



Sadakathullah Appa College

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Rahmath Nagar, Tirunelveli - 627011, Tamil Nadu, India.

NATIONAL SEMINAR ON

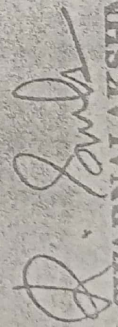



NUTRITION AND DIETETICS
HEALTHY EATING FOR LONGEVITY

CERTIFICATE

This is to certify that **Dr./MT/Ms./Mrs. U.V. SUDHA, ASSISTANT PROFESSOR** of **DEPARTMENT OF NUTRITION AND DIETETICS, MUSLIM ARTS COLLEGE, THIRUVATHI** has participated in the National Seminar on Nutrition - Healthy Eating for Longevity on 18th September 2018 as a **lecturer / resource person / published a paper / presented a paper / poster** entitled on **FORMULATION AND... STAN.DAR.I.Z.A.T.I.O.N...O.F..B.E.N.I.N.C.A.S.A...H.I.S.P.I.D.A..I.N.C.O.R.P.O.R.A.T.E.D...J.E.L.L.Y..A.N.D...H.A.L.W.A.....** organized by the Department of Nutrition and Dietetics, Sadakathullah Appa College, Tirunelveli, Tamil Nadu.




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Convenor


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BRINGING YOU - NUTRI VISION HEALTHY EATING FOR LONGEVITY

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**FORMULATION AND STANDARDIZATION OF BENINCASA
HISPIDA INCORPORATED IN JELLY AND HALWA**

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Abstract

BenincasaHispidica is cultivated in south India for vegetable purpose. Due to its medicinal properties, this vegetable is also used in ayurvedic medicinal preparations. It has been used in traditional medicinal properties to treat several diseases. Objectives of my study is to understand the importance and therapeutic value of *BenincasaHispidica*, to improve its nutritive value, to develop value based products. It was aseptically processed in room temperature. The physiochemical, microbiological and sensory characteristic of formulated products jelly and halwa had been evaluated during two months storage at room temperature. The comparison of standard and formulated products halwa had high fiber content. When compared to the standard product, formulated product had high nutritive value. The microbial analysis range between 7×10^{-3} CFU/g and 20×10^{-3} CFU/g of bacteria count, 0×10^{-3} and 1×10^{-3} of fungi count. Being low in calories it is good for weight control. The result depicts that the formulated results halwa and jelly has acceptable up to two months if storage in ambient temperature.

Keywords: *Benincasahispidica*, ambient temperature, Formulated products, aseptic processing.

Introduction

BenincasaHispidica (Ashgourd) is one of the popular vegetables cultivated throughout India and extensively in Kerala (Kocyan et al, 2007). It's also called "Winter Melon" or "Wax gourd". It is known as white gourd, winter melon, white pumpkin, wax gourd, pooshnika. Ash gourd is actually a fruit but is referred to as a vegetable because it is cooked and eaten as a vegetable. Ash gourd also referred as winter melon belongs to cucurbitaceae family which is extensively used for therapeutic purposes in the Ayurvedic medicine (Satyanarayana Swamy et al, 2010). Inexpensive and versatile ash gourd is a healthful vegetable that should definitely be a part of any nutritious diet. Ash gourd is capable of treating many health related issues. It has anti cancer properties. It is also have properties for treating diabetes, kidney dysfunction inflammatory conditions, nervousness and used in the treatment of digestion related problems like ulcer, vomiting, burning sensation of chest and acidity. In Ayurved *BenincasaHispidica* is recommended as an anti ulcer agent. Researchers from All India Institute of Medical sciences found that it has an anti ulcerogenic effect (Aslokar et al, 1992). Ash gourd is rich in moisture and contains small amounts of fat, protein, carbohydrate and

fiber besides calcium, phosphorus, riboflavin, iron, thiamine, niacin and vitamin C. It's an excellent source of thiamine, and good source of riboflavin. It has high potassium content and helps in maintaining blood pressure (Gopalam et al, 2004).

Material And Methods

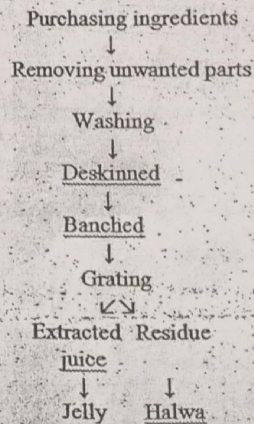
Ash gourd has a several functional property and is highly medicinal food but are unknown to the society. To create awareness to the public and to bring the importance of health benefits of ash gourd this topic was selected. The ingredients were purchased from the near by super market, marthandam. The ash gourd were cleaned in running tap water, deskinning, cut into pieces, blanched in boiling water grated and extracted the juice by juice extractor. A recipe tells us how to make a certain food item. It is a formula of putting the ingredients together in the best method. (Mark kl., 2007). Jelly and Halwa are selected as the recipe for my study. The ash gourd juice is extracted for the formulation of jelly and the residue if ash gourd were used for the formulation of halwa.

Selection of components for the formulated product

Table 1 jelly/ Halwa

Sl.No	Ingredients	Amount (gm)
1	Ash gourd	40
2	Sugar	10

Preparation of formulated product



Sensory evaluation for formulated product

The quality of a food product is assessed by means of human sensory organs, the evaluation is said to be sensory or subjective or organoleptic. Every time food is eaten and judgement is made. The reaction is highly conditioned by a variety of psychological and social factors and in the final analysis, play a vital role in the acceptance and preference of food. (Srilakshmi 2003). Sensory analyses were conducted in clean undisturbed environment. The prepared products were coded and presented to the panel members with a score card.

The prepared products were subjected to sensory analysis to find out acceptability. The formulated product was organoleptically evaluated by using numerical score card to estimate the acceptance of untrained panel members. The panel members were asked to evaluate the product for appearance, color, flavor, taste and overall acceptability by using score card.

Nutrient analysis of the formulated product

Nutrient analysis is a branch of analytical chemistry. Ash gourd are rich in many micro and macro nutrients. The amount of nutrient present in ash gourd was analysed.

Shelf life study of the formulated product

Shelf life study was done find the longitivity of the product, so that it could be consumed by the consumers for about two months.

Microbial analysis of the formulated product

Microbial analysis is the term used to enumerate and identify bacteria, and other microbial growth. In a food processing plant, microbiological testing is an essential factor which ensures safety and quality product of the consumer. (Gragrey.,2000). The microbial analyses were done for formulated product initially on 15th, 30th and 45th and 60th day.

Statistical analysis of the formulated product

The primary data thus collected were subjected to statistical analysis namely mean, standard deviation and standard mean error.

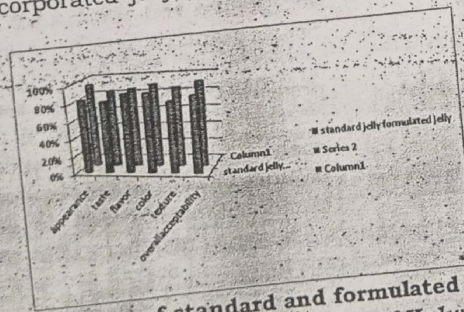
Findings

Sensory evaluation of standard and ash gourd incorporated jelly and halwa.

Comparison of mean values of standard and formulated product (Jelly)
Table 2 (Sensory Evaluation of jelly)

S.No	Scoring	Percentage	
		Standard jelly	Formulated Jelly
1	Apperance	84%	96%
2	Taste	82%	88%
3	Flavor	90%	90%
4	Color	90%	96%
5	Textue	80%	96%
6	Over all acceptability	86%	96%

The ashgourd incorporated jelly shows appearance and overall acceptability scores high 96%



Comparison of mean values of standard and formulated product (Halwa)
Table 3 (Sensory Evaluation of Halwa)

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S.No	Scoring	Percentage	
		Standard Halwa	Formulated Halwa
1	Apperance	84%	92%
2	Taste	68%	96%
3	Flavour	70%	88%
4	Colour	80%	88%
5	Texture	76%	90%
6	Overall acetability	80%	94%

The ash gourd incorporated halwa shows that the taste scores high 96%.

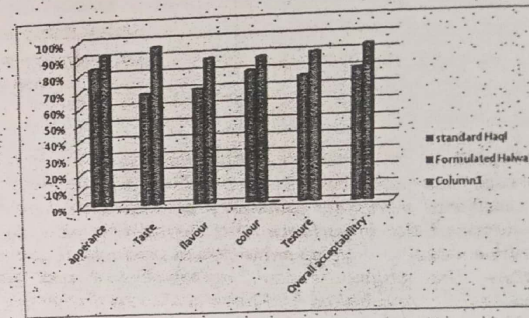


Table 4 Comparison of standard deviation and mean error for both standard and formulated product (Jelly)

S.No	Scoring	Standard Deviation		Mean Error	
		Standard	Formulated	Standard	Formulated
1	Apperance	0.4	0.6	0.04	0.06
2	Taste	0.4898	0.6	0.04898	0.06
3	Flavour	0.671	0.67	0.0671	0.067
4	Colour	0.458	0.5	0.04558	0.05
5	Texture	0.458	0.632	0.0458	0.0632
6	Overall acceptability	0.4	0.640	0.04	0.0640

Table reveals that the standard deviation shows that the overall acceptability of standard product is 0.4 and 0.04 for mean error, and for formulated product 0.640 and 0.0640 respectively.

Table 5 Comparison of standard deviation and mean error for both standard and formulated product (Halwa)

S. No	SCORING	Standard Deviation		Mean Error	
		Standard	Formulated	Standard	Formulated
1	Appearance	0.663	0.748	0.0663	0.0748
2	Taste	0.4	0.489	0.04	0.0489
3	Flavour	0.5	0.684	0.05	0.0684
4	Colour	0.44	0.684	0.044	0.0684
5	Texture	0.4	0.671	0.04	0.0671

The standard deviation of both standard and formulated products shows that the flavor and colour 0.5 and 0.684, 0.44 and 0.684 and their mean error were 0.05 and 0.0684 for flavor and 0.044 and 0.0684 for colour respectively.

Table 6 Nutrient analysis of formulated products

S.No	Nutrients	Formulated Product	
		Jelly	Halwa
1	Carbohydrate	3.40g	2.20g
2	Protein	0.28g	0.08g
3	Fat	0.16g	0.06g
4	Fiber	2.45g	2.6g

The carbohydrate content is 3.40g for jelly and 2.20g for halwa; Protein 0.28g and 0.08g; Fat 0.16g and 0.06g; Fiber 2.45 and 2.6g respectively.

Table 7 Shelf life study for the selected formulated product

Shelf life study of the formulated product (jelly) were stored in normal room temperature and refrigerated storage and their keeping quality is noted.

Days	Room Temperature		Refrigerator	
	Normal	Normal	Normal	Normal
15 - 30	Normal	Normal	Normal	Normal
30 - 45	Normal	Normal	Normal	Normal
45 - 60	Normal	Normal	Normal	Normal
60 - 75	Flavour disappear	Mold formation	Flavour disappears	Flavour disappears
Above 75				

To find out its keeping quality the formulated product was stored in air tight container for about 75 days. The formulated product were checked for 15, 30, 45, 60 and 75 days. After 60 days their were off flavor in room temperature. No change in refrigerator storage.

Microbial analysis

The bacterial and fungal growth were observed in the formulated product at 60th day. These were analysed by serial dilution method.

S.No	Sample Name	Dilution factor		Colony count	
		Bacteria	Fungus	Bacteria	Fungus
1	Jelly	10 ⁻³	10 ⁻³	20	1
2	Halwa	10 ⁻³	10 ⁻³	7	0

Conclusion

Ash gourd incorporated formulated product helps to improve the health status and it provide more nutrients. It had good sensory characteristics and good acceptance during storage. The aspetically processed Ashgourd had shelflife of two months with good acceptability. By comparing standard product and formulated product Ash gourd incorporated jelly and Halwa had better acceptability.

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