Process Standardization for Fruit Based Chakka Desserts

D. Josha\textsuperscript{a}, A. Padmaja\textsuperscript{a}, P. Aravindakshan\textsuperscript{b}, C.N. Pagote\textsuperscript{b}, and K. Jayaraj Rao\textsuperscript{b}\textsuperscript{c}

\textsuperscript{a}Dept of Food Technology, Oil Technological Research Institute, Anantapuramu, India; \textsuperscript{b}Dairy Technology Section, National Dairy Research Institute (Southern Regional Station), Bengaluru, India

\textbf{ABSTRACT}

\textit{Chakka} is a sour product obtained by draining off whey from fermented milk (Dahi, known as Indian yogurt). In this work, a process was developed for the preparation of desserts using \textit{chakka}. Four fruits considered to have good health benefits have been used, namely kiwi (\textit{Actinidia deliciosa}), fig (\textit{Ficus carica}), star fruit (\textit{Averrhoa carambola}) and blueberry (\textit{Vaccinium myrtillus}). The pulp from these fruits was extracted and sweetened with sugar in 1:1.3 optimized ratio. The sweetened pulps were in turn incorporated into \textit{chakka} @ 15:50, 25:50 and 35:50 to prepare fruit-based \textit{chakka} desserts. Based on sensory analysis, the desserts recommended to be consumed after a meal, had a shelf life of 10 days at 5°C. Kiwi fruit was not found suitable for the \textit{chakka} dessert preparation.

\textbf{KEYWORDS}

\textit{Chakka}; yogurt; fig fruits; star fruit; blueberries; sugar; shelf life

\textbf{Introduction}

Dahi, also known as Indian yogurt, is the most popular fermented dairy product in the Indian subcontinent and consumed by most of the people almost every day and with each meal. Dahi is reported to possess health beneficial properties (Vijayendra and Gupta, 2013) and hence, used in several Ayurvedic formulations (traditional Indian medicinal system) (Babu and Warrier, 2009; Devi, 2010). The huge market of dahi in the subcontinent is being tapped by most of the organized sector dairies. It is estimated that 6.9% of total milk produced in India (about 187 million tons) (Anonymous, 2019) is utilized for dahi production (Khurana and Kanawjia, 2007). Still a large portion of market remains to be explored for dahi market. Dahi is also used as a vehicle to incorporate probiotics into alimentary system of health conscious consumers because of the fact that it is consumed by people daily. Varieties of dahi, like fruit dahi, have also been developed for the benefit of consumers. While dahi is consumed mostly as plain variety, it is also used to prepare other products such as \textit{chakka}. \textit{Chakka} is a semi-solid product obtained by partially draining off whey from dahi. It is akin to plain variety of Greek yogurt. In India, \textit{chakka} is mainly used as the base material for preparation of a sweet tasting fermented product namely, shrikhand and other related products. \textit{Chakka} is sour in taste with acidity of 0.7 to 1% (lactic acid). It has superior nutritional quality as a good source of calcium, vitamins and other minerals as well as proteins, and carries all the health benefits that dahi possesses (Sarkar, 2008). It was reported that protein efficiency ratio (PER) value of \textit{chakka} was higher than that of pure casein (Choudhary and Atreja, 1986). The nutritional status of the \textit{chakka} can further be enhanced by incorporation of certain rare fruits like kiwi (\textit{Actinidia deliciosa}), fig (\textit{Ficus carica}), star (\textit{Averrhoa carambola}) and blueberry (\textit{Vaccinium myrtillus}).

As these fruits have rich content of dietary fiber, their pulp helps in ameliorating digestion-related problems. Also, the fruits have the abundant vitamins and mineral contents. Further, many health benefits have been attributed to these fruits. The ripe star fruit has digestive and biliousness properties. It is also a good source of vitamin C and used to treat headache, vomiting, coughing, hangovers, and

\textbf{CONTACT}

K. Jayaraj Rao\textsuperscript{b} \texttt{jaysharm@yahoo.com} \textsuperscript{b}Dairy Technology Section, ICAR-National Dairy Research Institute (Southern Regional Station), Adugodi Bengaluru - 560 030, India

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eczemas (Singh et al., 2014). Fig fruits are fat and cholesterol-free and contain a high number of amino acids. They are rich in various biologically active compounds, such as phenolics that are responsible for most of the antioxidant activity of this fruit (Ercisli et al., 2012). Vinson et al. (2005) reported that fig antioxidants could protect lipoproteins in plasma from oxidation and induce a significant increase in the antioxidant capacity of plasma 4 hours after consumption. The other health benefits of figs include treatment of constipation, indigestion, piles, diabetes, cough, bronchitis and asthma. Berries, especially blueberry, are touted as rich sources of anthocyanins, which are antioxidants reducing risk of heart disease and cancer (Julie et al., 2005). Studies have found that blueberries may help diminish body fat, which is their good attribute since having too much body fat has been linked to conditions like heart disease and diabetes. Many health benefits were recorded with kiwi fruit as well, like prevention of wheezing and coughing, especially in children. Other beneficial activities of kiwi fruit are anti-inflammatory, improving gastrointestinal tract and cardiovascular health, anticancer and antimicrobial actions (Singletary, 2012).

Chakka is utilized in a number of products mainly shrikhand manufacture (Patel and Chakraborty, 1988). It was also used in the preparation of dairy spreads as reported by Reddy et al. (2000) and Zanjad et al. (2008). Bardale et al. (1987) worked on the preparation of shrikhand like product from skim milk chakka by fortifying with fruit pulps (apple, mango or papaya). Vagdalkar et al. (2002) reported a study on the preparation of shrikhand using cocoa powder and papaya pulp. Sonawane et al. (2007) reported the effect of addition of different levels of strawberry pulp and sugar on chemical composition of shrikhand during storage. In another study by Nigam et al. (2009), shrikhand was prepared using papaya pulp incorporated into chakka to increase the nutritional quality and overall acceptability. These works make the case stronger for mixing of fruits and dairy ingredients from health point of view. In this regard, several works are being conducted with increasing interest. In this study, it was planned to incorporate fruit pulps from four healthy fruits viz. fig, star, blueberry and kiwi, into chakka for the preparation of fruit-based chakka desserts. This is a novel approach to provide consumers healthy desserts made up of fermented milk solids and sweetened fruit pulps.

Materials and Methods

Materials

The fresh raw milk was obtained from Institute’s Cattle Yard, and it was standardized to 3.5% fat and 8.5% Solids-Not-Fat (SNF). Four types of fruits namely fig (Ficus carica), star (Averrhoa carambola), blueberry (Vaccinium myrtillus) and kiwi (Actinidia deliciosa) were purchased from the local fruit market. The fruits were selected based on size, color, and level of maturity. Fully mature, slightly soft, purple colored figs of size 1.5–2 inch were selected. Kiwi fruits purchased were oval, slightly soft, but firm and of greenish brown color. Ripe star fruits of 3–4 inch size with yellowish green were chosen for use in the study. Since fresh blueberry was not available in the market, canned blueberry (Oregan brand) was used in the trials. Crystalline sugar obtained from the market was used as one of the ingredients in the preparation of chakka desserts.

Preparation of Chakka

Milk was boiled without holding and cooled under environmental conditions. It was inoculated with 0.5–1% dahi starter culture (NCDC No. LF-40, which was procured from National Collection of Dairy Cultures, National Dairy Research Institute, Karnal, India), mixed and incubated at 30°C in an incubator (Apollo Scientific, Bangalore, India) for 14–16 h. The curd obtained was slowly transferred to a muslin cloth (single layer) and hung inside cold room overnight. The whey from the curd was drained off and the firm coagulum i.e. chakka obtained was used for further trials, as base material.
**Preparation of Sweetened Fruit Pulp**

All the fruits except canned blueberry were soaked in 1% salt solution for about 15 min and washed under running potable water, and peel was removed manually using a peeler. The fruits were cut into pieces with a knife and blanched in water at 75°C for 5 min, cooled and mixed with sugar. The blanched fruit pulp (100 g) was mixed with sugar in three ratios: 1:1.3, 1:1.6 and 1:1.7. These ratios were determined based on some preliminary trials. The mixture was allowed to stand for 15 min and transferred to a mixer in which it was mechanically mixed into a fine pulp. In the case of canned blueberry, the can was carefully opened using a tin opener, and the fruit was transferred to a container. The fruit was drained and mixed with sugar and proceeded with preparation of pulp as above.

**Incorporation of Sweetened Fruit Pulp into Chakka**

About 50 g of chakka was taken in each of three glass bowls and calculated quantity of fruit pulp-sugar mixture was added and mixed thoroughly using a spatula till a smooth consistency was achieved. The fruit pulp mixture was added at three levels: 30%, 50%, and 70% on chakka basis.

**Evaluation of Chakka Deserts**

The chakka desserts were evaluated for sensory acceptance, physico-chemicals (protein, fat, ash, moisture, pH and acidity) and textural parameters (firmness and consistency) by standard methods.

**Storage Study**

The chakka dessert was packaged in polystyrene cups and stored at 5–7°C in a refrigerator (Samsung India Electronics Pvt Ltd., Chennai, India) and changes in sensory acceptance were recorded at two-day intervals.

**Methods of Analysis**

**Chemical**

Acidity (BIS, 1981), moisture (AOAC, 2005), fat (BIS, 1981), protein (AOAC, 2005) and ash (BIS, 1981) contents were estimated by standard methods. pH of the product was determined by digital pH meter (Make: Digisun).

**Textural**

The Texture Analyzer (Stable Microsystems, U.K.) was used to evaluate the firmness and consistency index of the desserts. The test was performed with a 25 mm diameter aluminum cylindrical probe. The product was taken in a 100 ml-capacity polystyrene cup and placed on the instrument platform. The probe was allowed to penetrate at a speed of 2 mm/sec up to a depth of 10 mm and allowed to withdraw. During the process, a force – time curve was generated (Figure 1). The maximum force at the positive peak was noted and expressed as firmness (i.e., the force required to penetrate the probe to

![Figure 1. Typical Force-time curve of chakka dessert obtained during testing by Texture Analyzer.](image-url)
10 mm distance into the sample) in terms of Newtons (N). Consistency (i.e. work done during the travel of the probe) was determined by calculating the area under the positive peak of the curve in terms of N-sec (Paul et al., 2016).

**Sensory Evaluation**

The sensory acceptance of chakka desserts was assessed at Dairy Technology Section, NDRI Bengaluru. The samples were evaluated by 6–8 semi-trained panelists who were well versed with the fruit incorporated fermented products, within the age group of 25–55 years. Some of the characteristics looked into in the profile of tasters were good health, appetite, concentration, at least medium sensitivity and the ability of reproducing the results and, mainly, good will (Silva et al., 2019). Only such persons in the above age group were chosen as panelists. The four chakka dessert samples were served in 100 ml glass containers and presented under ambient light. The panelists evaluated the samples with regard to color and appearance, flavor, body and texture and overall acceptance on a 9-point Hedonic scale (Silva et al., 2019) ranging from 1 (dislike extremely) to 9 (like extremely) indicating how much they liked or disliked the samples of chakka desserts. The details are: 1- dislike extremely, 2-dislike very much, 3- dislike moderately, 4-dislike slightly, 5-nether like nor dislike, 6-like slightly, 7-like moderately, 8-like very much and 9-like extremely.

**Statistical Analysis**

The results of sensory acceptance test of chakka desserts were obtained using completely randomized design (CRD) in triplicate with three replicates for all analyses and submitted to analysis of variance (ANOVA) and Tukey’s test with significance level of 5% using MS-Excel package version-2007. Critical difference (CD_{0.05}) was also computed and presented. Critical difference is the minimum difference between any two treatment mean values greater than which means that the two treatments are significantly different at \(P < .05\). This value was used to indicate the statistical difference between treatments by means of lower case superscripts.

**Results and Discussion**

**Optimization of Fruit Pulp: Sugar Ratio**

The fruit pulps vary in their natural sweetness and possess much less sweetness than the final intended product. Hence, the pulps need to be diffused with sugar so that the final product containing them will have a uniform sweetness. The fruit pulps (100 g each) were mixed with sugar in three different ratios as shown in Table 1 (1:1.3, 1:1.6 and 1:1.7) and admixed with chakka @ 30%. The dessert so prepared was evaluated sensorily in order to determine optimum fruit-pulp – sugar ratio. It may be noted from Table 1 that as the sugar content in the mixture increased, scores for all the sensory attributes except body and texture decreased in case of fig fruit pulp. The fruit pulps imparted natural color to the product. In the case of body and texture, panelists did not mind variations as shown by statistical non-significance. However, with star fruit and blueberry, increased sugar level decreased the body and texture score because of more dilution of the pulp. Based on the sensory scores and their statistical analysis, the fruit pulp: sugar ratio of 1:1.3 was optimized as the best possible combination to be used for the preparation of chakka desserts. Though there is a study that apple and banana pulps could be used in yogurt without addition of any sweetening agent (Mahmood et al., 2008), in the industry, it is common practice to mix fruit pulp with sweetener before incorporating it into yogurt. McGregor and White (1986) used blueberry flavoring containing sweetener in 1:1 ratio for incorporation in yogurt. Kiwi fruit pulp: sugar 70:28 was used by Tarakci (2010) in the preparation of fruit yogurt. Incorporation of sweetened pulp into yogurt imparts uniform sweetness to final stirred yogurt (chakka desserts in the present study), otherwise there will be portions with less sweetness and some portions in yogurt with more sweetness.
Optimization of Chakka: Sweetened Fruit Pulp Ratio

The desserts were prepared by mixing chakka and sweetened fruit pulps at three levels, 30, 50, and 70% based on chakka quantity. The desserts so prepared were evaluated for sensory acceptance on nine-point Hedonic scale. From the scores presented in Table 2, it may be observed that as the sweetened fruit pulp content increased, there was increase in the scores of all sensory attributes. The highest acceptability was recorded at highest level of sweetened pulp incorporation. i.e. 70%. Hence, it was recommended that the sweetened pulps be added @ 70% on chakka bbasis, i.e., 70 g sweetened pulp for every 100 g chakka. The use of higher amounts of sweetened pulp (more than 70%) did not enhance the acceptance and diluted the chakka taste (score not presented). All the three fruit pulps imparted natural color to the desserts and, because of mixing, the body became smooth and silky, which imparted consumer appeal to the products. Different workers used different fruit pulp levels in yogurt, but generally it varies from 15-18%(Chandan et al., 2017). Roy et al. (2015) used 5–20% of fruit pulps of papaya, banana, and water melon in the preparation of stirred fruit yogurt. El-Khoury et al. (2014) used 25% of strawberry pulp blend and Huma et al. (2003) used 21% of sweetened apple pulp in

Table 1. Effect of fruit pulp: sugar ratio on sensory score* of fruit based chakka dessert.

| Sensory attributes                  | Fig fruit pulp: Sugar | CD_{0.05} |
|------------------------------------|-----------------------|-----------|
|                                     | 1:1.7: 1:1.6: 1:1.3   |           |
| (a) Fig                            |                       |           |
| Color and appearance               | 7.20 ± 0.18^a 7.45 ± 0.22^b 7.53 ± 0.23^b | 0.17      |
| Flavor                             | 7.20 ± 0.18^a 7.45 ± 0.23^b 7.53 ± 0.23^b | 0.15      |
| Body and texture                   | 7.40 ± 0.23^a 7.55 ± 0.26^b 7.60 ± 0.25^b | -         |
| Overall acceptability              | 7.15 ± 0.17^a 7.28 ± 0.19^b 7.43 ± 0.22^b | 0.14      |
| (b) Star fruit                     |                       |           |
| Color and appearance               | 7.28 ± 0.20^a 7.45 ± 0.25^a 7.55 ± 0.26^a | -         |
| Flavor                             | 7.10 ± 0.16^a 7.30 ± 0.18^b 7.40 ± 0.20^b | 0.17      |
| Body and texture                   | 7.30 ± 0.18^a 7.40 ± 0.20^b 7.60 ± 0.25^b | 0.17      |
| Overall acceptability              | 6.92 ± 0.13^a 7.05 ± 0.16^a 7.35 ± 0.18^a | 0.15      |
| (c) Blueberry                      |                       |           |
| Color and appearance               | 7.28 ± 0.22^a 7.45 ± 0.24^a 7.55 ± 0.24^a | -         |
| Flavor                             | 7.17 ± 0.18^a 7.32 ± 0.18^b 7.42 ± 0.21^b | 0.17      |
| Body and texture                   | 7.35 ± 0.18^a 7.47 ± 0.23^b 7.60 ± 0.25^b | 0.17      |
| Overall acceptability              | 7.20 ± 0.17^a 7.38 ± 0.20^b 7.53 ± 0.24^a | 0.13      |

* On 9-point Hedonic scale; CD – Critical Difference; Values with different superscripts in a row are significantly different (P < .05).

Table 2. Effect of chakka: sweetened pulp ratio on sensory score* of fruit based chakka dessert.

| Sensory attributes                  | Chakka: Sweetened fig pulp | CD_{0.05} |
|------------------------------------|----------------------------|-----------|
|                                     | 50:15: 50:25: 50:35:        |           |
| (a) Fig                            |                           |           |
| Color and appearance               | 6.97 ± 0.14^a             | 7.10 ± 0.16^a | 7.20 ± 0.18^b | 0.20      |
| Flavor                             | 7.00 ± 0.15^a             | 7.20 ± 0.18^ab | 7.50 ± 0.24^b | 0.25      |
| Body and texture                   | 7.00 ± 0.15^a             | 7.20 ± 0.18^ab | 7.30 ± 0.18^b | 0.25      |
| Overall acceptability              | 7.00 ± 0.16^a             | 7.15 ± 0.17^a | 7.50 ± 0.24^b | 0.25      |
| (b) Star fruit                     |                           |           |
| Color and appearance               | 6.80 ± 0.12^a             | 6.90 ± 0.13^ab | 7.10 ± 0.16^b | 0.17      |
| Flavor                             | 6.80 ± 0.13^a             | 7.10 ± 0.16^b | 7.20 ± 0.18^b | 0.13      |
| Body and texture                   | 6.90 ± 0.13^a             | 7.10 ± 0.16^b | 7.20 ± 0.18^c | 0.042     |
| Overall acceptability              | 6.70 ± 0.10^a             | 6.90 ± 0.15^b | 7.10 ± 0.15^c | 0.17      |
| (c) Blueberry                      |                           |           |
| Color and appearance               | 7.00 ± 0.15^a             | 7.15 ± 0.14^b | 7.25 ± 0.19^b | 0.14      |
| Flavor                             | 7.20 ± 0.20^a             | 7.40 ± 0.20^a | 7.53 ± 0.25^a | -         |
| Body and texture                   | 7.00 ± 0.14^a             | 7.15 ± 0.15^a | 7.33 ± 0.20^b | 0.17      |
| Overall acceptability              | 7.02 ± 0.15^a             | 7.25 ± 0.19^b | 7.50 ± 0.23^c | 0.14      |

* On 9-point Hedonic scale; CD – Critical Difference; Values with different superscripts in a row are significantly different (P < .05).
yogurt. But, in Greek style yogurt, only 2% of pequi fruit (*Caryocar brasiliense*) pulp was used by Silva et al. (2014), probably because of intense flavor of the fruit. Thus, the level of incorporation depends on the natural intensity of flavor. In the case of mildly flavored fruit, synthetic flavors may have to be added to bring up the flavor intensity to the desired level. However, the use of synthetic flavor was not necessary with the type of fruits used in the present study.

**Kiwi Fruit Flavored Chakka Desserts**

Without blanching: Kiwi fruits were washed under running potable water and peel was removed using a peeler. The fruits were cut into pieces with a knife and mixed with sugar. The sugar was mixed in three ratios: 1:1.7, 1:1.6 and 1:1.3. The mixture was allowed to stand for 15 min and transferred to a mixer in which it was mechanically mixed into a fine pulp. It was mixed well with chakka to get a good consistency.

With blanching: The fruit pulp was taken in a container, water was added and heated to about 70–75°C for blanching. The fruit was then cooled and used for dessert making. However, kiwi fruit was not recommended for the preparation of chakka desserts because it resulted in bitter taste both with blanching and without blanching of the fruit pulp. Farahat and El-Batawy (2013) also observed that kiwi fruit pulp was not suitable for the preparation of stirred yogurt because of proteolytic activity resulting in bitterness.

**Textural Characterization of Chakka Desserts**

In all the three desserts, the textural values increased as the sweetened pulp content increased. The firmness increased and the consistency enhanced as seen by the values presented in Table 3. Since the fruit pulps contain fiber, they might have contributed to the improvement in body of the desserts. The firmness of all the dessert samples varied from 0.06–0.092 N and consistency from 0.187–0.392 N.sec. The values of firmness and consistency also showed that the star fruit *chakka* dessert was slightly firmer than other two types of dessert. However, the consistency of the final product depends on the *chakka* quality which in turn depends on several factors including heat treatment of milk and pH of dahi from which *chakka* is prepared (Giram, 1992; Rani et al., 2012).

**Optimized Process of Preparation of Chakka Desserts**

The optimized process of preparation of fruit flavored *chakka* desserts is given in Figure 2.

| Table 3. Textural characteristics of fruit based *chakka* dessert. |
|---------------------------------------------------------------|
| **Chakka**: sweetened fig pulp                                  |
| Textural attributes                                           | 50:15 | 50:25 | 50:35 |
| (a) *Fig*                                                      |       |       |       |
| Firmness, N                                                   | 0.080 | 0.086 | 0.092 |
| Consistency, N.sec                                            | 0.187 | 0.253 | 0.279 |
| (b) *Star fruit*                                              |       |       |       |
| Firmness, N                                                   | 0.060 | 0.073 | 0.079 |
| Consistency, N.sec                                            | 0.210 | 0.357 | 0.392 |
| (c) *Blueberry*                                               |       |       |       |
| Firmness, N                                                   | 0.069 | 0.076 | 0.079 |
| Consistency, N.sec                                            | 0.191 | 0.243 | 0.285 |
Figure 2. Flow chart for the preparation of fruit flavored chakka dessert.

Table 4. Composition of fruit flavored chakka desserts.

| Particulars     | Fig fruit-dessert | Star fruit-dessert | Blueberry-dessert |
|-----------------|-------------------|--------------------|-------------------|
| Fat, %          | 2.3               | 2.1                | 2.2               |
| Ash, %          | 0.50              | 0.40               | 0.44              |
| Moisture, %     | 50.0              | 52.0               | 66.7              |
| Protein, %      | 8.1               | 10.6               | 5.1               |
| pH              | 4.8               | 4.2                | 3.0               |
| Acidity, % Lactic acid | 1.0         | 1.3                | 1.1               |

Composition of Fruit Flavored Chakka Desserts

The three varieties of desserts are low in fat content and moderate in the contents of other nutrients (Table 4). This is due to dilution effect of incorporation of sweetened fruit pulps, which was also reported by Nigam et al. (2009) in the case of papaya pulp added shrikhand.

Storage Study

The chakka desserts are intended for consumption after meal by consumers. Hence, it is expected to be stored by consumers at household levels in refrigerators or under cold conditions. Hence, shelf life of the desserts was evaluated at 5°C. The products were packed in 100 ml polystyrene cups and stored in refrigerator at 5°C. Samples were drawn at regular intervals of 2 days and evaluated for quality. The scores obtained by the products during storage are presented in Table 5. It was observed from the sensory results that as storage period progressed, the sensory scores decreased up to 10 days and thereafter samples got spoiled. The main changes observed were with respect to flavor which became sour and yeasty toward the end of the storage period in all the samples irrespective of the fruit variety. The initial flavor score varied from 6.8 in star fruit flavored product to 7.6 in blueberry flavored dessert. This decreased to 6.0 in star fruit dessert to 6.8 in blueberry flavored dessert. The score of all other attributes also decreased, but were within the acceptable range. From the results, it was concluded that the chakka desserts could be kept well for about 10 days at 5°C. Thereafter, the products developed undesirable sour and yeasty flavor. This can be attributed to the growth of yeast and mold in the product. The growth of these organisms is expected to take place in the product because the prevailing low pH condition of the desserts is optimum for their growth. The presence of fruit pulps also probably favored the growth of yeast and mold (Frazier and Westhoff, 1978). Al-Otaibi and El Demerdash (2008) reported a shelf life of 7 days and Al-Kadamany et al. (2003) observed
Table 5. Changes in sensory score* of chakka desserts during storage at 5°C.

| Sensory attributes       | Storage period, days |
|--------------------------|----------------------|
|                          | 0        | 2        | 4        | 8        | 10       |
| (a) Fig                  |          |          |          |          |          |
| Color and appearance     | 6.80     | 6.70     | 6.50     | 6.30     | 6.30     |
| Flavor                   | 7.20     | 7.00     | 6.80     | 6.50     | 6.30     |
| Body and texture         | 7.00     | 7.20     | 7.40     | 7.50     | 7.70     |
| Overall acceptability    | 7.00     | 6.90     | 6.70     | 6.50     | 6.50     |
| (b) Star fruit           |          |          |          |          |          |
| Color and appearance     | 6.90     | 6.70     | 6.60     | 6.50     | 6.40     |
| Flavor                   | 6.80     | 6.70     | 6.50     | 6.30     | 6.00     |
| Body and texture         | 6.70     | 6.80     | 6.90     | 7.00     | 7.20     |
| Overall acceptability    | 6.90     | 6.70     | 6.70     | 6.50     | 6.50     |
| (c) Blueberry            |          |          |          |          |          |
| Color and appearance     | 7.70     | 7.50     | 7.20     | 7.00     | 6.90     |
| Flavor                   | 7.60     | 7.30     | 7.10     | 7.00     | 6.80     |
| Body and texture         | 7.30     | 7.50     | 7.60     | 7.80     | 7.90     |
| Overall acceptability    | 7.20     | 7.00     | 6.80     | 6.70     | 6.50     |

* -on 9-point Hedonic scale.

19 days at 5°C for concentrated yogurt (labneh) who attributed spoilage of the product to yeasts and molds, as is the case in the present study.

Conclusion

The present study showed that fruit pulps could be admixed with sour dairy product like chakka and well-accepted products can be prepared, which can be consumed as desserts. Combinations of different fruits or new varieties of fruits can be tried to prepare more exotic desserts.

ORCID

K. Jayaraj Rao [http://orcid.org/0000-0002-2103-6104](http://orcid.org/0000-0002-2103-6104)

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