RESEARCH PAPER | International Journal of Agricultural Engineering | Volume 13 | Issue 1 | April, 2020 | 52-55
ISSN–0974–2662 ■ Visit us : *www.researchjournal.co.in* ■ **DOI: 10.15740/HAS/IJAE/13.1/52-55**

Studies on processing and storage stability of jamun nectar

■ **Purandar Mandal, Alok Nath and Bijayalaxmi Mohanta**

Received : 15.12.2019; **Revised :** 10.02.2020; **Accepted :** 25.02.2020

See end of the Paper for authors' affiliation

Correspondence to :

Bijayalaxmi Mohanta
Krishi Vigyan Kendra (OUAT), **Jajpur (Odisha) India**
Email: bijayalaxmimohanta@gmail.com

■ **ABSTRACT :** In the study different recipes of Jamun Nectar was standardized to explore the processing potential of Jamun, a minor fruit. There were five different possibilities of recipes. The Nectar prepared from the recipes 20 per cent juice, 14 per cent TSS and 0.30 per cent Acidity gave highest organoleptic quality score followed by Nectar prepared from 20 per cent pulp, 18 per cent TSS and 0.25 per cent Acidity and the quality of the prepared RTS was maintained up to fifth month at ambient temperature.

■ **KEY WORDS :** Jamun, Receipes, Iron, Calcium, Phosphorus

■ **HOW TO CITE THIS PAPER :** Mandal, Purandar, Nath, Alok and Mohanta, Bijayalaxmi (2020). Studies on processing and storage stability of jamun nectar. *Internat. J. Agric. Engg.*, **13**(1) : 52-55, **DOI: 10.15740/HAS/IJAE/13.1/52-55.**

Jamun (Syzygium cuminii Skeels) is an important indigenous fruits of India. It belongs to the family Myrtaceae. Jamun trees are found scattered throughout the tropical and subtropical regions but there is no organized orcharding of this fruit in the country. Fruit is a rich source of mineral constituent particularly iron, calcium and phosphorus. The ripe fruit is astringent, stomachic, carminative and ant scorbutic. Jamun fruit is highly perishable and seasonal in nature. Considerable losses occur in this fruit during harvesting. It is popular as a desert fruit because of its slight astringent taste and big sized seeds. Processing of this fruit into quality beverages such as nectar, squash, syrup would be more nutritious than many of the synthetic drinks.

Keeping the above points in view this research problem was designed to find out a nutritious soft drink of consumer acceptability.

■ METHODOLOGY

Jamun fruits free from bruises, damaged and white spot were harvested randomly from different plants of orchard. One kilogram of Jamun were harvested randomly from different plants for assessing the physical characters. The pulp obtained from 100g fruit replicated three times was subjected to chemical analysis. The juice was obtained by the following method Fig. A.

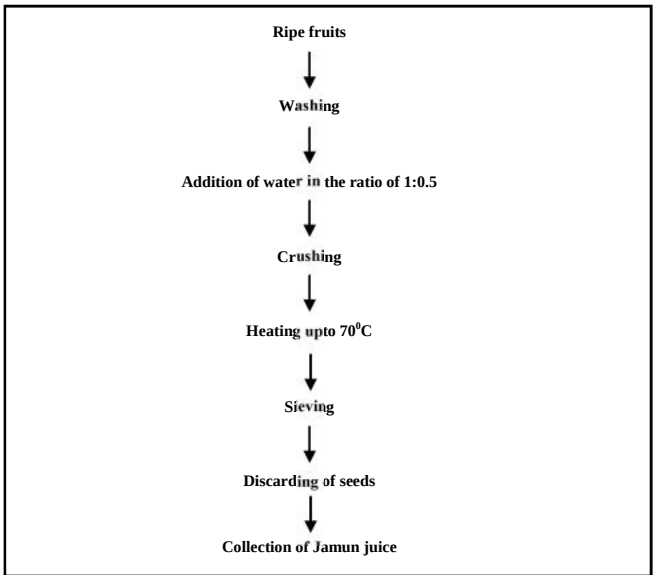

Fig. A : Jamun juice preparation method

Jamun nectar preparation method is shown in Fig. B.

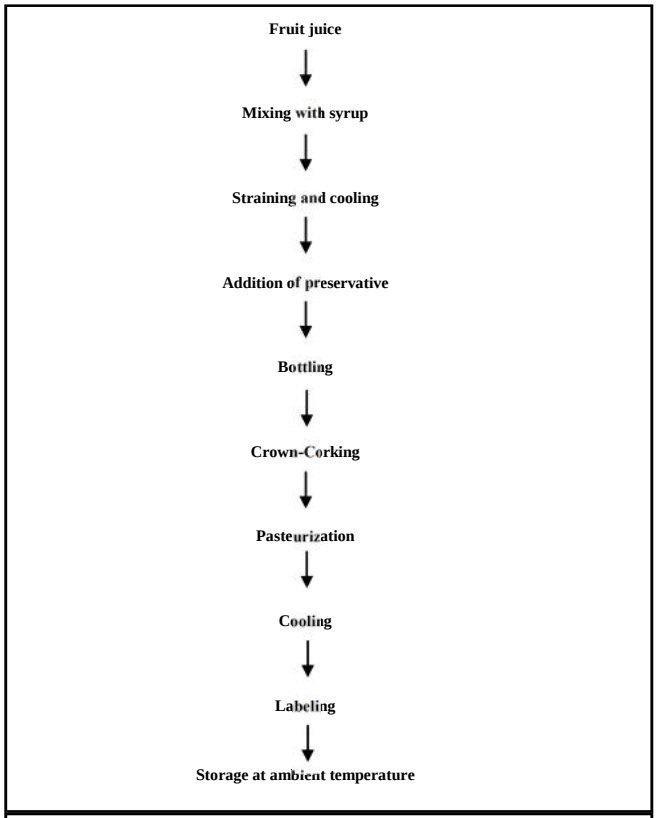

Fig. B : Flow diagram for preparation of Jamun Nectar

Following five recipes each with three replications were tried

Treatments	Juice (%)	TSS (%)	Acidity (%)
T_1	20	15	0.30
T_2	20	13	0.30
T_3	20	16	0.25
T_4	20	18	0.25
T_5	20	14	0.30

After that it was subjected to organoleptic evaluation, the results obtained were given in the Table 3. Nectar prepared from ideal treatments was analyzed for chemical parameters initially and at an interval of one month up to fifth month of storage period and the results obtained was given in the Table 4.

The TSS was estimated by hand refractometer. The acidity was determined by method of simple acid base titration method using phenalphthalein as indicator. The ascorbic acid content in the samples were measured by reduction of 2,6 dichlorphenol indophenol dye as given by Ranganna (1986). The reducing and non-reducing and total sugars were estimated by Lane and Eynon (1923). Non-enzymatic browning was estimated by the method of Ranganna (1986). The organoleptic evaluation of RTS prepared under different treatment was carried out by a panel of six judges using hedonic rating scale given by (Amerine *et al.*, 1965).

The analysis of variance of the date was carried out by the technique as described by Raghuramula *et al.* (1983).

■ RESULTS AND DISCUSSION

The physical characters and chemical composition of the Jamun fruits is given in Table 1 and 2, respectively.

Table 1 : Physical characters of Jamun fruits

Sr. No.	Characters	Average value
1.	Average weight (g)	9.4
2.	Volume (ml)	79.4
3.	Specific gravity (g/cc)	0.118
4.	Overall length (cm)	2.8
5.	Maximum width (cm)	2.1
6.	Juice content (%)	78.50
7.	Sphericity (%)	90.4
8.	Bulk density (kg/m^3)	102
9.	True density (kg/m^3)	208
10.	Moisture content (%)	86.4

Table 2 : Chemical composition of Jamun fruits

Sr. No.	Characters	Average value
1.	Total soluble solids (%)	10.5
2.	Total titrable acidity (%)	2.4
3.	Ascorbic acid (mg/100g)	38.90
4.	Reducing sugar (%)	5.5
5.	Total carbohydrates (g%)	9.52

From the above results it is concluded that the organoleptic score of recipe number 5 containing 20 per cent pulp, 14 per cent TSS and 0.30 per cent acidity was found to be the best followed by recipes number 4 containing 20 per cent pulp, 18 per cent TSS and 0.25 per cent acidity. Both the recipes are significantly different from each other.

Studies on changes during storage of Jamun Nectar indicated that TSS increased slightly after two month of storage. It is due to the conversion of polysaccharides in to sugars. Similar observation was recorded by Khurdiya

Table 3 : Organoleptic quality of different recipes of Jamun Nectar

Recipe No	Pulp (%)	TSS (%)	Acidity (%)	Organoleptic quality	
				Score	Rating
1	20	15	0.30	7.14	Liked moderately
2	20	13	0.30	7.17	Liked moderately
3	20	16	0.25	6.42	Liked slightly
4	20	18	0.25	7.26	Liked moderately
5	20	14	0.30	8.38	Liked very much
C.D. (P=0.05)				0.43	
S.E. ±				0.14	

Table 4 : Changes in chemical characters during storage of ideal recipes of Jamun RTS

Sr. No.	Characters	Storage period in months						
		0	1	2	3	4	5	6
1.	TSS (%)	14.00	14.00	14.00	14.25	14.50	15.00	15.28
2.	Acidity (%)	0.30	0.30	0.30	0.31	0.32	0.33	0.34
3.	Ascorbic acid (mg/100g)	13.50	13.50	13.20	13.00	12.70	12.20	10.50
4.	Browning (O.D.)	0.20	0.20	0.20	0.23	0.26	0.28	0.29
5.	Reducing sugar (%)	14.38	14.44	14.47	14.52	14.55	14.58	14.64
6.	Total carbohydrate (g%)	20.25	20.21	20.17	20.14	20.09	20.03	19.90
7.	Organoleptic quality	8.38	8.21	8.12	7.98	7.64	7.57	6.89

(1979) in phalsa beverages. Total acidity of Nectar did not change up to two months of storage, then gradually increases the acidity of fruit products (Conn and Stumf, 1976), the present findings are also in agreement with the observation of several workers (Ashraf, 1987 and Singh, 2000). Results indicated that ascorbic acid content of the RTS beverage decreased continuously during the entire period of storage. The reduction may be due to oxidation of ascorbic acid in to dehydroascorbic acid by oxygen. Several authors (Roy and Singh, 1979 and Singh, 2000) have also reported losses of ascorbic acid in fruit beverages during ambient storage. In the present study browning of squash increased continuously throughout the entire period of storage. It may be due to non-enzymatic reactions, which occurs between nitrogenous compounds with sugar or organic acids with sugars. Increase in browning was observed by several workers (Siddappa *et al*., 1959). Reducing sugars increased continuously and total carbohydrate decreased continuously. The organoleptic scores of RTS decreased gradually during storage it room temperature. The acceptability of squash was maintained up to fourth months. Similar findings were observed in different beverages by several workers.

Thus it may be concluded that Nectar prepared from the recipe containing 20 per cent Juice, 14 per cent TSS and 0.30 per cent acidity contain best eye appeal, flavor, consistency, taste and nutritious as compared to the other recipes, and it may play an important role in food and nutritional security.

Authors' affiliations:
Purandar Mandal, College of Horticulture (O.U.A.T.), Chiplima, **Sambalpur (Odisha) India**
Alok Nath, Department of Post Harvest Technology, College of Horticulture (SDAU), Jagudan, **Mehsana (Gujarat) India**

REFERENCES

Amerine, M.A., Pangborn, R.M. and Roessler, E.B. (1965). Principles of sensory evaluation of food. Academic press inc., New York.

Ashraf, S.M. (1987). Studies on post-harvest technology of Jamun (*Syzgium cumuni* Skeels) fruit. Ph.D. Thesis, N.D.U. and T, Faizabad (U.P).

Conn, E.E. and Stumf, P.K. (1976). Outlines of biochemistry Wiley Eastern Ltd., New Delhi.

Khurdiya, D.S. (1979). Nature and retention of anthocyanin pigment in phalsa (*Grewia subinaequalist.*) Juice. Ph.D. thesis, IARI, New Delhi.

Lane, J.H. and Eynon, L. (1923). Determination of reducing sugar by felcings solution with methylene blue as indicator, *J. Soc. Chem. Inci*., **42** : 327.

Raghuramula, H., Madhavan Nair, K. and Sundaram, K. (1983). A manual of Lab Technology. National Institute of Nutrition. ICMR, Hyderabad.

Ranganna, S. (1986). Mannual of analysis of fruit and vegetable products. Tata McGraw Hill pub. Co. Ltd., New Delhi.

Roy, S.K. and Singh, R.N. (1979). Studies on utilization of bael fruit products. *Indian Food Pack*, **33** : 9-14.

Siddappa, G.S., Bhatia, B.S. and Lal, G. (1959). Effect of added ascorbic acid and minerals on browning of coorg orange juice and squash and model system of ordinary etiolated temperature. *Indian J. Apple Chem*., **22**: 159.

Singh, J. (2000). Studies on processing of carambola (*Averrhoea carambola* Linn.) fruit. M.Sc. Thesis, NDUA&T, Faizabad, U.P.