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# Studies on organoleptic evaluation and benefit cost ratio of Bael (*Aegle marmelos* correa) RTS beverage blended with other fruits

**B Pawan Kumar, T Suresh Kumar, D Naga Harshitha and B Naveen Kumar**

**Abstract**
An investigation on "Studies on Bael (*Aegle marmelos* correa) RTS beverage blended with other fruits" was carried out at PG laboratory College of Horticulture, Rajendra Nagar, Sri Konda Laxman Telangana State Horticultural University, Ranga Reddy District of Telangana during the year 2021-2022.The experiment was laid out in Completely Randomized Design with three replications. The experiment consisted of ten treatments with fruit juices in 25%:75%, 50%:50%, 75%: 25% and 100% (control). The bael blended RTS were assessed for the organoleptic parameters and benefit cost ratio at 15 days interval for a period of 60 days. The RTS blended beverage were evaluated for organoleptic properties (color, flavor, taste, overall acceptability) and benefit cost ratio. Sensory evaluation of colour, flavour, taste and overall acceptability were all found to decrease as the storage period increased.

**Keywords:** Bael, blend, RTS, color, organoleptic

## Introduction
Fruits and vegetables are vital parts of the diet because they include a variety of elements, including vitamins, carbohydrates, minerals, and fibres. Because of the combined action of oxygen radical scavengers such as Beta carotene and ascorbic acid, calcium, and dietary fibres, daily consumption of fruits and vegetables lowers the risk of cancer, heart disease, premature ageing, stress, and weariness. Because of the perishable nature of fruits and vegetables, they must be processed as soon as possible to reduce post-harvest losses (20-25 %).
The bael (*Aegle marmelos* Correa) is a significant and underappreciated indigenous fruit in the nation. It is a member of the Rutaceae family. In different locations, it is called Bengal quince, Indian quince, Golden apple, Holy fruit, Bel, Belwa, Sriphal, Stone apple, and Maredo, among other names (Teotia *et al.*, 1963). Bael fruit is subtropical, deciduous tree and fruit is globule with grey or yellowish hard woody shell.
The bael tree grows up to 18 meters tall and bears thorns and fragrant flowers. It can be grown well even in sandy, swampy, alkaline and stony soils having the pH from 5-10 and up to an altitude of 1200 meters. Bael is a cross pollinated crop and poly embryonic in nature.
The bael fruit is known for its medicinal properties and is one of the most important nutritious fruits, rich in riboflavin. It contains 61.5 g of water, 1.8 g of protein, 31.8 g of carbohydrates, 0.39 g of fat, 1.7 g of minerals, 55 mg of carotene, 0.13 mg or 186 IU of thiamine, 1.19 mg of riboflavin, 1.1 mg of niacin and 7-21 mg of vitamin C/100g of edible fruit. Its food value is 88 calories/100 g. Matured bael fruit can be stored for a period of 10-15 days at normal temperature, if it is harvested at full ripe stage, it can be stored for a period of one week. Bael pulp is extracted and used in preparation of various commercially exploited fruit products viz., preserve, candy, jam, RTS, nectar, squash, leather, slab and powder etc.
Guava is one of the most important fruits of India produced commercially for fresh fruit consumption. Guava fruits are valued for their characteristic flavor and fleshy texture. Fruits are rich in vitamins like vitamin-C, vitamin-B1, B2 and minerals like calcium, phosphorus and iron. Fruits are normally utilized to make processed products like jam, jelly, juice, canned segments and nectar.
Grapes were used as an important raw material for making wine. The main components present in the skin are coloring agents (red and yellow pigments), tannins, aromatic substances, potassium and other minerals. Freshly extracted grape juice contains 70 to 80% of water and many dissolved solids.

Glucose and fructose are the main sugars present in fruit juice. The sugar content in ripened grapes was varied from 150 to 250 g/L. The principal organic acids present in grapes are tartaric, malic and to a small extent of citric acid. The phenolic substances are primarily located in the seeds and in skin of the berry. The minerals like: potassium, sodium, iron, phosphates, sulfate, and chloride constitute about 0.2-0.6% of the fresh weight of the fruit of these minerals, cations accounts for 50 to 70% of the juice.

Dragon fruit (*Hylocereus sp.)* is diploid in nature (2n=22) and belongs to the genus Hylocereus, family cactaceae and subfamily cactoidae. It is a climbing, fast growing perennial vine cactus species. This is also known as prickly pear or strawberry pear or pitahaya or pitaya. The fruits are oblong-oval with bright red skin covered with green bracts or scales, accounting for the name dragon fruit. The flesh is sweet, delicate, white or redpurple, and contains numerous tiny black seeds. The fruit is non climacteric and has the best flavour when harvested at full maturity (Mizrahi *et al.,* 1997). Dragon fruit is rich in antioxidants like flavonoids, total phenols and betacyanin. These natural substances protect the cells from damage by free radicles-molecules that can lead to diseases like cancer and premature aging. Dragon fruit could also help lower your blood sugar.

Fruit-based drinks are far superior to many synthetic beverages and are being replaced by fruit beverages. It would be a boon to the consumers as well as fruit growers. Juice blending is one of the best methods to improve nutritional quality ofa juice. It can improve the vitamin and mineral contents depending upon the kind and quality of fruits and vegetables used (De Carvalho *et al.,* 2007) [4].

Ready-to-serve (RTS) beverages have been increasingly gaining popularity through out the country due to their health and nutritional benefits apart from providing pleasing flavour and taste. Fruit based RTS beverages and juices are not only rich in essential minerals, vitamins and other nutritive factors but also have a delicious and have a universal appeal (Manan *et al.,* 1992) [7]. The blending of fruit juices could be an economic prerequisite to utilize some minor fruits in processing which may not have favourable characters such as colour, aroma, mouth feel including overall cost for the preparation of processed products. It may also enhance the appearance, nutrition, flavour and also lead to a development of a new product.

## Material and Methods

Experiment was carried out at PG laboratory College of Horticulture, Rajendra Nagar, Sri Konda Laxman Telangana State Horticultural University, Ranga Reddy District of Telangana during the year 2021-2022. The experiment was laid out in Completely Randomized design consisted of ten treatments with three replications *i.e.* T1 : RTS prepared from Blend of 75% bael juice + 25% Black grape juice, T2: RTS prepared from Blend of 50% bael juice + 50% Black grape juice, T3: RTS prepared from Blend of 25% bael juice + 75% Black grape juice, T4: RTS prepared from Blend of 75% bael juice +25% dragon fruit juice, T5: RTS prepared from Blend of 50% bael juice +50% dragon fruit juice, T6: RTS prepared from Blend of 25% bael juice +75% dragon fruit juice, T7: RTS prepared from Blend of 75% bael juice +25% guava juice, T8: RTS prepared from Blend of 50% bael juice +50% guava juice, T9: RTS prepared from Blend of 25% bael juice +75% guava juice, T10: RTS prepared from 100% bael juice (control).

Fresh ripe fruits of bael were procured from Horticultural research station Konda Mallepally. Well ripened guava was collected from a farm in Mahbubnagar district, Grapes were procured from Grape research station, Rajendra nagar and dragon fruit were collected from Deccan exotics dragon fruit farm, Sanga Reddy.

To eliminate dirt and extraneous materials, the fruits were washed in running water. Inbael fruits the seed sacs were extracted using a stainless-steel knife after the fruits were broken with hammer. The weight of the edible portion was measured and mixed with an equal amount of water it was mixed together to get a thick slurry and was passed through a mesh to get a homogenous pulp. Grape pulp was produced by putting the cleaned fruits directly into a juice blender. Guava fruits were cleaned and fruits were lye peeled for 1.5 minutes in a 2 percent boiling NaOH solution, then chilled in cold water before being properly rinsed with running tap water to eliminate excess NaOH. Peeled fruits were chopped into small pieces, placed in ablender and ascorbic acid was added at a rate of 1000mg/kg of fruits to avoid browning. After blending the mixture was sieved through mesh and was strained through a double layered muslin cloth to get the pulp. Dragon fruits of uniform shape size and free from fractural damage were washed and crushed with the help of mixer for extraction of juice and juice was passed through double layered muslin cloth. The observations were recorded as suggested by Srivastava and Sanjeev Kumar (2002).

## Results and Discussion organoleptic evaluation Color

The data on organoleptic score for color of RTS prepared from bael blended fruit juices is shown in Table 1.

**Table 1:** Effect of bael blended RTS on changes in organoleptic score for colour during storage at room temperature.

| TREATMENTS | 0 | 15 | 30 | 45 | 60 | Mean |
|---|---|---|---|---|---|---|
| T1: RTS prepared from Blend of 75% Bael juice + 25% black grape juice | 7.74 | 7.65 | 7.56 | 7.48 | 7.4 | 7.56 |
| T2: RTS prepared from Blend of 50% Bael juice + 50% black grape juice | 8.09 | 8.08 | 8.070 | 8.00 | 7.93 | 8.03 |
| T3: RTS prepared from Blend of 25% Bael juice + 75% black grape juice | 8.18 | 8.15 | 8.12 | 8.01 | 7.88 | 8.07 |
| T4: RTS prepared from Blend of 75% Bael juice +25% dragon fruit juice | 7.9 | 7.73 | 7.68 | 7.29 | 7.12 | 7.54 |
| T5: RTS prepared from Blend of 50% Bael juice +50% dragon fruit juice | 7.65 | 7.45 | 7.25 | 7.08 | 6.68 | 7.22 |
| T6: RTS prepared from Blend of 25% Bael juice +75% dragon fruit juice | 7.64 | 7.42 | 7.13 | 6.91 | 6.32 | 7.08 |
| T7: RTS prepared from Blend of 75% Bael juice +25% guava juice | 7.64 | 7.58 | 7.36 | 6.85 | 6.61 | 7.21 |
| T8: RTS prepared from Blend of 50% Bael juice +50% guava juice | 7.30 | 7.17 | 7.07 | 6.82 | 6.31 | 6.93 |
| T9: RTS prepared from Blend of 25% Bael juice +75% guava juice | 6.99 | 6.97 | 6.67 | 6.31 | 5.41 | 6.47 |
| T10: RTS prepared from 100% Bael juice (control) | 7.64 | 7.56 | 7.47 | 7.37 | 7.27 | 7.46 |
| Mean | 7.67 | 7.57 | 7.44 | 7.21 | 6.89 | |
| S.Em ± | 0.009 | 0.009 | 0.008 | 0.007 | 0.006 | |
| CD at 5% | 0.028 | 0.028 | 0.023 | 0.021 | 0.018 | |

Among all the treatments, the RTS prepared from 25% bael juice + 75% grape juice (T3) recorded significantly the highest organoleptic score for colour (8.07) which was statistically on par with T2 (8.03). The treatments T1 (7.56) was on par with T4 (7.54) treatment, while T5 (7.22) and T7 (7.21) were on par with each other. The lowest organoleptic score for color (6.47) was recorded in RTS prepared from 25% bael juice + 75% guava juice (T9).

The organoleptic score for color of bael blended dragon fruit and guava RTS were decreased gradually with an increase in proportion of fruit juices in bael blended RTS beverages, whereas reverse trend was observed in bael-grape RTS. It could be due to more acidic nature of the pure dragon fruit and guava juices cause breakdown of polyphenolic compounds present in the pulp and also due to occurrence of rapid non-enzymatic reaction between sugars and amino acids leads to rapid discoloration of bael-dragon fruit and bael-guava RTS than bael-grape RTS. The decline in color of RTS beverage during storage period might be due to an increase in acidity, which enhances hydrolytic, Maillard reactions and caramelization leads to browning of the product. Polyphenolic compound present in fruit pulp also reacts with enzymes reduced the color of RTS beverages. The results are in conformity with the findings of Baljeet *et al.* (2013) [3] in whey-based pineapple and bottle gourd mixed herbal beverages.

**Taste**

The organoleptic score for taste of RTS prepared from bael blended fruit beverages showed significant differences among the treatments, storage period and the data tabulated is shown in Table 2.

**Table 2:** Effect of bael blended RTS on changes in organoleptic score for taste during storage at room temperature.

| Treatments | 0 | 15 | 30 | 45 | 60 | Mean |
|---|---|---|---|---|---|---|
| T1: RTS prepared from Blend of 75% Bael juice + 25% black grape juice | 7.50 | 7.39 | 7.29 | 7.19 | 7.1 | 7.29 |
| T2: RTS prepared from Blend of 50% Bael juice + 50% black grape juice | 7.87 | 7.75 | 7.65 | 7.57 | 7.47 | 7.66 |
| T3: RTS prepared from Blend of 25% Bael juice + 75% black grape juice | 8.20 | 8.11 | 8.06 | 8.01 | 7.96 | 8.07 |
| T4: RTS prepared from Blend of 75% Bael juice +25% dragon fruit juice | 7.68 | 7.49 | 7.45 | 7.25 | 7.05 | 7.38 |
| T5: RTS prepared from Blend of 50% Bael juice +50% dragon fruit juice | 7.45 | 7.15 | 6.91 | 6.74 | 6.54 | 6.96 |
| T6: RTS prepared from Blend of 25% Bael juice +75% dragon fruit juice | 7.43 | 7.05 | 6.77 | 6.72 | 6.40 | 6.87 |
| T7: RTS prepared from Blend of 75% Bael juice +25% guava juice | 7.53 | 7.00 | 6.96 | 6.75 | 6.38 | 6.92 |
| T8: RTS prepared from Blend of 50% Bael juice +50% guava juice | 7.2 | 6.92 | 6.98 | 6.79 | 6.60 | 6.90 |
| T9: RTS prepared from Blend of 25% Bael juice +75% guava juice | 6.97 | 6.70 | 6.51 | 6.39 | 6.25 | 6.56 |
| T10: RTS prepared from 100% Bael juice (control) | 7.77 | 7.67 | 7.59 | 7.51 | 7.44 | 7.59 |
| Mean | 7.56 | 7.32 | 7.22 | 7.09 | 6.92 | |
| S.Em ± | 0.005 | 0.005 | 0.006 | 0.005 | 0.009 | |
| CD at 5% | 0.016 | 0.015 | 0.018 | 0.017 | 0.027 | |

The organoleptic score for taste of RTS prepared from 25% bael juice + 75% grape juice blend(T3) was found to be highest (8.07) followed by T2 (7.66) and T10 (7.59) treatments, whereas the treatments T7 (6.92) and T8 (6.90), were on par with each other. The organoleptic score fortaste of (6.56) RTS prepared from 25% bael juice + 75% guava juice (T9) was found to be low.

The organoleptic score for taste of RTS prepared from bael blended fruit beverages was significantly decreased from 7.56 (initial day of preparation) to 6.92 (at 60days after storage).

The organoleptic score for taste of bael-dragon fruit and bael-guava RTS were decreased with an increasing proportion of dragon fruit and guava juices, whereas bael-grape RTS beverage showed an increasing trend. It could be due to presence of more TSS in bael-grape RTS, which were converted into reducing sugars by acid hydrolysis and also due to inversion of non- reducing sugars into reducing sugars there by the taste of bael-grape RTS increased than bael-dragon fruit and bael-guava RTS beverages. The decline in taste of RTS beverages might be due to change in the biochemical reactions during storage. The present results were similar to the findings of Gaikwad *et al.* (2013) [5] in Aonla-ginger beverage.

**Flavor**

The organoleptic score for flavor of bael blended RTS beverages showed significant difference among the treatments, storage period and the tabulated data is shown in Table 3.

**Table 3:** Effect of bael blended RTS on changes in organoleptic score for flavor during storage at room temperature.

| TREATMENTS | 0 | 15 | 30 | 45 | 60 | Mean |
|---|---|---|---|---|---|---|
| T1: RTS prepared from Blend of 75% Bael juice + 25% black grape juice | 7.13 | 7.05 | 6.96 | 6.84 | 6.74 | 6.94 |
| T2: RTS prepared from Blend of 50% Bael juice + 50% black grape juice | 7.29 | 7.20 | 7.10 | 6.98 | 6.86 | 7.09 |
| T3: RTS prepared from Blend of 25% Bael juice + 75% black grape juice | 8.54 | 8.42 | 8.31 | 8.12 | 7.95 | 8.27 |
| T4: RTS prepared from Blend of 75% Bael juice +25% dragon fruit juice | 7.72 | 7.66 | 7.58 | 7.38 | 7.28 | 7.52 |
| T5: RTS prepared from Blend of 50% Bael juice +50% dragon fruit juice | 7.64 | 7.54 | 7.45 | 7.32 | 7.24 | 7.44 |
| T6: RTS prepared from Blend of 25% Bael juice +75% dragon fruit juice | 7.13 | 7.04 | 6.95 | 6.83 | 6.68 | 6.93 |
| T7: RTS prepared from Blend of 75% Bael juice +25% guava juice | 7.95 | 7.63 | 7.52 | 7.31 | 7 | 7.48 |
| T8: RTS prepared from Blend of 50% Bael juice +50% guava juice | 7.63 | 7.42 | 7.07 | 6.70 | 6.41 | 7.04 |
| T9: RTS prepared from Blend of 25% Bael juice +75% guava juice | 7.48 | 7.35 | 6.93 | 6.69 | 6.34 | 6.96 |
| T10: RTS prepared from 100% Bael juice (control) | 8.14 | 8.06 | 7.97 | 7.78 | 7.59 | 7.91 |
| Mean | 7.66 | 7.54 | 7.38 | 7.19 | 7.01 | |
| S.Em ± | 0.007 | 0.006 | 0.005 | 0.007 | 0.006 | |
| CD at 5% | 0.022 | 0.019 | 0.017 | 0.022 | 0.019 | |

The highest organoleptic score for flavor (8.27) was recorded by the RTS prepared from 25% bael juice + 75% grape juice (T3) followed by T10 (7.91), T4 (7.52) and T7 (7.48) treatments. The lowest score for flavor (6.93) was recorded by the RTS prepared from 25% bael juice + 75% dragon fruit juice (T6).

The organoleptic score for flavor of RTS beverage prepared from bael blended fruit juices was decreased gradually from 7.66 (at initial day of preparation) to 7.01(at 60 days of storage).

The organoleptic score for flavor of bael-dragon fruit RTS and bael-guava RTS were decreased with an increased proportion of dragon fruit and guava juices, whereas the bael-grape RTS beverage showed an increasing trend with an increase in proportion of grape juice. It could be attributed due to rapid loss of volatile aromatic compounds in bael-dragon fruit and bael-guava RTS. The flavor of the RTS beverage was also changed due to change in the color of the product. Jakhar *et al.* (2013) reported that certain bio-chemical changes and discoloration (browning) of the product masked the original flavor of the product. The decrease in organoleptic score for flavor of RTS beverage during storage might be due to loss of highly volatile aromatic compounds, which are very sensitive to high storage temperatures. Similar results were reported by Gaikwad *et al.* (2013) [5] in aonla-ginger beverage, Balaji and Prasad (2014) in kinnow-aonla blended RTS beverages.

**Overall acceptability**

The organoleptic score for overall acceptability of RTS beverage showed significant differences among the treatments, storage period and the data tabulated is shown in Table 4.

**Table 4:** Effect of bael blended RTS on changes in organoleptic score for overall acceptability during storage at room temperature.

| Treatments | 0 | 15 | 30 | 45 | 60 | Mean |
|---|---|---|---|---|---|---|
| T1: RTS prepared from Blend of 75% Bael juice + 25% black grape juice | 7.63 | 7.53 | 7.37 | 7.33 | 7.23 | 7.42 |
| T2: RTS prepared from Blend of 50% Bael juice + 50% black grape juice | 7.97 | 7.91 | 7.82 | 7.67 | 7.54 | 7.78 |
| T3: RTS prepared from Blend of 25% Bael juice + 75% black grape juice | 8.41 | 8.35 | 8.3 | 8.13 | 7.99 | 8.23 |
| T4: RTS prepared from Blend of 75% Bael juice +25% dragon fruit juice | 8.02 | 7.74 | 7.53 | 7.28 | 7.1 | 7.53 |
| T5: RTS prepared from Blend of 50% Bael juice +50% dragon fruit juice | 7.77 | 7.65 | 7.45 | 7.07 | 7.03 | 7.39 |
| T6: RTS prepared from Blend of 25% Bael juice +75% dragon fruit juice | 7.45 | 7.37 | 7.12 | 6.78 | 6.48 | 7.04 |
| T7: RTS prepared from Blend of 75% Bael juice +25% guava juice | 8.04 | 7.73 | 7.63 | 7.37 | 7.02 | 7.56 |
| T8: RTS prepared from Blend of 50% Bael juice +50% guava juice | 7.60 | 7.46 | 7.06 | 6.78 | 6.44 | 7.07 |
| T9: RTS prepared from Blend of 25% Bael juice +75% guava juice | 7.40 | 7.2 | 7.03 | 6.72 | 6.34 | 6.94 |
| T10: RTS prepared from 100% Bael juice (control) | 7.85 | 7.61 | 7.59 | 7.42 | 7.26 | 7.55 |
| Mean | 7.81 | 7.66 | 7.49 | 7.25 | 7.04 | |
| S.Em ± | 0.006 | 0.006 | 0.008 | 0.007 | 0.005 | |
| CD at 5% | 0.019 | 0.020 | 0.025 | 0.021 | 0.016 | |

Among different treatments, the RTS beverage prepared from 25% bael juice + 75% grape juice (T3) recorded significantly the highest organoleptic score for overall acceptability (8.23) followed by T2 (7.78), T10 (7.55), T7 (7.56), T4 (7.53), T1 (7.42) and T5 (7.39) treatments, whereas the lowest organoleptic score for overall acceptability (6.94) was recorded in RTS prepared from 25% bael juice + 75% guava juice (T9).

The organoleptic score for overall acceptability of bael blended RTS beverage was gradually decreased from 7.81 (at initial day of preparation) to 7.04 (at 60 days after storage).

Biochemical changes occurred during storage of RTS beverage might have led to the formation of undesirable color's, flavor's, taste and poor acceptability of the products finally lead to a decrease in organoleptic score for overall acceptability of the product.

The loss in organoleptic quality or storage stability of the product after certain period was obvious. Temperature plays an important role in inducing certain biochemical changes in the product, lead to the formation of off- flavors and discoloration thus masking the original taste, flavor and color of the product. Similar results were reported by Sharma *et al.* (2008) in guava-papaya RTS, Das (2009) in jamun RTS and Punam *et al.* (2009) in bael-mango RTS.

**Benefit cost ratio**

The data tabulated for benefit cost ratio is shown in Table 5.

**Table 5:** Benefit Cost ratio obtained per 1000 ml of RTS prepared from Bael blended juices in different treatments.

| Treatments | Cost incurred for 1000ml RTS | Estimated price for 1000ml RTS | Net-benefit | Benefit Cost ratio |
|---|---|---|---|---|
| T1: RTS prepared from Blend of 75% Bael juice + 25% black grape juice | 28.67 | 75 | 46.33 | 2.61 |
| T2: RTS prepared from Blend of 50% Bael juice + 50% black grape juice | 28.55 | 85 | 56.45 | 2.97 |
| T3: RTS prepared from Blend of 25% Bael juice + 75% black grape juice | 28.92 | 95 | 66.08 | 3.28 |
| T4: RTS prepared from Blend of 75% Bael juice +25% dragon fruit juice | 27.92 | 70 | 42.08 | 2.50 |
| T5: RTS prepared from Blend of 50% Bael juice +50% dragon fruit juice | 28.05 | 75 | 46.95 | 2.67 |
| T6: RTS prepared from Blend of 25% Bael juice +75% dragon fruit juice | 28.17 | 80 | 51.83 | 2.83 |
| T7: RTS prepared from Blend of 75% Bael juice +25% guava juice | 27.10 | 66 | 38.90 | 2.43 |
| T8: RTS prepared from Blend of 50% Bael juice +50% guava juice | 26.42 | 68 | 41.58 | 2.57 |
| T9: RTS prepared from Blend of 25% Bael juice +75% guava juice | 25.73 | 71 | 45.27 | 2.75 |
| T10: RTS prepared from 100% Bael juice (control) | 27.80 | 65 | 37.20 | 2.33 |

Benefit-cost ratios were worked out for different treatments, by taking base price per 1000ml of bael RTS as 65, grape RTS as 105, pineapple RTS as 85 and guava RTS as 74. By taking above price into consideration, the cost of RTS prepared from different blends was worked out and net benefit was calculated. The highest net benefit (66.08) was obtained in RTS prepared from 25% bael juice + 75% grape juice (T3) followed by 50% bael juice+ 50% grape juice (T2) (56.45) and the lowest net benefit was obtained by RTS prepared from 100% bael juice (T10) (27.20) and the net benefits obtained by RTS prepared from other blends were found to be intermediate. The highest benefit cost ratio of (3.28:1) was recorded by the RTS prepared from 25% bael juice + 75% grape juice (T3) followed by RTS prepared from 50%bael juice + 50% grape juice (T2) (2.97:1) and the lowest benefit cost ratio was recorded by the RTS prepared from 100% bael juice (T10) alone (2.33:1).

## Conclusion
From the present investigation, it can be concluded that the RTS prepared from 25% bael juice + 75% grape juice was accepted as the best throughout the storage period with respect to organoleptic evaluation and benefit cost parameters and it was adjudged with the best organoleptic score.

## Future scope
The juice blends used can also be utilized for making other value-added products like nectar, jam, jelly, candies etc.

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**Conflict of interest:** None

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