

Development and Evaluation of Calabash Fruit (*Crescentiacujete*) Juice Drink

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Abstract – This is a descriptive study aimed to develop a fruit juice drink made up of calabash fruit (*Crescentiacujete*) and evaluate its acceptability. Survey questionnaire was deployed to 120 respondents using random sampling. Results revealed that the calabash fruit juice is generally acceptable with a mean of 3.42. The fruit juice was believed as a potential product in the market.

Keywords: calabash, fruit juice, acceptability

Introduction

Calabash fruit (*Crescentiacujete*), also known as miracle fruit, is compacted with an ample amount of nutrients such as Vitamin B, Vitamin C, calcium, iron, sodium and potassium. It is known beneficial for aiding numerous illnesses such as decreasing blood pressure and sugar level, controlling the growth of malignant cells, efficiently dealing with respiratory problems such as asthma and cough and prevent cancer cells in the human body (Tacio, 2015). Hence, this study aimed to develop a fruit juice drink made up of calabash fruit (*Crescentiacujete*). Consequently, it evaluated the acceptability of the said fruit juice drink.

Calabash fruit was found beneficial to one's health. The fruit contains numerous important substances such as tannins, which is extensively used in treating urinary tract infections and other bacterial infections. It also has flavonoids, an anti-oxidant, and protector of body cells from free radicals that contribute to various health-related problems. It also contains alkaloids, which are very important in medicine as it is used for analgesic, anti-spasmodic and bacterial effect, saponins that boost energy and reduce inflammation of the upper respiratory passage; cardenolides, which are cardiac stimulants that may be useful in treating some heart related deceases. These are some of the healthy substances found in calabash that contributes to one's well-being (Ejenolu et al. (2011),

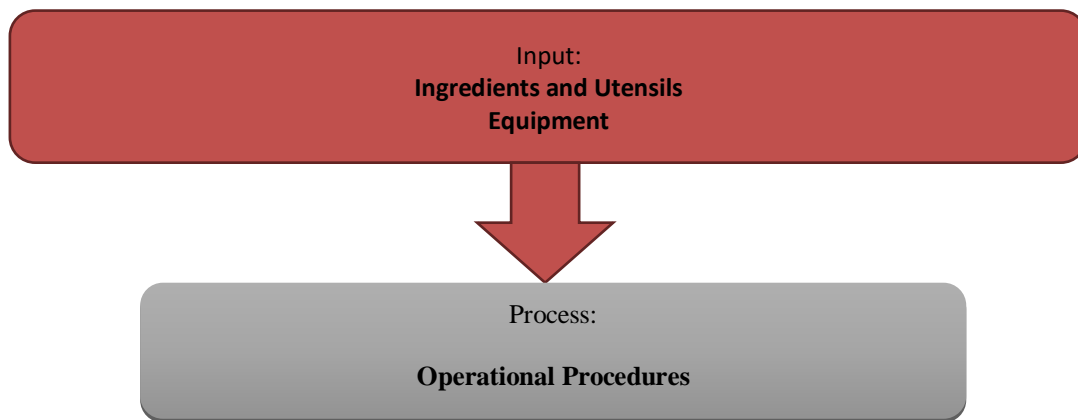
The fruit has already been homely produced as juice for aiding illnesses, despite being not yet widely recognized by the public. It may have not yet been realized, but there is still more to be utilized. The process which might be involved is not only limited or individual consumption but can also be a new ground of business venture.

In this study, the formulation and production of Calabash fruit juice were made. A survey questionnaire was developed to determine the acceptability of the product. The product is believed to boost the health conditions of the potential consumers.

Objectives of the Study

1. To develop a fruit juice drink made up of calabash fruit (*Crescentiacujete*)
2. To evaluate the general acceptability of the calabash fruit juice drink.

Conceptual Framework



The Conceptual Framework of the study was the IPO Model. The Input provides all the ingredients that used for the process which was the following extracted calabash juice, purified water, light brown sugar, and flavoring. The Process used was ingredient selection, washing, breaking, scooping, mashing, mixing, cooking, straining, boiling, cooling, bottling, sealing and chilling. The Output will be the Calabash Fruit (Cresenticujete) Juice Drink. After that, an evaluation activity will follow to determine the acceptability of the drink to the possible consumer.

Materials and Methods

Research Design

This study used a developmental-descriptive design in formulating the Calabash fruit juice drink. The developmental phase comprised the formulation and processes in making the juice drink. The descriptive part comprised the evaluation of the general acceptability of the juice drink using a hedonic scale.

Materials

The ingredients and methods of Calabash fruit juice drink comprise the following:

Ingredients	Quantity		Percentage
Extracted Calabash juice	3 liters	-	80%
Purified water	1 liter	-	15%
Light brown sugar	100 grams	-	4%
Flavoring	1 teaspoon	-	1%
			100%

Process / Procedure

Procedure in preparing and cooking Calabash drink:

1. Ingredient selection – Pick a mature Calabash fruit.
2. Washing – Wash Calabash fruit in clean running water.
3. Breaking – Break the fruit into half using a sharp butcher knife.
4. Scooping – scoop all the fruit meat from the shell using a slotted ladle.
5. Mashing – Mash the Calabash pulp using a masher.
6. Mixing – Mix the pulp with water.
7. Cooking – Cook the mixture for 30-45 minutes.
8. Straining – Strain the cooked mixture to separate the pulp from the juice.
9. Boiling – place the strained juice I another cooking vessel then add the rest of the ingredients and let it boil for 15 minutes.

10. Cooling – Let it cool for 50 degrees centigrade.
11. Bottling – Pour the mixture in sterile food-grade plastic bottles.
12. Sealing – Seal the bottles tightly with sterile bottle caps.
13. Chilling – Chill the finished product to prevent spoilage before serving.

Data Gathering Procedure

To determine the general acceptability of the juice drink, a survey to 120 people was done. This sample size was computed using G*Power 3.1.9. Purposive sampling was utilized in determining the participants of the study.

Statistical Analysis

The following statistical tools were used to treat the data:

Frequency Count and Percentages – in determining the profile of the participants

Mode – in determining which color, aroma, texture and taste of the product appeared frequent as observed in juice sample

Mean and Standard Deviation – used in determining the general acceptability of the juice drink

Hedonic scale—a term used in tasting panels where the judges indicate the extent of their like and dislike of food.

Results and Discussions

Profile of the Participants

Table 1. Civil Status Profile of the Participants

Civil Status	Frequency	Percent
Single	94	78.3
Married	26	21.7
Total	120	100.0

Table 1 show the profile of the respondents where majority were single with 78.3% of the total participants. Married cover 21.8% of the participants or 26 individuals.

Table 2. Age Profile of the Participants

Age	Frequency	Percent
20-25 y.o.	78	65.0
26-30 y.o.	17	14.2
31-40 y.o.	13	10.8
41 and above	12	10.0
Total	120	100.0

The table above present the age of the participants, majority of them were 20-25 years old or 65% of the total participants. On the other hand 41 years old above got the lowest number of 12 individual or 10 % of the total participants.

Table 3. Sex Profile of the Participants

Sex	Frequency	Percent
Male	78	65.0
Female	42	35.0
Total	120	100.0

Table 3 show the sex of the participants in which majority is male covering 65% of the total participants. Female participants composed of 42 individuals or 35 individuals.

Acceptability of the Calabash Juice Drink

Table 4. Description of the Color of Calabash Juice Drink

Color	Frequency	Percent
Brown	108	90.0
Slightly yellow	1	.8
Golden yellow	2	1.7
Slightly green	6	5.0
Yellow green	3	2.5

The table above shows the results that the majority of the participants are agree of the Color Brown, there are 108 participants or 90% of the total participants. This supported by Plants for a Future (2012) that the juice is light brown or yellowish brown, with fine veining of darker color. On the other hand the Color of Slightly Yellow got the lowest number of 1 individual or .8% of the total participants in which according to Plants For A Future (2012).

Table 5. Description of the Aroma of Calabash Juice Drink

Aroma	Frequency	Percent
No calabash odor	1	.8
Moderately smells like calabash	28	23.3
Definite calabash odor	29	24.2
Moderately calabash odor	42	35.0
Extremely calabash odor	20	16.7

The table above present the Aroma of Calabash Juice Drink where majority of them are 42 individuals or 35% of the total participants agree of Moderately Calabash Odor, in which according to Tacio (2015) that a fruit has no strong smell is best for making juice. On the other hand, No Calabash Odor got the lowest number of 1 individual or .8 % of the total participants, according to Tacio (2015) to that a fruit that has pleasant but not strong smell is best for making juice.

Table 6. Description of the Texture of Calabash Juice Drink

Texture	Frequency	Percent
Very low viscosity	5	4.2
Slightly low viscosity	59	49.2
Sufficiently high viscosity	15	12.5
Moderately high viscosity	29	24.2
Extremely high viscosity	12	10.0

The table above shows that the texture of Calabash Juice Drink where majority of them are 59 individuals or 49.2% of the total participants agree of Slightly Low Viscosity, in which according to Polistico (2018) that they dreaded the black color of its flesh and gummy smell. But what they do not realize is that this black juice is sweet and has healing wonders. On the other hand, Very low viscosity got the lowest number of 5 individual or 4.2 % of the total participants, and according to Polistico (2018), that the texture of Calabash Juice Drink has a very low containing gum.

Table 7. Description of the Taste of Calabash Juice Drink

Taste	Frequency	Percent
Bland	4	3.3
Slightly sweet	70	58.3
Sweet	27	22.5
Moderately sour	12	10.0
Extremely sour	7	5.8

The table above present the results that the majority of the participants are agree of the Taste of Calabash Juice Drink is slightly sweet; there are 70 participants or 58.3% of the total participants. This supported by Polistico (2018) that juice is slightly is sweet and has healing wonders, the reason why our old folks called it miracle fruit. On the other hand the taste of Bland got the lowest number of 4 individual or 3.3% of the total participants in which according to Polistico (2018) that the bland of Calabash Juice Drink has a lacking strong flavor.

Table 8. General Acceptability of Calabash Juice Drink

	N	Mean	Std. Deviation	Qualitative Description
General Acceptability	120	3.42	1.04	

Conclusions

The researcher found out that the Calabash Fruit (*Crescentia cujete*) Juice Drink is brown, has moderately odor, slightly low viscosity and slightly sweet.

Recommendation

For further study the researcher would like to recommend that another product might be developed using calabash fruit.

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