RESEARCH
O&G Forum 2024; 34 – 2s: 756 - 759

INNOVATION OF SUGAR FREE AMLA CANDY- ENRICHED WITH DATES AND JAGGERY

Dr. Sonia Minhas[1*], Deepansha[2], Madan Kumar[3], Aman Sharma[4], [5]Arun Jaryal[5]
[1]Assistant Professor (Nutrition and Dietetics)
Chandigarh Group of Colleges, Landran Mohali, India.
[2]BSc (Nutrition and Dietetics)
Chandigarh Group of Colleges, Landran, Mohali, India.
[3]Assistant Professor, Chandigarh Group of Colleges, Landran Mohali, India.
[4]Senior Lecturer, Ambala Institute of Hotel Management
[5]Senior Domain Expert (Food Technology), Centre of Excellence-T and H HPKVN, Govt of HP Solan HP

Corresponding author:
Dr.Sonia Minhas, email id: sonu_minhas@rediffmail.com

Abstract

Background: The current study is centered on establishing a standardized procedure for creating aonla candy using amla, dates, and jaggery. Amla is used for treatment of various diseases such as cancer, diabetes mellitus, jaundice etc. It is considered as medicinal properties, vitamin C, ascorbic acid and antioxidant properties.

Materials and Methods: Physical and proximate composition of fruit examined as well as proximate composition and sensory evaluation was done by using 9 Hedonic Scale. Sensory analysis refers to the utilization of human senses such as taste, sight, smell, hearing, and touch for the evaluation of consumer goods.

Results: The findings revealed that amla fruit contains 82% moisture. The highest vitamin C content in the chosen amla variety contributes to the nutritional enhancement of the final product, namely Amla candies. Furthermore, the amla fruit contains 420 mg/100g of ascorbic acid. The TSS (Total Soluble Solids) and acidity levels were recorded at 8.7% and 1.2% respectively in the selected amla fruits. A comparison between two samples, S1 (Amla+jaggery+dates) and S2 (Amla+jaggery), indicated that S1 was exceptionally satisfying. The nutritional parameters of Amla candy S1 were recorded 23.20 percent moisture, 72 degree brix TSS, 241 mg/100 g ascorbic acid, 64 per cent total sugar and pH 3.40 whereas, in S2 24.10 per cent moisture, 73 degree Brix TSS, 230 mg/100 g ascorbic acid, 71 per cent total sugar and pH 4.00 respectively.

Conclusion: All the ingredients used in the preparation of the candy contain significant nutritive components that contribute to overall health improvement.

Keywords: Amla, Antioxidant, medicinal value, Vitamin C, sensory evaluation,

Introduction

For a long time, the herb Emblica Officinalis Gatertn has been utilized as a medicinal treatment for various conditions, including rheumatic pains, gonorrhea, asthma, hemorrhage, jaundice, dyspepsia, nausea, constipation, and diarrhea. It has also been employed for managing diabetes mellitus, coronary heart disease, and cancers. Contemporary research has demonstrated that Amla offers protection against insulin shock, combats inflammation, and helps prevent various cardiovascular diseases. Some of its most active components, like geraniin, chebulagic acid, elaeocarpusin, and corilagin, exhibit significant antioxidant activity.

Amla is believed to possess qualities effective in cancer treatment due to its ability to neutralize free radicals and provide antioxidant effects. Its expressed juice contains a Vitamin C concentration of 921mg/100cc, which is substantially higher than that of other citrus fruits, while fresh produce typically holds 470 to 680 mg of Vitamin C per 100 grams. Consumption of Amla extract (500mg/tablet, twice daily) has been linked to the less severe occurrence of regurgitation and indigestion. Furthermore, a flavonoid-rich Amla extract has been shown to reduce the likelihood of diabetic patients developing neuropathy. The bioactive compounds in Amla seem crucial in the treatment of diabetes, particularly in the restoration of insulin and glucose levels. Aonla, considered one of the oldest Indian fruits and labeled the "Wonder fruit for health," is highly nutritious and is the richest source of Vitamin C after the Barbados cherry. It contains gallic acid, elegiac acid, and glucose, which prevent the oxidation of Vitamin C. Aonla is also a source of carbohydrates, carotene, thiamine, riboflavin, and minerals like iron, calcium, phosphorus, and magnesium, as well as being rich in pectin.

Aonla candies have become increasingly popular due to their high acceptability, compact size, heightened nutritional value, and longer shelf life. Dried Aonla products save energy, money, and space during packaging, storage, and transportation. While Aonla remains relatively unknown in the

global market, its potential demands further recognition and promotion. Creating value-added products from Aonla, particularly candies, could help reduce the distress sale of the fruit during peak harvesting seasons.

The objectives of the study:

1. To develop value added products from amla viz amla candy.
2. To assess its nutritional composition and sensory evaluation of value added products.

Materials and Methods

Acqusition of raw materials

The raw Amla was procured from the local market in Chandigarh. The Amla fruits were carefully sorted based on their color, uniform size, and maturity, specifically selecting them from clusters with protruding stems. Alongside Amla, other ingredients utilized in the production of Amla candy comprised spices, condiments, dates, jaggery, and desiccated coconut.

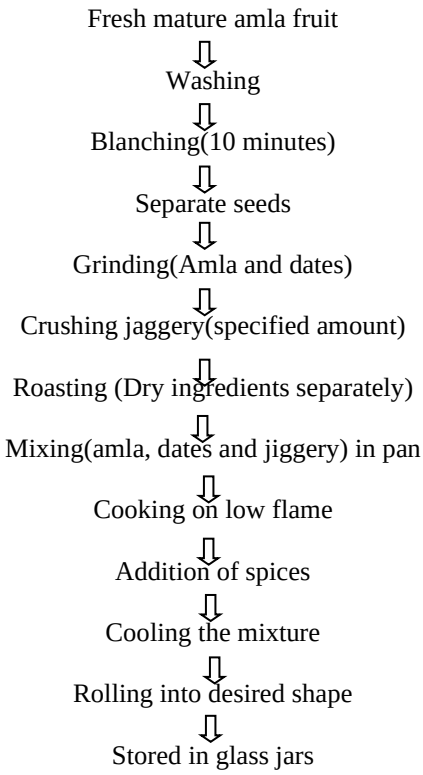

Figure: 1 Flow diagram for manufacture of Amla Candy

The Figure 1 shows the Flow diagram for manufacture of Amla Candy

Sensory evaluation

Sensory analysis refers to the utilization of human senses such as taste, sight, smell, hearing, and touch for the evaluation of consumer goods.

Sensory analysis refers to the utilization of human senses such as taste, sight, smell, hearing, and touch for the evaluation of consumer goods. In the case of Amla candy preparation, a professional group of tasters employed the 9 Hedonic rating scale to assess each batch of prepared candy based on factors including color, taste, consistency, texture, and overall acceptability.

Results and Discussion

The results of the study on the sensory characteristics of the final product are presented in Table 1. The sample labeled as S1, consisting of amla, jaggery, and dates, was noted to have a sweet taste and was highly favored by the judges. This sweetness was attributed to the inclusion of dates, giving S1 a sweeter taste compared to S2. On the other hand, S2, comprising amla and jaggery, was found to possess a somewhat sour taste. Using a sensory rating card, evaluations were made for color, appearance, flavor, texture, and overall acceptance, with S1 receiving significantly higher scores than S2.

Table 1. Physical characteristics of Amla fruit

Parameters	
Height(cm)	**3.40**
Diameter(cm)	**3.68**
Colour	**Light greenish yellow**
Pulp weight	**92% of fruit weight**
Fruit weight(g)	**15.38**
Seed weight(g)	**1.30**

The chosen Amla fruit displayed a light greenish-yellow color, which was reflected in the appearance of the final prepared candies. The Amla fruit had an initial weight of 15.58g, while the pulp accounted for 90% of the total fruit weight. The information presented in Table 1 aligns closely with the findings reported by Vadd et al. (2023). Additionally, the fruits were observed to be fleshy, pale yellow, and characterized by six indistinct vertical furrows containing six trigonous seeds.

Table 2 Proximate composition of Amla fruit

Parameters	
Moisture (per cent)	82.0
TSS(degree brix)	8.7
Ascorbic acid (mg/100 g)	420
Acidity (per cent)	1.2

The nutritional composition of the Amla fruit was analyzed and is presented in Table 2. The data in the table indicated that the Amla fruit contains 82% moisture content. The highest vitamin C content in the selected Amla variety contributes significantly to the nutritional enrichment of the final processed product, namely Amla candies, with 423.65 mg/100g of ascorbic acid. These findings align closely with those reported by Katke and Patil (2018) and Prajapathi et al. (2011). Additionally, the table highlights the TSS (Total Soluble Solids) and acidity levels, measured at 8.7% and 1.2% respectively in the selected Amla fruits. Similar results pertaining to the nutritional composition of Amla fruits were documented by Harsha et al. (2022).

Table 3 Nutritional Parameters of Amla Candy

Parameters	S1	S2
Moisture (per cent)	23.20	24.10
TSS(degree brix)	72	73
Ascorbic acid(mg/100 g)	241	230
Total sugar(per cent)	64	71
pH	3.40	4.00
Acidity (per cent)	0.52	0.49

S1*Amla candy with jaggery and dates, S2*Amla candy with jiggery

Amla Candy falls under the category of intermediate moisture food (IMF), which typically contains moderate levels of moisture ranging from 20 to 50% (Harsha et al., 2022). The findings related to the physicochemical and nutritional analysis of the selected Amla candies (dates-based and jaggery-based) are provided in Table 3. The present study indicated that the moisture content in the Amla candies falls within an acceptable range of 23-25 percent. The jaggery-based candy demonstrated the highest total sugar content (71%), likely due to significant solid gain during osmosis. Conversely, the ascorbic acid content was found to be the lowest in the candies, measuring 230 mg/100g. The candy exhibited a relatively higher pH and lower acidity, indicating its basic nature in comparison to the other samples.

Table 4 Organoleptic qualities of prepared Amla Candy

Sample No	Colour	Taste	Consistency	Overall Acceptability
Mean of S1	8.71	9	8.28	8.66
Mean of S2	8.57	8.42	7.85	8.28
CD (P=0.05)	0.34	0.32	0.34	0.32

The table 4 shows the Organoleptic qualities of prepared Amla Candy

According to the sensory evaluation, the quality perception of the product was noticeably influenced by the osmotic Bx (sugar concentration). The sensory scores for the S1 sample, specifically the dates candy, were significantly higher for all parameters compared to the jaggery-based candy samples. The highest score obtained for overall acceptability (8.66) indicated that the dates candy was highly favored and accepted by the judges (Devi et al., 2020)(Minhas and Gupta 2023).

Conclusion

As per the results of the present study, Amla is recognized for its substantial nutritional and therapeutic value, making it a key ingredient in the development of innovative and health-conscious ready-to-eat foods like Amla candy. The combination of Amla, dates, and jaggery has been found to enhance the production of red blood cells (RBCs). Additionally, the presence of Vitamin C in Amla aids in the absorption of iron, while the existence of low molecular weight hydrolysable tannins effectively prevents the oxidation of ascorbic acid, thereby preserving the fruit's nutritional value. Moreover, all the ingredients used in the preparation of the candy contain significant nutritive components that contribute to overall health improvement.

References

1. *DEVI 'et al' Development of a value added Amla product. International Archives of Applied Science and Technology,* ***11(2),*** *2020, 90-93.*
2. *KATKE 'et al'. Studies on process standardization of sugarless amla (Phyllanthus emblica) candy. Journal of*

Pharmacognosy and Phytochemistry, ***7(6),*** *2018, 396-400.*

3. *KUMAR, R., & PATHAK, S. Studies on Preparation and Storage of Aonla Candy Enriched with Different Natural Oil/Extract (Emblica officinalis L.) cv. NA-7.* ***9(10),*** *2020. 3285-3299. International Journal of Current Microbiology and Applied Sciences,*

4. *KUMBHALKAR 'et al' Studies on preparation of aonla candy with different brix concentration and steeping time. The Pharma Innovation Journal, 11(12), 2022. 2692-2696.*

5. Minhas S and Gupta N. 2023. COVID 19: Descriptive study among age group between18-50years in district Himachal Pradesh. Madhya Bharti -Humanities and Social Sciences.Vol-83 No. 23, January – June.

6. *NAYAK 'et al'. Study on changes of nutritional and organoleptic quality of flavored candy prepared from aonla (Emblica officinalis G.) during storage. International Journal of Nutritional and Metabolism****,*** ***4(7),*** *2020, 100-106.*

7. *PRAJAPATHI 'et al'. Effect of pretreatment and drying methods on quality of value-added dried aonla (Emblica officinalis Gaertn) shreds. Journal of Food Science and Technology-Mysore. 2011.*

8. *VADD 'et al'. Studies on Process Standardization Of Sugarless Amla Candy. International Journal of Creative Research Thoughts (IJCRT),* ***11(4),*** *2023, 2320-2882.*

9. *VIKRAM 'et al'. Comparative study of varieties, honey coating and storage durations on aonla candy. Indian Journal of Horticulture,* ***71(1),*** *2014, 104-108.*