

Acceptability of Gumamela (*Hibiscus Rosa –Sinensis*) Flavoured Ice Cream



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Abstract: The Gumamela plant (*Hibiscus Rosa –Sinensis*) is most abundant in tropical areas, in the Philippines, it is in fact one of the most common garden ornamental plants. More than being common, the flowers of this plant are also edible and as a matter of fact have medicinal properties that can help prevent various types of diseases. The development of the Gumamela Flavoured Ice Cream was realized for the purpose of helping individuals gain more income through innovative livelihood opportunities that are at the same time cheap and with raw materials that are readily available. The study was conducted in Brgy. Hollywood, Guiuan, Eastern Samar. The respondents of the study included 80 community members of the said Barangay for the Pilot Test, 30 Barangay Officials including the Brgy. Police and members of the Sangguniang Kabataan for the Benchmark Test and 10 experts (ice cream makers and vendors from the barangay) for the Final Test. The conduct of the acceptability of the product made use of score cards which was an evaluation of flavour, appearance, texture, aroma, color and its general acceptability. The findings of the study came up with the recommendation that Gumamela Petals may be used as flavour for ice cream and that its availability can help improve the residents of the Brgy. Hollywood community as well as others in the financial and economic aspects. The preparation of the Gumamela Flavoured Ice Cream and the availability and abundance of its materials can help reduce poverty in the community.

Introduction

Background of the Study

Gumamelas are abundant anywhere in the world especially in areas with warmer climates. It is loved by many since it has a lot of varieties with each being unique and beautiful. It is easy also easy to maintain. Guiuan, Eastern Samar, being located in an area with warmer climate has a lot of gumamelas with different colors, number of petals, and appearance.

Studies have demonstrated anti-bacterial, hypotensive, antispasmodic, and chemopreventive activities. It has shown glucose lowering in diabetic rats. Leaf extract has shown to promote hair growth (StuartXchange.org. 2015).

Most ornamental plants are rich in vitamins and minerals, according to Prof. Gregorio Lugod and Dr. Ludivina de Padua of the University of the Philippines-Los Baños (UPLB) Department of Botany, who

jointly conducted a study on the nutritional properties and uses as food of these species of plants. The study cited as example gumamela that is very common in many gardens and its flowers used to adorn table tops or girls' hair. Unknown to many, the flowers and leaves of this shrub can now be eaten as food that provides the human body with starch, glycogen, calcium oxalate, sulfur and peptic substances to prevent colds, cancer and ulcer (Calleja, 2015).

It is with the reasons stated above that this study was conducted. To take advantage of the abundance of this flower in Guiuan, Eastern Samar, the researchers have decided to make the flower not only as a tool for decoration but as ingredient for food as well. This in turn can help alleviate poverty thru additional income of poor members of the community or other entrepreneurs by using products that are cheap and readily available as supplied by nature.

Objective of the study

The main purpose of the study was to make an Ice Cream flavoured with the Gumamela Flower. Specifically, it aimed to evaluate and analyze the product in terms of the following:

1. develop a new ice cream product flavour with Gumamela cream.
2. evaluate the acceptability level of the Gumamela Ice cream through the following indicator.
 - a. flavour
 - b. appearance
 - c. texture
 - d. aroma
 - e. colour
3. determine the general acceptability of the Gumamela Ice cream.

Significance of study

The output of the study is most beneficial to the following:

To unemployed members of the community. For them to be aware of the entrepreneurial potentials of the gumamela, not just for decoration or beautifying gardens but also for gastronomic experiences. For them to take advantage of the abundance of the Gumamela plant and use it to help them gain more income.

To businessmen and food establishment owners. For them to add a new product innovation in their sales and products so that they can welcome more costumers in their stores.

For Local Ice Cream Vendors. For the to add this product and have a unique flavour added to their list of items. It is noticed that most products of local ice creams include mango, vanilla and ube. This is the most common. If added to their list, the gumamela ice cream can invite more curious customers and its sweet taste would definitely entice them to try the new and unique product.

The children. This study will help to improve the health of the children as the gumamela plant carries medicinal properties with it.

The students. This study will give the students (future researchers) to have an idea and to innovate new products using gumamela flowers.

The customers. The result of this study will provide health benefits to the customers. This could also help them to make new product using gumamela as flavour.

The instructors. This study will help the instructors to give an idea to their students on how to innovate a new product that is made from gummela.

Scope and Delimitations of the Study

This study was limited in testing the gumamela flavoured cream. The respondents of the study were the thirty (30) selected community members of Brgy. 03, Guiuan, Eastern Samar and thirty (30) selected community members of Brgy. Gahoy, Guiuan, Eastern Samar. for the pilot test, thirty (30) Faculties in ESSU-Guiuan Campus for the Benchmark test and Ten (10) ice cream makers and vendors for the final test. This study used a score card to determine the acceptability of Gumamela Flavoured Ice Cream indicating the following criteria, flavour, appearance, texture, aroma, colour and general acceptability.

Definition of Terms

The following terms are defined in a random order to aid the comprehension of the readers:

Gumamela. is a flower used in many places around the world for herbal medicinal purposes. Also known as the hibiscus, China rose or shoeflower, the gumamela is used as an expectorant, diuretic, anti-infectious, anti-inflammatory and more. (Reference, 2019)

Ice cream. is a very cold sweet food which is made from frozen cream or a substance like cream and has a flavour such as vanilla, chocolate, or strawberry. (*Variable Noun*; Collins English Dictionary, 2019).
In this study ice cream is the main product for this study.

Taste. The objective of sweet, sour, bitter, salty or umami quality of a dissolved substance as perceived by the sense of taste. (Merriam –Webster, 2019)
In this study ice cream is the main product for this study.

Appearance. Outward or visible aspect of a person or thing.
In this study, the term is used to refer to the appearance of the product which is the Gumamela Ice Cream. (Vocabulary.com, 2019)

Aroma. A distinctive, pervasive, and usually pleasant or savory smell. In this study, aroma refers to smell of the gumamela ice cream. (Merriam –Webster, 2019)

Review of Related Literature and Studies

This chapter presents the relevant articles, studies, and literatures that will serve as the basis of this study.

Related Literature

The origins of ice cream can be traced back to at least the 4th century B.C. Early references include the Roman emperor Nero (A.D. 37-68) who ordered ice to be brought from the mountains and combined with fruit toppings, and King Tang (A.D. 618-17 of Shang, China) who had a method of creating ice and milk concoctions. Ice cream was likely brought from China back to Europe. Over time, recipes for ices, sherbets, and milk ices evolved and served in fashionable Italian and French royal courts. (Bellis, 2017)

The early 1800's, there were no accepted rules about how to flavour, prepare, or even serve ice cream other than the fact it had to be done rather quickly. An absence of mechanical refrigeration meant that chefs rely on ice houses where large chunks of ice were stored and elaborate hand-cranked machines in order to dish out the good stuff. Enjoying ice cream was an event normally only enjoyed by society's elite. (Rossen, 2017)

Sorbetes is still made in the Philippines today thanks to the *sorbeteros* who peddle the ice cream in the streets. The *sorbetero's* carts are distinctly decorated like a Philippine jeepney, while three ice cream flavours are stored inside three metal canisters. Blocks of ice keep the sorbets frozen. Popular flavours or the dirty ice cream include avocado, melon, strawberry, cookies and cream, chocolate and cheese. Now coconut milk is also used to give the sorbetes its creaminess. Sorbetes is scooped and served in sugar cones or in between bread buns. (Ylaya, 2016)

In a discovery that will give nutritionists the shivers, Japanese scientist has discovered that consuming ice cream improves a person's alertness and mental performance. Yoshihiko Koga, a professor at Tokyo's Kyorin University, has carried out a series of clinical trials in which test subjects were required to eat ice cream immediately after waking up. The eating ice cream the same "pleasure spots" of the brain that are lit up by winning money, are listening to a favorite piece of music. (Ryall and Rothwell, 2016)

Gumamela is not just a blossom of beauty but a possible ingredient for good health. A study conducted by Davao Medical School Foundation revealed that Gumamela flower (*Hibiscus rosa-sinensis*) contains ingredients that may be used to prevent cancer, by inhibiting mutation of cancer cells in human body. Cancer is a result of genetic mutation when our bodies are exposed to carcinogens (cancer-causing substances). A single abnormal cell will grow, leading to multiple mutations to form tumors. Tumor cells eventually invade and destroy normal cells. In the laboratory experiments (Modified Ames Salmonella Assay), the researchers tested the anti-mutagenic properties or the ability to control mutation of gumamela flower extracts to the growth of mutant salmonella bacteria. They compared effects to Mytomycin C, a standard mutagen (positive control) and mineral water as negative control. Results showed that gumamela extracts significantly decreased the growth (mutation) of salmonella compared to Mytomycin C and mineral water. In fact, the study highlighted that even

with the presence of mutagen (agent that promotes mutation), gumamela extracts have successfully halted the bacteria's growth in most of the trials conducted. According to the study, these effects may be attributed to the active ingredients in gumamela such as flavanoids and proanthocyanins, the phytochemical components that act as powerful antioxidants and free radical scavengers. Proanthocyanins trap hydroxyl, lipid peroxides and other damaging free radicals and stimulate cells to produce detoxifying enzymes. Meanwhile, flavanoid is one of the few free radical scavengers that protect the body against fat and water soluble free radicals. With these findings, researchers claimed that gumamela is a potential natural resource that can prevent the development of cancer cell in human body (PCHRD, 2013).

Related Studies

In conducting the preparation for the acceptability of Gumamela Ice Cream the researchers found studies directly related to this. The information gathered ideas and concept from the project and report that showed some degree relevance to the study is stated below.

The research study was conducted to find the feasibility of the gumamela flowers as flavoring for ice cream. The presence of nutritional components in gumamela petals led the researcher to utilize it as flavoring to one of the most favorite dessert of young and old alike. It aimed to find an alternative ingredient that would be beneficial to the health of the people and would be acceptable as to its appearance, taste, texture, and aroma. After the processes of preparing, cooking, mixing, blending and freezing of the gumamela ice cream, the researcher conducted a taste test. The experimental gumamela ice cream was labeled as A and a branded ice cream was labeled as B. Twenty eight (28) respondents graded the A and B from the scale of 1 to 5 wherein 1 the lowest and 5 is the highest. The results were tabulated and a t-test for two independent samples was used to determine if there is a significant difference between the experimental product and the branded ice cream in terms of the given parameters. Results showed that there is no a significant difference between the experimental and the branded ice cream. (Casanova, 2011).

As we all know gumamela plant is abundant here in Philippines. It grows anywhere and everywhere in our community. So, as a researcher as I can see in our community, people are letting gumamela flower to fall on the ground after the flower blooms. So, as I am concern I decided to study and use gumamela flower and make it into a shake. Making gumamela petals as a shake will make us think and realize that aside from being plant and a very decorative flower, it can also used as an main ingredient for making a shake. Common hibiscus is used to treat coughs by placing extracts from the plant in the patient's bath or in water used for steam inhalations. Hibiscus is often combined with other herbs to make cough syrup. As now, as I am concern, I made a thought to make gumamela petals as a shake to make it more useful to people than letting it fell down on the ground and seeing it useless. In this study, I want to exclude the feasibility of gumamela petals as shake. As a researcher, what makes me have difficulty on this study is on how will people accept my study despites of what they have known about gumamela. Wash the gumamela flowers after collecting it on its plant. Separate the petals from its flowers. Put the washed petals to the blender and start blending it. But before blending it, you hve to assure that the petals you put into the blender is enough o make the a delicious shake. Put enough water the petals blend easily. After blending it, put the condensed milk and be assure that the condensed is enough to make the shake yummy. After it, put enough teaspoon of sugar to have better taste. Put the ice cubes or the crashed ice to make the shake cold and tasty. After tasting it, put the finished product on a clean bottle or in a pitcher. Based on the trials conducted, here are some of the descriptive results that are discussed by the researcher. On the first trial, based on the survey, the odor and the taste of the shake is on rank 2 w/c is good. Only the odor of the shake is on the rank 3 w/c needs improvement. On the second trial, the average rank of the odor, color, taste of the shake is on rank 2 w/c is good (Investigatory blog-Nessy, 2009).

Studies have revealed that craving for ice cream - or - anything sweet - could help after mood swings. In addition, according to health.com, the reason behind the craving is often associated with long-term patterns such as our childhood sweet memories - like when mom gives us cookies or rewarded for doing well with an ice cream fix. Although the downside of eating these sweets could lead to Diabetes, you can still enjoy them by trying these artisanal ice cream made by Fog City Creamy. (Manahan, 2016)

Students Cassidy Cowger mixes liquid nitrogen with other ice cream ingredients. This was the winning combination for Jordan Comish of highland and Matt Vanguten of East Peoria during an ice cream-making contest Friday afternoon in Millikin University's Leighty-Tabor Science Center. Ice cream making was part of the workshop for chemistry majors, and because of cooling agent was liquid nitrogen rather than ice, the process required taking safely precautions, such as wearing goggles. (Churchill, 2015)

Work Flow

The study of this product includes input, process and output of the product. Within this is the process of how to gain information of the acceptability of the Gumamela as flavour of Ice Cream, along with how its made and what materials are needed.

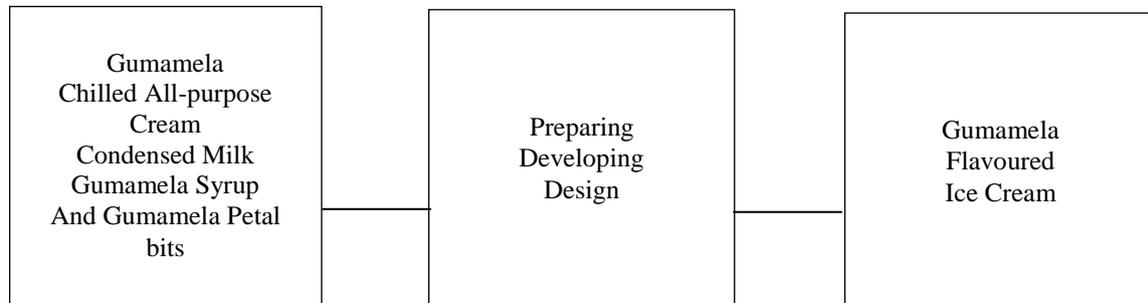


Figure1. Workflow of the study

Methodology

This chapter presents the research design, locale of the study, and respondents of the study, research instruments, and data collection procedure, measurement of variables and analysis of data.

Materials and Equipment

1. Casserole pot
2. Electric Mixer
3. Wooden Spoon
4. Stove
5. Chopping Board
6. Mixing Bowl
7. Knives

Procedure

The following are steps for creating the Gumamela Flavoured Ice Cream

1. Wash the Gumamela Flowers in running water.
2. Remove the petals.
3. Using an electric mixer, combine the chilled all-purpose cream and condensed milk in a mixing bowl.
4. Mix the product with the gumamela syrup.
5. Check the consistency of the product then sprinkle it with cut gumamela bits
6. Place it in a container and leave it in the refrigerator.
7. Wait for the gumamela ice cream to be frozen.

Gumamela Petal syrup:

Put a considerable amount of sugar in a pot, specifically not more than 750 grams, you might not need too much sugar as gumamela flowers are naturally sweet. Next step is to boil 1 liter of water until a right consistency of syrup is met. After heating, remove the syrup to let cool, then put 100 grams of gumamela petals and cover for 5 – 8 hours. Lastly, fill with gumamela syrup some small tight containers, or small empty bottles then place them in the refrigerator.

Gumamela Bits:

To add more gumamela flavour to the ice cream, cut tiny bits of gumamela petals – around .01 cms. or 1 mm. Sprinkle the bits to the ice cream before freezing it in the refrigerator.

Benchmark Test Costing

Trial I Costing	Trial II Costing	Trial III Costing
380g Condensed Milk (P35.00)	380g Condensed Milk (P35.00)	300g Condensed Milk (P35.00)
250 ml All Purpose Cream (P55.00)	250 ml All Purpose Cream (P55.00)	250 ml All Purpose Cream (P55.00)
25g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)	75g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)	75g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)
750g White Sugar (P35.00)	750g White Sugar (P35.00)	750g White Sugar (P35.00)
1L potable water (free)	1L Mineral water (P10.00)	1L Mineral water (P10.00)
TOTAL COST: P125.00	TOTAL COST: P135.00	TOTAL COST: P135.00

Pilot Test Costing

Trial I Costing	Trial II Costing	Trial III Costing
380g Condensed Milk (P35.00)	300g Condensed Milk (P35.00)	285g Condensed Milk (P35.00)
250 ml All Purpose Cream (P55.00)	250 ml All Purpose Cream (P55.00)	250 ml All Purpose Cream (P55.00)
75g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)	100g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)	125g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)
750g White Sugar (P35.00)	500g White Sugar (P25.00)	500g White Sugar (P25.00)
1L potable water (free)	1L Mineral water (P10.00)	1L Mineral water (P10.00)
TOTAL COST: P125.00	TOTAL COST: P125.00	TOTAL COST: P125.00

Final Test Costing

Trial I Costing	Trial II Costing	Trial III Costing
280g Condensed Milk (P35.00)	200g Condensed Milk (P35.00)	190g Condensed Milk (P18.00)
250 ml All Purpose Cream (P55.00)	250 ml All Purpose Cream (P55.00)	250 ml All Purpose Cream (P55.00)
75g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)	100g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)	125g Gumamela Petals (for syrup and bits) (free – gumamelas are abundant and common in the locality)
750g White Sugar (P35.00)	500g White Sugar (P35.00)	500g White Sugar (P35.00)
1L potable water (free)	1L Mineral water (P10.00)	1L Mineral water (P10.00)
TOTAL COST: P125.00	TOTAL COST: P135.00	TOTAL COST: P118.00

Methods

Research Design

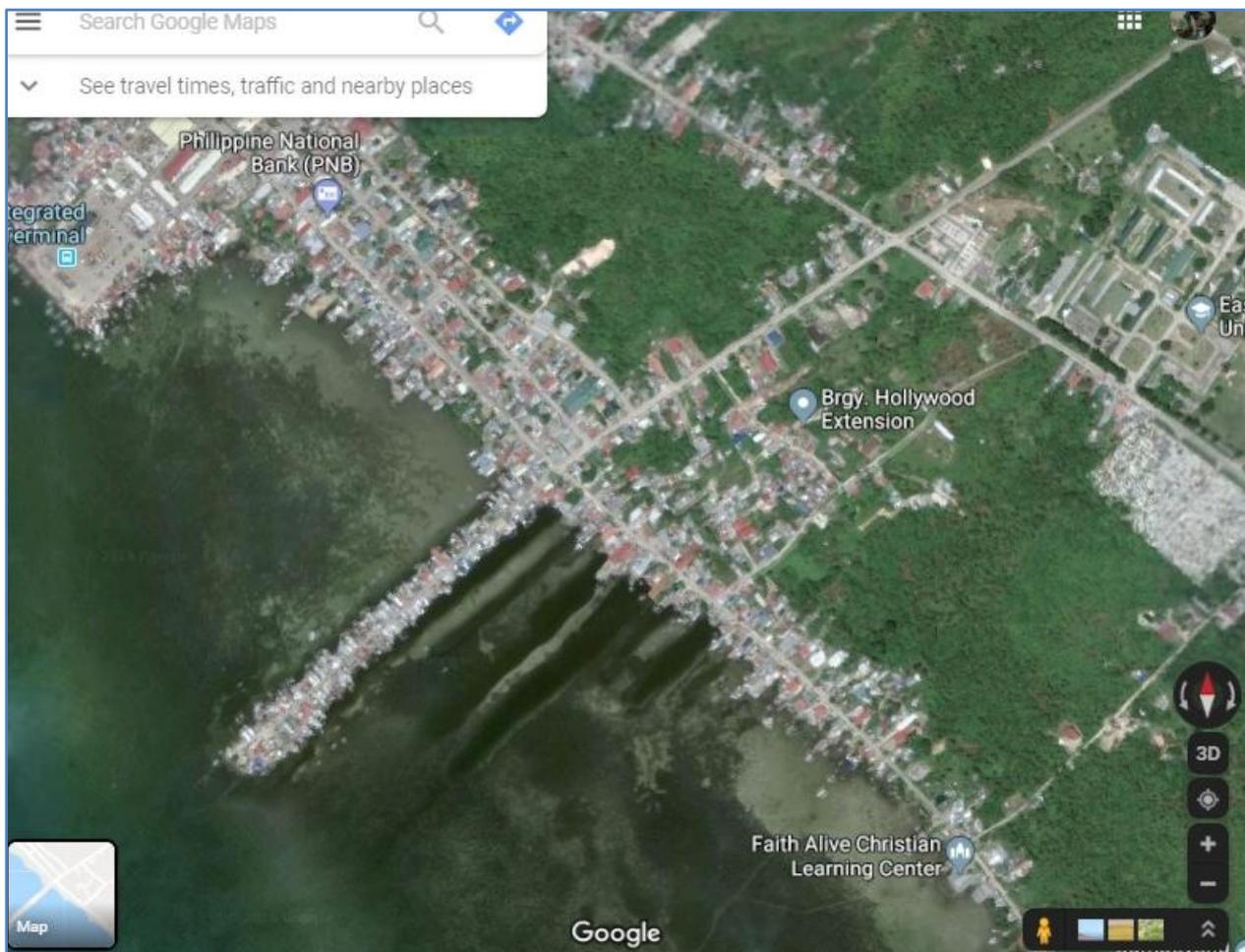
The study utilized the Experimental method of research. This method is defined by Good as a method or procedure involving the control or manipulation of conditions for the purpose of studying the relative effects of various treatments applied to members of a sample, or of the same treatment applied to members of different samples. (Good, p.216., Calderon, p.83)

In other words, experimental research is a highly controlled procedure in which manipulated treatments or actions from a factor or condition, called the experimental or independent variable, are applied upon another factor or condition, called the dependent variable, to determine the effect of the former upon the latter, all other factors or variables being kept constant or equal so that any change in the dependent variable is attributable only to the experimental or independent variable. (Calderon, p.83)

The Experimental Research type of study was used as it was found most appropriate for application by the researchers in the events that some problems develop during the course of the study and that necessary actions are to be taken to fix the anticipated problems or issues.

Locale of the Study

The study was conducted at Brgy. Hollywood, Guiuan, Eastern Samar. The barangay has around 1,500 residents as it is a merge of two (2) formerly separate barangays namely; Brgy. Jetty and Brgy. Hollywood. The locale was chosen as it is the home – barangay of the lead researcher. More importantly, the barangay consists of many children aged 1 to 12 years of age who can be beneficiaries of the study.



Data Collection Procedure

To ensure a smooth flow of the operations for the conduct of the study, the researchers prepared communication letters to parties concerned starting with one addressed to the Brgy. Officials of the

Brgy.Hollywood community.Only after the approval from the Brgy. Council were the score cards distributed. Upon answering the score cards, the respondents were also given samples to determine the quality of the product. Purposive sampling was used in the study. Purposive sampling is determining the population, those to be involved in the study. The respondents are chosen on the basis of their knowledge of the information desired. (Calderon, p.174).

Measurement of Variables

To measure the variables, the criteria below were used:

Ranges	Scale	Interpretation
4.21-5.00	5	Extremely Acceptable
3.41-4.20	4	Highly Acceptable
2.41-3.40	3	Acceptable
1.81-2.40	2	Slightly Acceptable
1.00-1.80	1	Not Acceptable

Data Analysis

The data that were gathered and tallied in order to derive the frequency and mean ratings for each of the variables considered in this study. The mean ratings were interpreted using the 5 point Likert scale namely: 5- extremely acceptable, 4- highly acceptable, 3- acceptable, 2- slightly acceptable, 1- not acceptable.

Results and Discussion

This chapter presents the answers to the researcher questions posed in the study based on the data gathered of the product development of Gumamela(*Hibiscus Rosa –Sinensis*)Ice Cream.

Development of the Product

To develop the acceptability of the Gumamela flavoured Ice Cream, a survey was first conducted to assess the properties of the *Hibiscus Rosa –Sinensis*, or more known as Gumamela. After determining its gastronomic properties, the preparation for making the ice cream was done. A syrup had to be developed in order to the flavour to really sink in to the ice cream. To enhance the flavour, and add to the additional gumamela kick of the product, gumamela bits were also added in the mix. Then, when everything was mixed and settled, the final product was left in the refrigerator to be frozen.

Testing the Product

As standard procedure for any product development study, 3 tests; specifically (1) Benchmark Test, (2) Pilot Test and (3) Final Tests were conducted by the researchers to determine the general acceptability of the Gumamela Flavoured Ice Cream. Score cards containing different criterion were given to respondents following the giving of free samples for tasting and testing the product.

Pilot Test

Table 1.The Result of the Pilot Test of Gumamela Flavoured Ice Cream in terms of flavour

Items	Mean	Interpretation
Trial 1	4.15	Extremely Acceptable
Trial 2	4.05	Extremely Acceptable
Trial 3	4.50	Extremely Acceptable
Total Mean	4.23	Extremely Acceptable

Table 1 shows the evaluation result of the pilot test participated by 40 selected residents of brgy. Jetty – Hollywood and 40 selected residents of Brgy. Hollywood, Guiuan, Eastern Samar.Each indicator has a scale of 1-5. Trial 3 got highest mean score of the flavour is 4.50 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.15 and interpreted as extremely acceptable. With an overall mean score of 4.50 and is interpreted as extremely acceptable.

Table 2. The Result of the Pilot Test of Gumamela Flavoured Ice Cream in Terms of Appearance

Items	Mean	Interpretation
Trial 1	4.60	Extremely Acceptable
Trial 2	4.60	Extremely Acceptable
Trial 3	4.64	Extremely Acceptable
Total Mean	4.61	Extremely Acceptable

Table 2 shows the evaluation result of the pilot test participated by 40 selected residents of brgy. Jetty – Hollywood and 40 selected residents of Brgy. Hollywood, Guiuan, Eastern Samar. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the flavour is 4.64 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.60 and interpreted as extremely acceptable. With an overall mean score of 4.61 and is interpreted as extremely acceptable.

Table 3. The Result of the Pilot Test of Gumamela Flavoured Ice Cream in Terms of Texture

Items	Mean	Interpretation
Trial 1	4.80	Extremely Acceptable
Trial 2	4.83	Extremely Acceptable
Trial 3	4.86	Extremely Acceptable
Total Mean	4.82	Extremely Acceptable

Table 3 shows the evaluation result of the pilot test participated by 40 selected residents of brgy. Jetty – Hollywood and 40 selected residents of Brgy. Hollywood, Guiuan, Eastern Samar. The researchers conducted three trials in pilot test. Each indicator has a scale of 1-5. In trial 1 the mean score of the texture 4.80 and interpreted as extremely acceptable. Meanwhile, Trial 2, has a mean score 4.83 and interpreted as extremely acceptable. In trial 3 mean score is 4.86 and is interpreted as extremely acceptable. With an overall mean score of 4.82 and is interpreted as extremely acceptable.

Table 4. The Result of the Pilot Test of Gumamela Flavoured Ice Cream in Terms of Aroma

Items	Mean	Interpretation
Trial 1	4.25	Extremely Acceptable
Trial 2	4.50	Extremely Acceptable
Trial 3	4.80	Extremely Acceptable
Total Mean	4.51	Extremely Acceptable

Table 4 shows the evaluation result of the pilot test participated by 40 selected residents of brgy. Jetty – Hollywood and 40 selected residents of Brgy. Hollywood, Guiuan, Eastern Samar. The researchers conducted three trials in pilot test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the aroma is 4.80 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.25 and interpreted as extremely acceptable. With an overall mean score of 4.60 and is interpreted as extremely acceptable.

Table 5. The Result of the Pilot Test of Gumamela Flavoured Ice Cream in Terms of Color

Items	Mean	Interpretation
Trial 1	4.50	Extremely Acceptable
Trial 2	4.75	Extremely Acceptable

Trial 3	4.80	Extremely Acceptable
Total Mean	4.68	Extremely Acceptable

Table 5 shows the evaluation result of the pilot test participated by 40 selected residents of brgy. Jetty – Hollywood and 40 selected residents of Brgy. Hollywood, Guiuan, Eastern Samar. The researchers conducted three trials in pilot test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the color is 4.80 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.50 and interpreted as extremely acceptable. With an overall mean score of 4.68 and is interpreted as extremely acceptable.

Table 6.Summary on the Overall Perceptions of the Respondents on Pilot Test.

Indicator	Mean	Interpretation
Flavour	4.23	Extremely Acceptable
Appearance	4.61	Extremely Acceptable
Texture	4.82	Extremely Acceptable
Aroma	4.51	Extremely Acceptable
Color	4.68	Extremely Acceptable
Total Mean	4.57	Extremely Acceptable

Table 6 reveals the evaluation result of the pilot test participated by 40 selected residents of brgy. Jetty – Hollywood and 40 selected residents of Brgy. Hollywood, Guiuan, Eastern Samar. Each indicator has the scale of 1-5. Among the parameters, texture was the highest mean score of 4.82 which means that the respondents were extremely acceptable the product. However, flavour was the lowest mean score of 4.25 and interpreted as highly acceptable. The overall mean in the pilot test garnered the score of 4.57 and was interpreted as extremely acceptable.

Benchmark Test

Table 7. The Result of the Benchmark Test of Gumamela Flavoured Ice Creamin Terms of Flavor

Items	Mean	Interpretation
Trial 1	4.50	Extremely Acceptable
Trial 2	4.70	Extremely Acceptable
Trial 3	4.70	Extremely Acceptable
Total Mean	4.63	Extremely Acceptable

Table 7 shows the evaluation result of the benchmark test participated by thirty members of the Brgy. Hollywood Council. The researchers conducted three trials in benchmark test. Each indicator has a scale of 1-5. Trial 2 and 3 got highest mean score of the flavor is 4.70 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.50 and interpreted as extremely acceptable. With an overall mean score of 4.91 and is interpreted as extremely acceptable.

Table 8. The Result of the Benchmark Test of Gumamela Flavoured Ice Cream in Terms of Appearance

Items	Mean	Interpretation
Trial 1	4.70	Extremely Acceptable
Trial 2	4.74	Extremely Acceptable
Trial 3	4.75	Extremely Acceptable
Total Mean	4.73	Extremely Acceptable

Table 8 s shows the evaluation result of the benchmark test participated by thirty members of the Brgy. Hollywood Council. The researchers conducted three trials in pilot test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the appearance is 4.75 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.70 and interpreted as extremely acceptable. With an overall mean score of 4.73 and is interpreted as extremely acceptable.

Table 9. The Result of the Benchmark Test of Gumamela Flavoured Ice Cream in Terms of Texture

Items	Mean	Interpretation
Trial 1	4.85	Extremely Acceptable
Trial 2	4.86	Extremely Acceptable
Trial 3	4.90	Extremely Acceptable
Total Mean	4.87	Extremely Acceptable

Table 9 shows the evaluation result of the benchmark test participated by thirty members of the Brgy. Hollywood Council. The researchers conducted three trials in benchmark test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the texture is 4.90 and interpreted as extremely acceptable. Trial 1 had the lowest score of 4.85 and interpreted as extremely acceptable. With an overall mean score of 4.87 and is interpreted as extremely acceptable.

Table 10. The Result of the Benchmark Test of Gumamela Flavoured Ice Cream in Terms of Aroma

Items	Mean	Interpretation
Trial 1	4.66	Extremely Acceptable
Trial 2	4.68	Extremely Acceptable
Trial 3	4.70	Extremely Acceptable
Total Mean	4.68	Extremely Acceptable

Table 10 shows the evaluation result of the benchmark test participated by thirty members of the Brgy. Hollywood Council. The researchers conducted three trials in benchmark test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the aroma is 4.70 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.66 and interpreted as extremely acceptable. With an overall mean score of 4.68 and is interpreted as extremely acceptable.

Table 11. The Result of the Benchmark Test of Gumamela Flavoured Ice Cream in Terms of Color

Items	Mean	Interpretation
Trial 1	4.80	Extremely Acceptable
Trial 2	4.85	Extremely Acceptable
Trial 3	4.86	Extremely Acceptable
Total Mean	4.83	Extremely Acceptable

Table 11 shows the evaluation result of the benchmark test participated by thirty members of the Brgy. Council. The researchers conducted three trials in benchmark test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the color is 4.86 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.80 and interpreted as extremely acceptable. With an overall mean score of 4.83 and is interpreted as extremely acceptable.

Table 12.Summary on the Overall Perceptions of the Respondents on Benchmark Test.

Indicator	Mean	Interpretation
Flavour	4.63	Extremely Acceptable
Appearance	4.73	Extremely Acceptable
Texture	4.87	Extremely Acceptable
Aroma	4.68	Extremely Acceptable
Color	4.83	Extremely Acceptable
Total Mean	4.75	Extremely Acceptable

Table 12 shows the evaluation result of the benchmark test participated by thirty members of the Brgy. Hollywood Council with the inclusion of Brgy. Kagawads as well as the SanguniangKabataan (SK) Members. Each parameter has the scale of 1-5. Among the parameters, texture was the highest mean score of 4.87 which interpreted as extremely acceptable, that means the respondents likes the texture of the product. Meanwhile, flavor was the lowest mean score of 4.63 which also interpreted as extremely acceptable. This means that in terms of flavor should be improved in order to attract customers through the taste of the product. The overall mean in the benchmark test got the score of 4.75 and was interpreted as extremely acceptable.

Final Test

Table 13. The Result of the Final Test of Gumamela Flavoured Ice Creamin Terms of Flavor

Items	Mean	Interpretation
Trial 1	4.70	Extremely Acceptable
Trial 2	4.76	Extremely Acceptable
Trial 3	4.80	Extremely Acceptable
Total Mean	4.75	Extremely Acceptable

Table 13 shows the evaluation result of the final test participated ten ice cream makers and vendors in Brgy. Hollywood, Guiuan, Eastern Samar. The researchers conducted three trials in final test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the flavor is 4.80 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.70 and interpreted as extremely acceptable. With an overall mean score of 4.75 and is interpreted as extremely acceptable.

Table 14. The Result of the Final Test of Gumamela Flavoured Ice Creamin Terms of Appearance

Items	Mean	Interpretation
Trial 1	4.73	Extremely Acceptable
Trial 2	4.74	Extremely Acceptable
Trial 3	4.75	Extremely Acceptable
Total Mean	4.74	Extremely Acceptable

Table 14 shows the evaluation result of the final test participated ten ice cream makers and vendors of Brgy. Hollywood, Guiuan, Eastern Samar. The researchers conducted three trials in final test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the appearance is 4.75 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.73 and interpreted as extremely acceptable. With an overall mean score of 4.74 and is interpreted as extremely acceptable.

Table 15. The Result of the Final Test of Gumamela Flavoured Ice Cream in terms of Texture

Items	Mean	Interpretation
Trial 1	4.88	Extremely Acceptable
Trial 2	4.90	Extremely Acceptable
Trial 3	4.90	Extremely Acceptable
Total Mean	4.89	Extremely Acceptable

Table 15 shows the evaluation result of the final test participated ten ice cream makers and vendors in Brgy. Hollywood, Guiuan Eastern Samar. The researchers conducted three trials in final test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the texture is 4.90 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.88 and interpreted as extremely acceptable. With an overall mean score of 4.89 and is interpreted as extremely acceptable.

Table 16. The Result of the Final Test of Gumamela Flavoured Ice Cream in terms of Aroma

Items	Mean	Interpretation
Trial 1	4.68	Extremely Acceptable
Trial 2	4.70	Extremely Acceptable
Trial 3	4.71	Extremely Acceptable
Total Mean	4.69	Extremely Acceptable

Table 16 shows the evaluation result of the final test participated ten ice cream makers and vendors of Brgy. Hollywood, Guiuan Eastern Samar. The researchers conducted three trials in final test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the aroma is 4.71 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.68 and interpreted as extremely acceptable. With an overall mean score of 4.61 and is interpreted as extremely acceptable.

Table 17. The Result of the Final Test of Gumamela Flavoured Ice Cream in terms of Color

Items	Mean	Interpretation
Trial 1	4.84	Extremely Acceptable
Trial 2	4.87	Extremely Acceptable
Trial 3	4.91	Extremely Acceptable
Total Mean	4.87	Extremely Acceptable

Table 17 shows the evaluation result of the final test participated ten ice cream makers and vendors in Guiuan Eastern Samar. The researchers conducted three trials in final test. Each indicator has a scale of 1-5. Trial 3 got highest mean score of the color is 4.91 and interpreted as extremely acceptable. Trial 1 has the lowest score of 4.84 and interpreted as extremely acceptable. With an overall mean score of 4.87 and is interpreted as extremely acceptable.

Table 18. Summary on the Overall Perceptions of the Respondents on Final Test.

Indicator	Mean	Interpretation
Flavour	4.75	Extremely Acceptable
Appearance	4.74	Extremely Acceptable
Texture	4.89	Extremely Acceptable
Aroma	4.69	Extremely Acceptable
Color	4.87	Extremely Acceptable
Total Mean	4.78	Extremely Acceptable

The table 18 shows the evaluation result of the final test participated ten ice cream makers and vendors of Brgy. Hollywood, Guiuan Eastern Samar. Each parameter has 1-5 scale. Among of the parameters, texture got the highest mean score of 4.89 which is interpreted as extremely acceptable. This means that the respondents of the final test are pleased with the texture they feel whenever they eat the gumamela flavoured ice cream. In the other hand, the indicator Flavoring ranked lowest among the group and was rated 4.53 but still, interpreted as extremely liked. This just proves that in terms of flavoring, the researcher’s needs to improve the flavor of the product enable to become more palatable for the target customers.

Overall Mean Result

Table 19. Overall Perception of Respondents for Rose Petal Ice Cream.

Items	Benchmark Test	Pilot Test	Final Test	Overall Result	Interpretation
Flavour	4.23	4.63	4.75	4.63	Extremely Acceptable
Appearance	4.61	4.73	4.74	4.69	Extremely Acceptable
Texture	4.82	4.87	4.89	4.86	Extremely Acceptable
Aroma	4.51	4.68	4.69	4.63	Extremely Acceptable
Color	4.68	4.83	4.87	4.79	Extremely Acceptable
General Acceptability	4.57	4.75	4.78	4.7	Extremely Acceptable
TOTAL	27.42	28.49	28.72	28.3	Extremely Acceptable
Grand Mean	4.57	4.75	4.79	4.71	Extremely Acceptable

Table 19 shows the overall perception on a sensory evaluation result of the respondents. For the pilot test it has a total mean score of 4.57 with corresponding interpretation of extremely acceptable; the benchmark test has a total mean score of 4.75 with corresponding interpretation of extremely acceptable; the final test had a total mean score of 4.79 with corresponding interpretation of highly acceptable. This means that the respondents of Brgy. Hollywood, Guiuan, Eastern Samar rated the product development known as the Gumamela Flavoured Ice Cream to be extremely acceptable.

Summary, Conclusions, and Recommendation

This chapter presents the summary findings, conclusions and the recommendation of the study.

Summary of Findings

The study determined the sensory of acceptability of Gumamela Flavoured Ice Cream with the following objectives:

1. Develop a new flavour of Gumamela Flavoured Ice Cream
2. Evaluate the acceptability level of the Gumamela Flavoured Ice Cream through the following indicator:
 - 2.1 Flavour
 - 2.2 Appearance
 - 2.3 Texture
 - 2.4 Aroma
 - 2.5 Colour
3. Determine the general acceptability of the Gumamela Flavoured Ice Cream.

This study determined the sensory acceptability of Gumamela Flavoured Ice Cream based on commercial flavor for making an ice cream.

The development of gumamela into ice cream evident to the following characteristics: flavour, appearance, texture, aroma, colour, and general acceptability.

A total of 70 individuals considered as the respondents of the study. Thirty selected fourth year students ten from College of Business Management and Accountancy, ten from College of Education and Ten from College of Engineering and Technology for the pilot test, thirty Faculties in ESSU-Guiuan Campus for the Benchmark test and Ten ice cream makers and vendors for the final test.

A score card was used as an instrument to determine the acceptability of the consumers. To quantify the responses, mean was used to know the acceptability of Gumamela Flavoured Ice Cream in terms of flavour, appearance, texture, aroma colour and general acceptability.

The pilot test was participated by Thirty selected fourth year students ten from College of Business Management and Accountancy, ten from College of Education and Ten from College of Engineering and Technology.. Each indicator has the scale of 1-5. Among the parameters, texture was the highest mean score of 4.72 which means that the respondents were extremely like the product However color was the lowest mean score of 4.44 and interpreted as extremely like. The overall mean in the pilot test garner the score of 4.59 and was interpreted as extremely like. This means that during the pilot testing, the acceptability of Gumamela Flavoured Ice Cream had been tested and approved by the respondents in the said test.

In the benchmark test, among the parameters, texture was the highest mean score of 4.92 which interpreted as extremely like, that means the respondents likes the texture of the product. Meanwhile, aroma was the lowest mean score of 4.86 which also interpreted as extremely like. This means that in terms of aroma should be improve in order to attract customers through the smell of the product. The overall mean in the benchmark test got the score of 4.90 and was interpreted as extremely like. The overall mean in the benchmark test garner the score of 4.90 and was interpreted as extremely liked.

Moreover, during the Final Test, appearance and general acceptability was the highest mean score of 4.61 which is interpreted as extremely like. This means that the respondents of the final test are pleased with the appearance they feel whenever they eat the rose petal ice cream. In the other hand, the indicator Flavoring ranked lowest among the group and was rated 4.45 but still, interpreted as an extremely like. This just proves that in terms of flavoring, the researcher's needs to improve the flavor of the product enable to become more palatable for the target customers. This just proves that in terms of flavoring, the researcher's needs to develop more designs in able to give life of packaging that would attract more target customers.

Conclusion

A conclusion had been drawn based on the finding of the study.

Based in the result of the test conducted, Gumamela Flavoured Ice Cream was extremely liked by the consumer. Gumamela Flavoured Ice Cream is not only for adults but also for children, and for everyone who seeks pleasure and new flavor in eating ice cream. Therefore, gumamela ice cream is not only used for decoration but based on the result of our study rose petal is also acceptable as a food flavoring especially for ice cream.

Recommendation

Based on our conclusion the following recommendation is drawn:

1. To the future researchers may conduct another research using gumamela as an ingredient.
2. To the dirty ice cream maker and ice cream producer or manufacturer, the researchers highly recommend venturing the product as one of the flavors in ice cream as it is very well accepted by the community.

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