juice: 20ml: Water 600ml: Citric acid 1gm)	15.60	0.020

**Table 2:** Sensory evaluation of pineapple and orange nectar

Treatments	Appearance	Taste	Flavour	Overall acceptability
T <sub>1</sub> (Pineapple juice 400ml: Sugar 150gm: orange juice: 20ml: Water 600ml: Citric acid 1gm)	8.40	6.00	6.40	6.40

### Conclusion

The blend selected is a rich source of antioxidants and Vitamin C. Therefore, the blend can be successfully utilized for the preparation of ready-to-serve pineapple and orange nectar and other value added products. Some mixed nectars showed good sensory acceptance and a high vitamin C content, suggesting potential commercial success

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