International Journal of Agricultural Sciences ☞DOI:10.15740/HAS/IJAS/17-AAEBSSD/182-184
Volume 17 | AAEBSSD | 2021 | 182-184 ■ ISSN : 0973-130X Visit us : www.researchjournal.co.in

RESEARCH PAPER

Studies on processing and storage stability of jamun RTS

Purandar Mandal*, Saumya Kanta Pattanaik[1], Sachidananda Nanda[1] **and** Alok Nath[2]
College of Horticulture, OUAT, Chiplima, Sambalpur (Odisha) India

Abstract : In this study different recipes of Jamun Ready To Serve (RTS) was standardized to explore the processing potential of Jamun, a minor fruit. There were five different possibilities of recipes. The RTS prepared from the recipes 13% Juice, 12% TSS and 0.28% Acidity gave highest organoleptic quality score followed by RTS prepared from 10% Juice, 12% TSS and 0.30% Acidity and the quality of the prepared RTS was maintained up to fifth month at ambient temperature.

Key Words : Processing, Storage stability, Jamun RTS

View Point Article : Mandal, Purandar, Pattanaik, Saumya Kanta, Nanda, Sachidananda and Nath, Alok (2021). Studies on processing and storage stability of jamun RTS. *Internat. J. agric. Sci.*, **17** (AAEBSSD) : 182-184, **DOI:10.15740/HAS/IJAS/17-AAEBSSD/182-184.**

Article History : Received : 19.07.2021; **Accepted :** 30.07.2021

INTRODUCTION

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 phosphorous. The ripe fruit is astringent, stomachic, carminative and anti 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 RTS, 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.

MATERIAL AND METHODS

Jamun fruits free from bruises,damaged and white patches were harvested randomly from different plants of orchard. One Kilogram of Jamun were harvested

Ripe fruits → Washing →Addition of water in the ratio of 1:0.5 →Crushing → Heating upto 70 → Sieving → Discarding of seeds → Collection of jamun juice.

Fig. A : Flow diagram for extraction of juice as above

Fruit Juice→ Straining→Mixing with syrup according to recipe→Straining and cooling it→Addition of preservative according to recipe→ Bottling→ Crown Corking →Pasteurization for 20 minutes→ Cooling→ Labeling→ Storage at ambient temperature.

Fig.B: RTS was prepared according to the flow diagram as above

*** Author for correspondence :**
[1]Agro-polytechnic Center, Keonjhor (Odisha) India
[2]Department of Post Harvest Technology, College of Horticulture (SDAU), Jagudan (Gujarat) India

Following five recipes each with three replications were tried			
Treatments	Pulp (%)	TSS (%)	Acidity (%)
T_1	10	10	0.30
T_2	10	13	0.30
T_3	12	11	0.25
T_4	10	12	0.30
T_5	13	12	0.28

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 .

After that it was subjected to organoleptic evaluation, the results obtained was given in the Table 3. RTS 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 handrefractometer. The acidity was determined by method of simple acid base titration method using phenolphthalein 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 bedoric 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).

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

Table 3: Organoleptic quality of different recipes of jamun ready to serve

Recipe No.	Pulp (%)	TSS (%)	Acidity (%)	Organoleptic quality	
				Score	Rating
1	10	10	0.30	6.91	Liked slightly
2	10	13	0.30	7.10	Liked moderately
3	12	11	0.25	6.53	Liked slightly
4	10	12	0.30	7.15	Liked moderately
5	13	12	0.28	8.40	Liked very much
C.D at 5% level				0.39	
S.E.M ±				0.13	

RESULTS AND DISCUSSION

Table 1 and 2 indicated the physical characters and chemical composition of the Aonla fruits.

From the above results it is concluded that the organoleptic score of recipe no.5 containing 13 per cent pulp, 12 per cent TSS and 0.28 per cent acidity was found to be the best followed by recipes no.4 containing 10 per cent pulp, 12 per cent TSS and 0.30 per cent

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

So. No.	Characters	Storage period in months						
		0	1	2	3	4	5	6
1.	TSS %	12.00	12.00	12.00	12.00	12.20	12.32	12.45
2.	Acidity %	0.28	0.28	0.28	0.28	0.29	0.29	0.30
3.	Ascorbic Acid (mg/100g)	11.54	11.51	11.21	11.00	10.70	10.20	9.00
4.	Browning (O.D)	0.10	0.10	0.12	0.14	0.16	0.17	0.21
5.	Reducing Sugar %	7.25	7.30	7.34	7.39	7.43	7.47	7.55
6.	Total carbohydrate (g%)	14.20	14.17	14.13	14.09	14.03	14.00	13.92
7.	Organoleptic quality	8.40	8.32	8.12	8.00	7.62	7.32	6.60

acidity. Both the recipes are significantly different from each other.

Studies on changes during storage of Jamun RTS indicated that TSS increased slightly after three month of storage. It is due to the conversion of polysaccharides in to sugars. Similar observation was recorded by Khurdiya (1979) in phalsa beverages. Total acidity of RTS did not change up to three 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, 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 ; 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 at room temperature. The acceptability of RTS was maintained up to fifth months. Similar findings were observed in different beverages by several workers.

Thus it may be concluded that RTS prepared from the recipe containing 13% pulp, 12% TSS and 0.28% acidity contain best eyeapeal, flovours, consistency, taste and nutritious as compared to the other recipes, and it may play an important role in food and nutritional security.

REFERENCES

Amerine, M.A., Pangborn, R.M. and Roessler, E.B. (1965). *Principles of sensory evaluation of food.* Academic Press Inc., New York, U.S.A.

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

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

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

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 Mc Graw Hill pub. Co. Ltd., New Delhi, India.

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.