

## International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693  
ISSN Online: 2617-4707  
NAAS Rating (2026): 5.29  
IJABR 2026; SP-10(4): 631-635  
[www.biochemjournal.com](http://www.biochemjournal.com)  
Received: 12-01-2026  
Accepted: 15-02-2026

**Kowsalya T**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

**Karishma Sebastian**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

**Jeevitha D**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

**Vimalin Hena**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

**Ramesh Kumar P**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

**Nandakishore KK**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

**Mitnasala Srujitha**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

**Sherlee Singamala**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

**Corresponding Author:**  
**Karishma Sebastian**  
School of Agricultural Sciences,  
Karunya Institute of Technology  
and Sciences, Coimbatore,  
Tamil Nadu, India

## Assessment of the varietal suitability of amla fruits for value addition

**Kowsalya T, Karishma Sebastian, Jeevitha D, Vimalin Hena, Ramesh Kumar P, Nandakishore KK, Mitnasala Srujitha and Sherlee Singamala**

DOI: <https://www.doi.org/10.33545/26174693.2026.v10.i4Sh.8169>

### Abstract

Amla (*Embllica officinalis* G.) is a nutrient-rich fruit that needs to be processed into value-added products, as it is less preferred to eat raw because of its sour, bitter, astringent taste. Hence, the suitability of four amla varieties, namely BSR-1, NA-7, Krishna, and Kanchan, for the development of six value-added products, including osmotic dehydrated segments, fruit leather, pickle, RTS beverage, spiced candy and sauce, has been evaluated in this study. Sensory evaluation of the prepared products was done using a nine-point hedonic scale, and biochemical parameters like TSS, acidity, total sugars and ascorbic acid were analysed. Organoleptic scores of different amla products obtained by sensory evaluation showed significant differences between amla varieties for the parameters such as appearance, colour, flavour, texture, odour, taste, after taste and overall acceptability. The amla variety Krishna is found to be superior for osmotic dehydrated segments and pickle among all the amla varieties based on both sensory parameters and biochemical assessment. For fruit leather and RTS beverage, the amla variety NA-7 exhibited better biochemical properties such as TSS, total sugars and ascorbic acid with higher overall acceptance on sensory analysis. The same variety NA-7, had shown higher overall acceptability on sensory evaluation of spiced candy, whereas the amla variety Krishna showed better biochemical properties, such as TSS and total sugars for spiced candy. The sauce prepared from the amla variety BSR-1 performed superior on a sensory level with the highest ascorbic acid content. Hence, it can be concluded that the organoleptic qualities, sensory acceptance and biochemical parameters of value-added products from different amla varieties may vary according to the characteristics of the variety.

**Keywords:** Amla, *Embllica officinalis*, osmotic dehydrated segments, sauce and spiced candy

### Introduction

Amla, often known as Indian gooseberry (*Embllica officinalis* G.), a native of the Indian subcontinent belonging to the family Phyllanthaceae, is recognized as one of the oldest fruits in India and is commonly referred to as a "wonder fruit for health" owing to its exceptional attributes (Shekhawat *et al.*, 2014) [10]. It is an important ayurvedic medicinal fruit because of its high vitamin C content (500-1500 mg/100 g) and substantial antioxidant properties, both of which provide several health benefits (Shekhawat *et al.*, 2014 [10]; Pathak and Ram, 2007 [6]). It is also a minor subtropical fruit crop, primarily grown in the hilly and sub-mountainous parts of North India, and is well adapted to areas with drought as well. With appropriate management practices, a well-established amla tree with a regular bearing habit can produce between 187 and 299 kg of fruits per year (Devi *et al.*, 2020) [2]. However, its consumption as a fresh table fruit is limited due to its strong astringent flavour (Devi *et al.*, 2020) [2], and hence value addition is the key.

Prajapati *et al.* (2011) [8] reported significant post-harvest losses during peak production in amla fruits due to their high perishability, which can be reduced by processing them into value-added products, which will improve the shelf life and enhance economic returns of farmers. Hence, a study was devised to evaluate the suitability of amla varieties BSR-1, NA-7, Krishna, and Kanchan to prepare value-added products like osmotic dehydrated segments, fruit leather, pickle, RTS beverage, spiced candy and sauce. According to Pavitra *et al.* (2021) [7], amla variety NA-4 was found to be most suitable for the preparation of pickle among the amla cultivars BSR-1, NA-7 and Kanchan because of its superior physio-chemical properties and good storage stability, whereas amla cv. Chakaiya was found to be better for

candy preparation based on sensory attributes. Similarly, Kumar (2021) <sup>[4]</sup> reported that the amla variety NA-7 performed better for pickle preparation and maintained the acceptable quality for 9 months of storage.

### Materials and Methods

Fully matured, disease-free fruits of four amla varieties, BSR-1, NA-7, Krishna and Kanchan were procured from the Dindugal district, and were brought to the PG Horticulture laboratory of School of Agricultural Sciences, Karunya Institute of Technology and Sciences, Coimbatore, Tamil Nadu, India during 2025-26. Six value-added products, namely osmotic dehydrated segments, fruit leather, unfermented pickle, RTS beverage, spiced candy, and sauce, were prepared using four amla varieties (BSR-1, NA-7, Krishna and Kanchan), following standard procedures, maintaining the total soluble solids (TSS) level at 72<sup>o</sup> Brix for osmotic dehydrated segments, 75<sup>o</sup> Brix for fruit leather, 10<sup>o</sup> Brix for RTS beverages, and 85<sup>o</sup> Brix for sauce.

Organoleptic evaluation was conducted to assess the product's sensory parameters such as appearance, colour, flavour, texture, odour, taste, after taste and overall acceptability on a nine-point hedonic scale. Biochemical parameters like TSS, acidity, ascorbic acid and total sugars of prepared products were also analysed following the standard procedure (Ranganna, 1986) <sup>[9]</sup>.

### Statistical analysis

Data were analysed using GRAPES 1.1.0 software, adopting a completely randomized design (CRD) for biochemical studies, and the Kruskal-Wallis test was used for sensory evaluation studies.

### 3. Results and Discussion

The value-added products prepared from amla fruits were subjected to organoleptic and biochemical evaluation. The mean scores of sensory evaluation for value-added products from amla are given in Table 1, and the results of biochemical analysis are presented in Table 2.

The observations on the sensory evaluation of different products from four amla cultivars are mentioned below.

Among the four amla varieties, the osmotic dehydrated segments prepared from the amla variety Krishna recorded the highest scores for all the sensory parameters (Table 1), including appearance (8.43), colour (8.21), flavour (8.21), texture (8.51), odour (7.82), taste (8.13) and after taste (8.25) with an overall acceptability score of 8.42. However, osmotic dehydrated segments produced from amla variety BSR-1 had comparatively lower scores for the parameters like appearance (6.75), colour (6.93), flavour (7.41), texture (7.22), odour (6.72), taste (7.53) and after taste (7.36) with an overall acceptability score of 7.11. These findings are in agreement with Singh *et al.* (2015) <sup>[11]</sup>, who reported that the amla variety NA-7 performed better for osmotic dehydrated segments than the amla cultivar Desi based on sensory evaluation.

The fruit leather prepared from four amla varieties exhibited significant differences in sensory parameters (Table 1). The fruit leather prepared from the amla variety NA-7 recorded the highest scores for the parameters such as appearance (7.82), colour (8.06), and odour (7.08) with an overall acceptability score of 7.92 (Table 1). The fruit leather from the amla varieties BSR-1 received the highest score for taste (7.74), Kanchan for after taste (7.82), and Krishna for

flavour (7.44) and texture (7.44). However, a fruit leather prepared from the amla variety Kanchan had the lowest score for most of the sensory parameters, such as appearance (6.91), flavour (7.14), texture (7.14), odour (6.47) and taste (7.06), with an overall acceptability score of 6.86.

The pickle prepared from the amla variety Krishna recorded the highest scores for parameters such as appearance (7.74), flavour (7.63), texture (7.81), odour (7.53), and overall acceptability (7.74), whereas the pickle from the amla variety NA-7 had the highest score for colour (7.82) and taste (7.61) and the amla variety BSR-1 had the highest score for after taste (7.34) (Table 1). In contrast, the pickle prepared from the amla variety Kanchan recorded the lowest scores for the parameters like appearance (7.46), colour (7.53), flavour (7.34), texture (6.53), odour (6.67), and after taste (7.06), with an overall acceptability score of 6.87. The present results align with Pavitra *et al.* (2021) <sup>[7]</sup>, who reported that the amla variety Krishna was found to be the most suitable variety for pickle preparation with the highest overall acceptability.

Significant differences were found among the sensory parameters of four different amla varieties (Table 1). The RTS beverage prepared from the amla variety NA-7 recorded the highest scores for the parameters such as appearance (7.86), flavour (7.82), texture (7.61), taste (7.87) and overall acceptability (7.93). However, the RTS beverage from the amla varieties Krishna and BSR-1 had the highest scores for colour (7.86) and odour (7.53), respectively, and the amla variety Kanchan had the highest score (7.87) for after taste. Conversely, the RTS beverage prepared from the amla variety Kanchan had the lowest scores for the parameters such as appearance (7.31), colour (7.47), texture (7.31) and taste (7.12) with an overall acceptability score of 7.21. Comparable results were reported by Kumar (2018) <sup>[3]</sup>, who identified that the RTS beverage prepared from the amla variety NA-7 recorded the highest score for sensory parameters compared to the amla variety NA-8.

The spiced candy prepared from four different amla varieties showed significant differences in sensory parameters (Table 1). The spiced candy prepared from the amla variety NA-7 recorded the highest score in sensory parameters such as appearance (7.81), colour (7.67), flavour (7.87), texture (7.44), odour (7.33), taste (7.21), and overall acceptability (7.45), and the amla variety Krishna recorded the highest score for after taste (6.85). In contrast, the spiced candy prepared from the amla variety Kanchan recorded the lowest sensory scores for the parameters, including appearance (6.53), colour (7.04), flavour (6.67), texture (5.87), odour (6.26) and taste (6.59), with an overall acceptability score of 6.38.

The sauce prepared from the amla variety BSR-1 recorded the highest scores for sensory parameters, such as appearance (7.06), colour (7.05), texture (7.06), taste (7.06), after taste (5.94), and overall acceptability (6.35), whereas, the sauce prepared from the amla variety NA-7 had the highest score for flavour (5.95) and odour (6.49) (Table 1). In comparison, the sauce prepared from the amla variety Krishna had the lowest scores for the parameters such as colour (6.07), texture (6.06), taste (6.06) and after taste (5.14) with an overall acceptability score of 5.36.

The observation on the biochemical analysis of different products from four amla cultivars is mentioned here.

**Table 1:** Sensory evaluation scores of amla products

| Treatments                         | Appearance | Colour | Flavour | Texture | Odour | Taste | After taste | Overall acceptability |
|------------------------------------|------------|--------|---------|---------|-------|-------|-------------|-----------------------|
| <b>Osmotic dehydrated segments</b> |            |        |         |         |       |       |             |                       |
| BSR-1                              | 6.75       | 6.93   | 7.41    | 7.22    | 6.72  | 7.53  | 7.36        | 7.11                  |
| NA-7                               | 7.41       | 7.29   | 7.45    | 7.49    | 7.05  | 7.87  | 7.79        | 7.81                  |
| Krishna                            | 8.43       | 8.21   | 8.21    | 8.51    | 7.82  | 8.13  | 8.25        | 8.42                  |
| Kanchan                            | 7.73       | 7.83   | 7.84    | 7.82    | 7.36  | 7.94  | 7.48        | 8.14                  |
| chi-squared value                  | 6.52       | 2.28   | 9.46    | 9.67    | 10.39 | 10.38 | 3.72        | 10.38                 |
| <b>Fruit leather</b>               |            |        |         |         |       |       |             |                       |
| BSR-1                              | 7.66       | 7.77   | 7.31    | 7.31    | 7.02  | 7.74  | 7.59        | 7.68                  |
| NA-7                               | 7.82       | 8.06   | 7.33    | 7.35    | 7.08  | 7.53  | 7.68        | 7.92                  |
| Krishna                            | 7.57       | 7.64   | 7.44    | 7.44    | 6.55  | 7.33  | 7.25        | 7.54                  |
| Kanchan                            | 6.91       | 8.04   | 7.14    | 7.14    | 6.47  | 7.06  | 7.82        | 6.86                  |
| chi-squared value                  | 4.65       | 9.04   | 5.85    | 5.86    | 8.54  | 10.39 | 7.82        | 9.84                  |
| <b>Pickle</b>                      |            |        |         |         |       |       |             |                       |
| BSR-1                              | 7.26       | 7.33   | 7.41    | 7.46    | 6.93  | 7.53  | 7.34        | 7.33                  |
| NA-7                               | 7.53       | 7.82   | 7.41    | 7.67    | 7.21  | 7.61  | 7.22        | 7.41                  |
| Krishna                            | 7.74       | 7.68   | 7.63    | 7.81    | 7.53  | 7.27  | 7.27        | 7.74                  |
| Kanchan                            | 7.46       | 7.53   | 7.34    | 6.53    | 6.67  | 7.33  | 7.06        | 6.87                  |
| chi-squared value                  | 9.67       | 10.39  | 9.43    | 10.38   | 10.39 | 10.38 | 9.43        | 9.74                  |
| <b>RTS beverages</b>               |            |        |         |         |       |       |             |                       |
| BSR-1                              | 7.61       | 7.59   | 7.43    | 7.71    | 7.53  | 7.62  | 7.61        | 7.61                  |
| NA-7                               | 7.86       | 7.67   | 7.82    | 7.61    | 7.47  | 7.87  | 7.83        | 7.93                  |
| Krishna                            | 7.82       | 7.86   | 7.63    | 7.42    | 7.41  | 7.74  | 7.84        | 7.87                  |
| Kanchan                            | 7.31       | 7.47   | 7.45    | 7.31    | 7.43  | 7.12  | 7.87        | 7.21                  |
| chi-squared value                  | 8.23       | 9.97   | 9.59    | 10.38   | 10.21 | 10.38 | 10.39       | 10.38                 |
| <b>Spiced candy</b>                |            |        |         |         |       |       |             |                       |
| BSR-1                              | 7.06       | 7.33   | 6.92    | 6.91    | 6.61  | 6.65  | 6.25        | 6.63                  |
| NA-7                               | 7.81       | 7.67   | 7.87    | 7.44    | 7.33  | 7.21  | 6.84        | 7.45                  |
| Krishna                            | 7.62       | 7.46   | 7.67    | 7.23    | 7.12  | 7.05  | 6.85        | 7.14                  |
| Kanchan                            | 6.53       | 7.04   | 6.67    | 5.87    | 6.26  | 6.59  | 6.26        | 6.38                  |
| chi-squared value                  | 10.38      | 10.39  | 10.38   | 9.35    | 10.39 | 8.74  | 8.35        | 9.17                  |
| <b>Sauce</b>                       |            |        |         |         |       |       |             |                       |
| BSR-1                              | 7.06       | 7.05   | 5.93    | 7.06    | 6.47  | 7.06  | 5.94        | 6.35                  |
| NA-7                               | 6.62       | 6.78   | 5.95    | 6.75    | 6.49  | 6.75  | 5.49        | 6.03                  |
| Krishna                            | 6.52       | 6.07   | 5.66    | 6.06    | 6.42  | 6.06  | 5.14        | 5.36                  |
| Kanchan                            | 6.12       | 6.14   | 5.52    | 6.13    | 6.21  | 6.13  | 5.17        | 5.43                  |
| chi-squared value                  | 9.46       | 9.05   | 9.05    | 9.43    | 9.04  | 9.05  | 9.59        | 9.67                  |

The data presented in Table 2 showed significant difference among the osmotic dehydrated segments from four amla varieties with respect to the biochemical parameters. The osmotic dehydrated segments prepared from the amla variety Krishna recorded the highest TSS (26.21<sup>0</sup> Brix) and total sugars (39.06%), and amla variety NA-7 recorded the highest ascorbic acid (238.13 mg 100 g<sup>-1</sup>), whereas the lowest acidity (0.13%) was recorded in amla variety BSR-1. The osmotic dehydrated segments from the amla variety NA-7 recorded total sugar content of 37.39%, which was on par with the amla variety Krishna. In contrast, the amla variety BSR-1 exhibited the lowest TSS (18.11<sup>0</sup> Brix), total sugars (24.57%) and ascorbic acid content (211.82 mg 100 g<sup>-1</sup>). These findings are in agreement with Singh *et al.* (2015) [11], who reported that osmotic dehydrated segments prepared from the amla variety NA-7 had the highest biochemical properties, including total sugars (42.97%) and ascorbic acid content (229.65 mg 100 g<sup>-1</sup>) compared to Desi cultivar.

Significant differences in biochemical parameters were noted among the fruit leathers prepared from four different amla varieties. The fruit leather prepared from the amla variety NA-7 showed the highest TSS (12.91<sup>0</sup> Brix), total sugars (39.18%), and ascorbic acid (81.27 mg 100 g<sup>-1</sup>) along with the lowest acidity (0.163%). In contrast, the fruit leather prepared from the amla variety Krishna exhibited the lowest TSS (7.91<sup>0</sup> Brix) and total sugars (29.32%), whereas

the amla variety Kanchan recorded the lowest ascorbic acid content (74.38 mg 100 g<sup>-1</sup>). These findings are in agreement with those reported by Deepika *et al.* (2017) [1], who reported that the fruit bar prepared from amla pulp had a similar total sugars (40.24%) and ascorbic acid content (85.34 mg 100 g<sup>-1</sup>).

The data presented in Table 2 showed significant differences in biochemical parameters of pickles prepared from four different amla varieties. The pickle prepared from the amla variety Kanchan exhibited the highest TSS (18.72<sup>0</sup> Brix) and total sugars (11.26%), whereas the amla variety Krishna exhibited the highest acidity (0.326%) and ascorbic acid content (423.71mg 100 g<sup>-1</sup>). Conversely, pickles from the amla varieties NA-7 exhibited the lowest TSS (8.12<sup>0</sup> Brix), and BSR-1 had the lowest total sugars (5.92%) and acidity (0.231%). The pickle prepared from the amla variety Kanchan had the lowest ascorbic acid content (338.29 mg 100 g<sup>-1</sup>). These findings are comparable to those of Pavitra *et al.* (2021) [7], who reported that the pickle prepared from the amla variety Krishna exhibited the highest acidity (2.74%) and ascorbic acid content (495.20 mg 100 g<sup>-1</sup>).

Significant differences were identified in the biochemical parameters of RTS beverage from four different amla varieties (Table 2). The RTS beverage prepared from amla variety NA-7 recorded the highest TSS (19.21<sup>0</sup> Brix), total sugars (14.96%), and ascorbic acid (62.74 mg 100ml<sup>-1</sup>) and RTS beverage prepared from amla variety Kanchan

recorded lowest acidity (0.468%). In contrast, RTS beverage from the amla variety Krishna had the lowest TSS (15.62<sup>0</sup> Brix) and the lowest ascorbic acid content (39.38 mg 100ml<sup>-1</sup>) was recorded for the amla variety Kanchan. These results agree with those reported by Surya *et al.* (2020) [13], who reported that RTS beverage developed from fresh amla fruits contain a TSS of 13<sup>0</sup> Brix, 0.35% acidity, 8.62% total sugars and 54.80 mg 100ml<sup>-1</sup> ascorbic acid.

The data presented in Table 2 showed significant differences in the biochemical parameters of spiced candy prepared from four different amla varieties. The spiced candy prepared from the amla variety Krishna exhibited the highest TSS (19.62<sup>0</sup> Brix) and total sugars (29.76%), and also recorded the lowest acidity (0.128%). The spiced candy from the amla variety NA-7 recorded the highest ascorbic acid content (262.37 mg 100 g<sup>-1</sup>). Conversely, the spiced candy prepared from the amla variety Kanchan exhibited the lowest TSS (11.61<sup>0</sup> Brix) and total sugars (16.95%),

whereas the amla variety BSR-1 had the lowest ascorbic acid content (206.23 mg 100 g<sup>-1</sup>).

Significant differences were recorded in the biochemical parameters of sauce prepared from four different amla varieties (Table 2). The sauce prepared from the amla varieties Kanchan exhibited the highest TSS (87.91<sup>0</sup> Brix), and Krishna recorded the highest total sugars (35.63%), whereas the amla variety BSR-1 recorded the highest ascorbic acid content (169.37mg 100 g<sup>-1</sup>). Conversely, the sauce prepared from amla variety BSR-1 had the lowest acidity (0.627%) and total sugars (29.91%), and the amla cultivar NA-7 exhibited the lowest TSS (71.81<sup>0</sup> Brix) and ascorbic acid (151.27 mg 100 g<sup>-1</sup>). These results agree with the results from Singh *et al.* (2013) [12], who reported that the sauce prepared from the NA-7 variety recorded the lowest acidity (1.24%) and ascorbic acid (165.35 mg 100 g<sup>-1</sup>) compared to amla variety Desi.

**Table 2:** Biochemical characteristics of amla products

| Treatments                         | TSS ( <sup>0</sup> Brix) | Acidity (%) | Total sugars (%) | Ascorbic acid (mg/100 g) |
|------------------------------------|--------------------------|-------------|------------------|--------------------------|
| <b>Osmotic dehydrated segments</b> |                          |             |                  |                          |
| BSR-1                              | 18.11                    | 0.13        | 24.57            | 211.82                   |
| NA-7                               | 23.81                    | 0.17        | 37.39            | 238.13                   |
| Krishna                            | 26.21                    | 0.14        | 39.06            | 226.74                   |
| Kanchan                            | 21.11                    | 0.15        | 32.38            | 218.54                   |
| SE (d)                             | 0.79                     | 0.01        | 1.62             | 2.97                     |
| CD (0.05)                          | 1.73                     | 0.02        | 3.56             | 6.53                     |
| <b>Fruit leather</b>               |                          |             |                  |                          |
| BSR-1                              | 9.21                     | 0.21        | 34.79            | 76.94                    |
| NA-7                               | 12.91                    | 0.17        | 39.18            | 81.27                    |
| Krishna                            | 7.91                     | 0.19        | 29.32            | 77.29                    |
| Kanchan                            | 10.15                    | 0.26        | 31.94            | 74.38                    |
| SE (d)                             | 1.06                     | 0.01        | 1.21             | 0.96                     |
| CD (0.05)                          | 2.37                     | 0.02        | 2.67             | 2.12                     |
| <b>Pickle</b>                      |                          |             |                  |                          |
| BSR-1                              | 11.21                    | 0.23        | 2.63             | 389.71                   |
| NA-7                               | 8.12                     | 0.24        | 5.92             | 365.87                   |
| Krishna                            | 13.41                    | 0.33        | 7.31             | 423.71                   |
| Kanchan                            | 18.72                    | 0.28        | 11.26            | 338.29                   |
| SE (d)                             | 0.98                     | 0.01        | 1.12             | 11.35                    |
| CD (0.05)                          | 2.16                     | 0.02        | 2.47             | 24.97                    |
| <b>RTS beverage</b>                |                          |             |                  |                          |
| BSR-1                              | 16.67                    | 0.49        | 9.36             | 47.22                    |
| NA-7                               | 19.21                    | 0.51        | 14.96            | 62.74                    |
| Krishna                            | 15.62                    | 0.48        | 12.36            | 54.39                    |
| Kanchan                            | 17.81                    | 0.47        | 11.23            | 39.38                    |
| SE (d)                             | 0.42                     | 0.01        | 0.74             | 2.56                     |
| CD (0.05)                          | 0.89                     | 0.02        | 1.36             | 5.63                     |
| <b>Spiced candy</b>                |                          |             |                  |                          |
| BSR-1                              | 13.31                    | 0.35        | 21.62            | 206.23                   |
| NA-7                               | 15.12                    | 0.37        | 24.83            | 262.37                   |
| Krishna                            | 19.62                    | 0.13        | 29.76            | 226.73                   |
| Kanchan                            | 11.61                    | 0.56        | 16.95            | 232.37                   |
| SE (d)                             | 0.98                     | 0.05        | 1.91             | 5.29                     |
| CD (0.05)                          | 2.16                     | 0.11        | 4.21             | 11.63                    |
| <b>Sauce</b>                       |                          |             |                  |                          |
| BSR-1                              | 81.42                    | 0.63        | 29.91            | 169.37                   |
| NA-7                               | 71.81                    | 0.70        | 30.73            | 151.27                   |
| Krishna                            | 76.81                    | 0.65        | 35.63            | 162.23                   |
| Kanchan                            | 87.91                    | 0.67        | 32.51            | 157.38                   |
| SE (d)                             | 1.87                     | 0.01        | 0.96             | 1.98                     |
| CD (0.05)                          | 4.11                     | 0.02        | 2.12             | 4.36                     |

## Conclusion

The result of the present study showed significant difference among four different amla varieties in the sensory and biochemical parameters of the value-added products and the best variety to prepare each value-added product was identified. Hence, the amla variety Krishna was found to be the best for the preparation of pickle and osmotic dehydrated segments, amla variety NA-7 performed better for fruit leather, RTS beverage and spiced candy and amla variety BSR-1 showed better scores for sauce.

## References

1. Deepika D, Panja P. Enrichment on quality of aonla (*Emblica officinalis* G.) fruit leathers by blending. *Journal of Applied and Natural Science*. 2017;9(1):162-166.
2. Devi S, Gupta E, Maurya NK. Development of a value-added amla product. *International Archive of Applied Sciences and Technology*. 2020;11(2):90-93.
3. Kumar R. Studies on process standardization and storage behaviour of ready to serve (RTS) beverage prepared from aonla cultivars. *Journal of Pharmacognosy and Phytochemistry*. 2018;7(6):74-77.
4. Kumar R. Study on process standardization and storage behaviour of pickle prepared from aonla (*Emblica officinalis* Gaertn.) cultivars. *Horticulture International Journal*. 2021;5(3):119-122.
5. Kumar R. Investigation on the differences in the quality traits of aonla cultivars and suitability for pickle making. *South Asian Research Journal of Agriculture and Fisheries*. 2024;6(3):36-41.
6. Pathak RK, Ram RA. Organic production of aonla. In: *National Seminar on Recent Advances in Production, Protection and Post-harvest Management of Grape, Mandarin and Arid Fruits*; College of Horticulture, Mandsaur. 2007. p. 133-136.
7. Pavitra G, Kantharaj Y, Shivakumar BS, Prakash KS, Udharani N. Evaluation of aonla (*Emblica officinalis* G.) cultivars for pickle preparation. *Journal of Pharmacognosy and Phytochemistry*. 2021;10(2):552-557.
8. Prajapati VK, Nema PK, Rathore SS. Effect of pretreatment and drying methods on quality of value-added dried aonla (*Emblica officinalis* Gaertn.) shreds. *Journal of Food Science and Technology*. 2011;48(1):45-52.
9. Ranganna S. *Handbook of analysis and quality control for fruit and vegetable products*. New Delhi: Tata McGraw-Hill Education; 1986.
10. Shekhawat S, Rathore NS, Kaushik RA. Advances in processing and product development of aonla (*Emblica officinalis*) in Indian context: A review. *International Journal of Food and Nutritional Sciences*. 2014;3(6):242.
11. Singh J, Kumar R, Bakshi P, Bandral JD, Sood M, Trilokia M. Suitability of aonla (*Emblica officinalis*) cultivars for development of osmo air dried slices. *Indian Journal of Agricultural Sciences*. 2015;85(10):1293-1297.
12. Singh J, Sood M, Bandral JD. Comparative study on development and quality characteristics of aonla sauce (*Emblica officinalis* G.) during storage. *Madras Agricultural Journal*. 2013;100(7-9):777-781.
13. Surya N, Poornakala SJ, Kanchana S, Hemalatha G. Development of amla (*Emblica officinalis*) ready-to-serve beverage fortified with dietary fiber. *Emergent Life Sciences Research*. 2020;6(1):6-15.