



ISSN: 2395-7476
IJHS 2017; 3(1): 296-299
© 2017 IJHS
www.homesciencejournal.com
Received: 08-11-2016
Accepted: 09-12-2016

Meena Verma
Research Scholar, Home Sc.
Faculty KNIPSS, Sultanpur,
Uttar Pradesh, India

Mamta Jaiswal
Advisor & Assistant Professor,
Home Sc. Faculty KNIPSS,
Sultanpur, Uttar Pradesh, India

Kiran Agrahari
Co- Advisor & Assistant
Professor, Home Sc. Faculty
KNIPSS, Sultanpur, Uttar
Pradesh, India

Archana Singh
Co- Advisor & Assistant
Professor, Home Sc. Faculty
KNIPSS, Sultanpur, Uttar
Pradesh, India

Correspondence
Meena Verma
Research Scholar, Home Sc.
Faculty KNIPSS, Sultanpur,
Uttar Pradesh, India

Standardization and development of papaya based products

Meena Verma, Mamta Jaiswal, Kiran Agrahari and Archana Singh

Abstract

The objective of present investigation was “Standardization and development of Papaya based products”. In view of the facts regarding nutritional quality of Papaya (ICMR, 2010) was made to develop acceptable Papaya based products. Develop Papaya was used for development of standardized products i.e. Burfi, Biscuit. The organoleptic evaluation of products was done by using score card method (9-Point Hedonic Scale). The result of Papaya based products, for Burfi, Biscuit, (T₁) was best in all treatments in case of all sensory attributes. The overall acceptability of experimental (T₁) Burfi, Biscuit were 9.0, 9.0 respectively.

Keywords: Benzyl isothiocyanates, Malaria, Asthma, Obesity

1. Introduction

The papaya is the fruit of the plant *Carica papaya*, and is one of the 22 accepted species in the genus *Carica* of the plant family *Caricaceae*. Papayas grow in tropical climates and are also known as papaws or pawpaws. Their sweet taste, vibrant colour and wide variety of health benefits are just a few reasons to add them to your diet. Papaya is a powerhouse of nutrients and is available throughout the year. It is a rich source of three powerful antioxidant vitamin C, vitamin A and vitamin E. The Papaya fruit is a type of berry. The ripe fruit of the papaya is usually eaten raw, without skin or seeds. The unripe green fruit can be eaten cooked, usually in curries, salads, and stews. The young leaves of the papaya are steamed and eaten like spinach. Papayas have a relatively high amount of pectin, which can be used to make jellies. The smell of ripe, fresh papaya flesh can strike some people as unpleasant.

2. Food uses

Meat tenderizing

Both green papaya fruit and the tree's latex are rich in papain, a protease used for tenderizing meat and other proteins, as practiced currently by indigenous Americans and people of the Caribbean region. It is now included as a component in some powdered meat tenderizers.

Phytochemicals

Papaya skin, pulp and seeds contain a variety of phytochemicals, including carotenoids and polyphenols, as well as benzyl isothiocyanates and benzyl glucosinates having skin and pulp levels that increase during ripening. Papaya seeds also contain the cyanogenic substance, prunasin.

Traditional medicine

In some parts of the world, papaya leaves are made into tea as a treatment for malaria, but the mechanism is not understood a treatment method based on these results has been scientifically proven.

3. Objectives

Standardization and development of Papaya based products.

was carried out to standardize papaya and its products. The study was conducted in department of food and nutrition, Faculty of Home Science, KNIPSS Sultanpur.

Justified, judicious and scientific methodological consideration is indispensable for any investigation to deduce meaningful interferences concerning the objectives of the study. The study design reflects to the logical manner in which units of the study are assessed and analyzed for the purpose of drawing generalizations. Thus, with the view of available resources, the best procedures for taking correct observation should be first sorted out in a logical manner so that unbiased interference can be drawn. This chapter delineates information pertaining to the research design and methodological steps used for investigation. The research procedure has been distinctly described as under in the following heads:

- 3.1 Procurement of material.
- 3.2 Processing of raw material.
- 3.3 Development of Papaya based products.
- 3.4 Sensory evaluation.
- 3.5 Calculating of nutritive value.
- 3.6 Statistical analysis.

3.1 Procurement of material

For the present investigation material e.g., Papaya were produced from the local market of Sultanpur city. The procuring was done in single a lot to avoid variation compositional differences so that the quality differences should be ruled out.



3.2 Processing of raw material

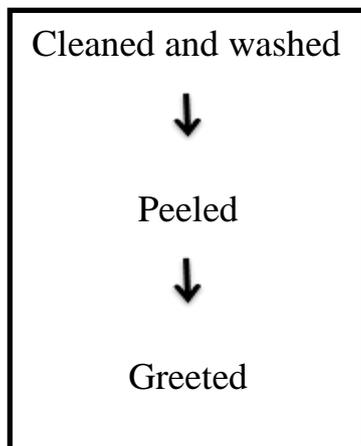


Fig: Flow chart of processing of raw material.

3.2.1 Processing of Papaya

This material was subjected to cleaning, washing and in the following manner.

3.2.2 Cleaning and washing

Papaya was washed 5-7 times with tap water and then rinsed with water to remove dirt, dust and other adhering impurity.

3.2.3 Peeled & Grated

After cleaning papaya was peeled and grated.

3.3 Development of Papaya based products

The best acceptable papaya pulp was used for product development as follows:

Burfi

Ingredients	Amount	
	Controlled	Experimental
Crushed papaya	-	100g
Ghee	-	20g.
Khoa	100g.	50g.
Sugar	50g.	100g
Cardamom powder	1 pinch	1 pinch

Method

- Heated ghee in a kadai.
- Added the crushed papaya. Cook well, stirring continuously for 4-5 mins. It becomes a mushy pulp that starts leaving the sides of the kadai.
- Added khoa and sugar and stir well for another 3-4 mins.
- Mixed in the cardamom and remove from fire.
- Placed the Burfi, when warm itself, on a flat plate and press well. Let it cooled. Cut into squares and served.

Biscuit

Ingredients	Amount	
	Controlled	Experimental
Crushed papaya	-	50g.
Brown sugar	25g.	25g.
Maida	100g.	50g.
Vanilla essence	8 drops	8 drops
Butter	50g.	50g.
Condense milk	25ml.	25ml.
Milk	100ml.	100 ml.
Baking powder	1/3 tsp.	1/3 tsp.

Method

- Mixed Maida, milk, condensed milk, baking powder & baking soda.
- Creamed butter & sugar powder until light & fluffy.
- Mixed flour gradually in the creamed mixture to attain ribbon like consistency.
- Added drops of vanilla essence and Crushed Papaya.
- Greased baking tin and transferred mixture in it.
- Baked in oven at 160 °C for 45 min, cooled and served.

4. Result and discussion

The data were collected on different aspects per plan were tabulated and analyzed statistically. The result from the analysis presented and discussed chapter in the following sequence.

4.1. Calculation of nutritive value of developed products.

4.2. Organoleptic evaluation of Papaya based products.

4.1. Calculation of nutritive value of developed products

100g. of Papaya contain:

Nutrients	Total
Energy	43kcal
Fat	0.26g
CHO	10.82g
Protein	0.47g

The nutritive value of Papaya was calculated with the help of "Food Composition Table" given by ICMR (2010). Table shows that the total Energy, Protein, Fat and CHO. Value of most acceptable Papaya was 43kcal, 0.26g, 10.82g and 0.47g, respectability.

4.2. Organoleptic evaluation of Papaya based products.

- Flavor and taste.
- Body and texture.
- Color and appearance.
- Over all acceptability.

4.1.1 Nutritive value of Burfi

Nutrient	Papaya	Ghee	Khoa
Energy(kcal)	43	450	421
Protein(g)	0.47	-	14.6
Fat(g)	0.26	500	31.2
CHO(g)	10.82	-	20.5

Table 4.2.1: Organoleptic evaluation of Burfi

Product	Flavor& taste	Body \ texture	Color & appearance	Overall acceptability
T0(controlled)	7.6	7.4	7.9	7.6
T1(experimental)	8.3	8.4	8.6	9

Table 4.2.1 shows that the experimental (T1) obtained maximum 8.3, 8.4, 8.6 and 9 for flavor & taste, body & texture,color &appearance and overall acceptability ; while control (T0) 7.6, 7.4, 7.9 and 7.6 obtained for flavor &taste,

body & texture, color & appearance and overall acceptability respectively. This indicated that the experimental (T1) Burfi was found to be fallen under category of “Liked Very Much to Liked Extremely”.

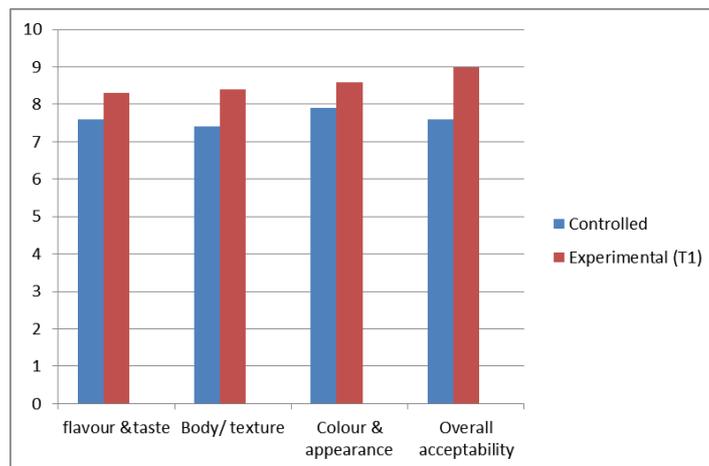


Fig 1: Mean overall acceptability of Burfi

4.1.2 Nutritive value of Biscuit

Nutrient	Papaya	sugar	Maida	Butter	Milk
Energy(kcal)	21.5	99.5	23	364.5	117
Protein(g)	23.5	0.025	11.0	40.5	4.3
Fat(g)	0.13	-	0.9	1.25	6.5
CHO(g)	5.41	24.85	348	-	5.0

Table 4.2.2: organoleptic evaluation of Biscuit

Product	Flavor& taste	Body/texture	Color & appearance	Overall acceptability
T0(controlled)	8	8.4	8.2	8.5
T1(experimental)	8.9	8.7	8.6	9

Table 4.2.2 shows that the experimental (T1) obtained maximum 8.9, 8.7, 8.6 and 9 for flavor &taste, body &texture, color& appearance and overall acceptability; while control (T0) obtained 8, 8.4, 8.2 and 8.5 for flavor &taste, body &texture, color& appearance and overall acceptability respectively. This indicated that the experimental (T1) Biscuit was found to be fallen under category of “Liked Very Much to Liked Extremely”.

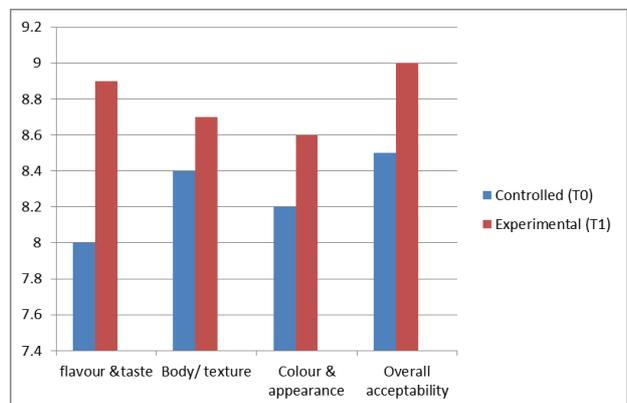


Fig 2: Mean overall acceptability of Biscuit

Summary & Conclusion

Papayas grow in tropical climates and are also known as papaws. Their sweet taste, vibrant color and wide variety of health benefits are just a few reasons to add them to your diet. Papaya skin, pulp and seeds contain a variety of phytochemicals, including carotenoids and polyphenols, as well as benzyl isothiocyanates and benzyl glucosinates having skin and pulp levels that increase during ripening. Papaya seeds also contain the cyanogenic substance, prunasin and Papaya leaves are made into tea as a treatment for malaria. It is a rich source of three powerful antioxidant vitamin C, vitamin A and vitamin E. Papaya is also high in fiber and water content, both of which help to prevent constipation and promote regularity and a healthy digestive tract. All the nutrients of papaya as a whole improve risk of heart disease, diabetes, cancer etc.

The present investigation entitled "Standardization and development of Papaya based products" was carried out to standardize Papaya and its products with this objective:-

➤ To standardized and develop the product.

The experimental work was carried out in the department of Food & Nutrition, Faculty of Home Science, KNIPSS Sultanpur. To Standardize and develop the Papaya based products required different materials like Papaya, Maida, sugar, baking powder etc. were used in the experiment would be purchased from the local market of Sultanpur.

In view of the facts regarding nutritional quality of Papaya (ICMR, 2010) was made to develop acceptable Papaya based products. The products were marked as T0 for (control) contains no Papaya and T1 (experimental) contains developed and selected Papaya.

(a) Experimental (T1) Burfi obtained maximum 8.3, 8.4, 8.6 and 9 for flavor & taste, body & texture, color & appearance and overall acceptability; while control (T0) 7.6, 7.4, 7.9 and 7.6 obtained for flavor & taste, body & texture, color & appearance and overall acceptability respectively. This indicated that the Experimental (T1) Burfi was found to be fallen under category of Liked Very Much to Liked Extremely.

(b) Experimental (T1) Biscuit obtained maximum 8.9, 8.7, 8.6 and 9 for flavor & taste, body & texture, color & appearance and overall acceptability; while control (T0) obtained 8, 8.4, 8.2 and 8.5 for flavor & taste, body & texture, color & appearance and overall acceptability respectively. This indicated that the Experimental (T1) Biscuit was found to be fallen under category of "Liked Very Much to Liked Extremely"

The developed products were given to the panel of 10 judges; products were tested for Flavor & taste, body & texture, color & appearance and overall acceptability. The organoleptic evaluation of products was done by using score card method (9-Point Hedonic Scale). The result of Papaya based products, for Burfi, Biscuit (T1) was best in all treatments in case of all sensory attributes.

The highest average score for all acceptability was found in experimental products made by developed Papaya based were mostly accepted by panel member.

Recommendation

- Development bakery product using Papaya.
- Nutrient analysis of Papaya and its products.

Limitations of the study

- The study is carried out for short period so that time and other resource are limited to an extent.

- The sample size of this study was restricted and area of study was limited to KNIPSS, Faculty of Home Science Sultanpur.
- It was a sensory evaluation which has responded information with-out any alternative.

5. Acknowledgement

All glory to the almighty, whose blessing in the success behind this project praise pride and perfection belong to almighty. So first of all I would like to express my deepest sense of gratitude to the omniscient power of the universe, the almighty God.

This project would not have been possible without the support of many people. Word fails to express my sense of independence and profound gratitude toward my honorable Adviser Dr. Mamta Jaiswal (H.O.D.) and Co-advisor Ms. Kiran Agrahari and Miss. Archana Singh Faculty of Home Science, Kamla Nehru Institute of Physical and Social Sciences, Sultanpur (U.P.), for her noble advice constructive criticism and valuable suggestion. Many thanks to my honorable adviser for her innovative ideas, valuable suggestion unending inspirations enduring fortified during my study. Her continued encouragement positive attitude towards my ability made the achievements of this goal easy to tackle complete my work in time.

Idem it is rare opportunity and the proud privilege of my life to express my best regard sense of homage and gratitude to my parents Mr. Dwarika Prasad Verma & Mrs. Prema and my beloved brother Mr. Santosh Kumar Verma and my bhabhi Mrs. Sandhya and my affectionate brother Sandeep Kumar Verma MY family's constant inspiration, everlasting affection, their blessing sacrifices emotion, financial and moral support are the prime fact which made me capable of doing this all.

From the very special corner of my heart I wish to record my indebtedness to my friends for their kind help and express my manifold thanks to Dr. Mamta Jaiswal. I am also thankful to all respondents for giving me proper co-operation during sensory evaluation.

6. References

1. Arshad Rahmani H, Yousef Aldebasi H. (Potential role of Carica papaya and their active constituents in the prevention and treatment of diseases). 2016; 8(1).
2. Arun Kumar Srivastava, Vinay Kumar Singh, Carica Papaya. A Herbal Medicine. 2016; 4(11):19.
3. Agarwal A *et al.* Sch J. App. Med. Sci., February, Dengue fever treatment with Carica papaya leaves extracts Asian Pacific Journal of Tropical Biomedicine, 1(4):330-333
4. Aravind G, Debjit Bhowmik, Duraivel, Harish G. Traditional and Medicinal Uses of Carica papaya. 2013; 1(1):13.
5. Krishna KL, Paridhavi M, Patel JA. Review on nutritional, medicinal and pharmacological properties of papaya (Carica papaya Linn.) Nat Prod Radiance. 2008; 7:364-373.
6. Imaga NOA, Gbenle GO, Okochi VI, Akanbi SO, Edeoghon SO, Oigbochie V *et al.* Antisickling property of Carica papaya leaf extract. 2009; 6:3.