SENSORY EVALUATION ON THE ACCEPTABILITY LEVEL OF SOFT TARO (*Colocasia esculenta*) CANDY

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APPROVAL SHEET

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ABSTRACT

The study was conducted to determine the acceptability level of soft taro candy. The study used the 5-Hedonic Scale questionnaires provided to forty (40) respondents consisting of twelve (12) teachers of Bohol Island States University - Bilar campus, twenty-eight (28) students of Food Preparation and Services Management with the background in food preparation. The questionnaires were distributed, retrieved and tallied for the analysis and interpretation of data using the weighted mean with descriptive interpretation. The data was processed using the weighed mean and F-test to determine the difference between the four treatments in terms of appearance, aroma, taste and texture. In the acceptability level of soft taro candy in terms of appearance Treatment 3 got the highest weighted mean across all treatments. While, with regards to the aroma, taste, and texture, Treatment 1 got the highest weighted mean and interpreted as ‘’Very like”. Thus, Treatment 1 is the most preferred treatment by the participants. In visual evaluation analysis the right quantity of taro variety appropriately combined with the white sugar, and coconut milk in making soft candy. It further reveals that among the overall acceptability of soft taro candy, treatment 1 got the highest weighted mean of 4.17. The study discovered that soft taro (*Colocasia esculenta*) candy can be kept at room temperature that would last for one week, whereas refrigerated candy would last for ten days. The analysis of variance showed no significant difference among the treatments, thus the null hypothesis is accepted. It is recommended that the future researchers should conduct research using variety of taro. Further research would improve the quality of the product by incorporating more flavor into their mixture to determine the differences in appearance, aroma, taste and texture. The institution may support and improve the soft taro candy production as a form of entrepreneurial activity for the benefit of everybody. The study extremely recommends that the researcher could advocate the utilization of natural resources found in our surroundings, particularly taro (*Colocasia esculenta*), which can be found almost anyplace. Soft taro candy is a confection that may be consumed by both adults and children.

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THE PROBLEM AND ITS SCOPE

Rationale

Filipinos typically consume root crops, sometimes they eat it for meals or snacks. The majority of these foods ensure healthy advantages, nutritional information is increasingly heavily evaluated while selecting foods.

Taro or scientifically known as *Colocasia esculenta* is a tropical root crop that is well-known with nutritional benefits specifically in Asian nations, and also found in the Philippines. It is a cultivated mainly for its edible corms, roots and as vegetables. In the Visayas region, Taro is locally known as “Gabi” and typically cultivated by small farmers in highland areas during rainfalls or flooded condition.

The researcher’s choose taro as the study’s major ingredients because it is inexpensive, one could obtain the product without spending a lot of money. Likewise, people may gain from the nutrition and health benefits out of the plant. Based on the research, these root crops are mostly available from uncultivated areas like forests and idle farm. Most of this crops are freely available to the consumers or they are comparatively very cheap in price to use as raw material in processing into a new food product.

Thus, the researcher intent to process this underutilized product because of its advantages that is derived by consumer. Even though taro possess unmerited characters like astringent taste, form, texture etc. In producing taro into

another product like pastry, snack item, and even candies, you can sell the taro product in higher price through value addition. Moreover, with the utilization of the soft taro candy, we can provide food to those people or areas were food supply is in demand, even provide a living to those who have unemployed by providing them income generating activities. Like to idle women can be provided with work through processing of such product or raw material and sell for revenue or even augment one's income.

In light of this, the researchers proposed to use candy that would be useful to all customers, both children and adults. One can access the product without paying a lot of money, and the consumer can likewise benefit from the nutritional and health benefits derived.

Hence, the primary goal of this study is to evaluate the taro candy, it's the acceptability level for product innovation thus contribute hindering hunger and ensure food security and even sustainability.

Literature Background

The following related readings served as legal bases of this study;

According to Millennium Development Goal (MDG) that hunger requires that the proportion of people suffering from hunger be halved at the end of 2015. Apparently simple statement lies much complexity in the food intake required to remove hunger which generally recognized to differ between rural and urban areas. The problem is not only one of supply of food and the composition of supply,

but of the reliability of supply and of access despite the fact that food security in many countries is higher specifically in urban areas where power to access is higher. There are also serious questions of food utilization, whether, for instance, micronutrient intake is sufficient in quantity and balance to allow adequate absorption of available macronutrients (Gerard J. Gill, 2003).

In coherent to the Sustainable Agriculture there is a significant opportunity to improve food production. It provides the opportunity to increase food production, reduce dependency on external resources, and reduce environmental degradation. Food security cannot be achieved without significant improvements to people's entitlements and access to food. Most of approaches to agriculture have change, focused narrowly on production that increases without addressing the broader political economic forces that shape local farming practices and access to food. Nor have they recognized the complexity and diversity that characterizes most agriculturally based livelihood systems. An important part of this new evidence is that sustainable agriculture can also enhance people's ability to acquire food and contribute to the regeneration of rural economies. There are important lessons for agricultural projects and programmers. All of these efforts present key challenges, but offer immense opportunities, for both climate science and agriculture services, with respect to supporting sustainable agriculture and food security (Hinchcliffe, 2018).

However, it is stated in Section 15, Article II of the 1987 Philippine Constitution that the State shall protect and promote the right to health of the

people and instill health consciousness among them. Furthermore, Section 9, Article XVI provides that the State shall protect consumers from trade malpractices and from substandard or hazardous products. Toward these ends, the State shall maintain a farm to fork food safety regulatory system that ensures a high level of food safety, promotes fair trade and advances the global competitiveness of Philippine foods and food products (Correa, 2014).

Beside Republic Act No. 8435 declared the policy of the State to enable those who belong to the agriculture and fisheries sectors to participate and share in the fruits of development and growth in a manner that utilizes the product without spending a lot of money and the consumer may gain from the nutrition and health benefits. Thus, hereby participate and share the fruits of development and growth in a manner that utilizes the nation's resources in the most efficient and sustainable way possible by establishing a more equitable access to assets, income, basic and support services and infrastructure (Agriculture and Fisheries Modernazation Act, 1997).

As stated in Republic Act No. 8976 otherwise known as Food Fortification Law, declares;

> State shall protect and promote the right of health of the people and instill health consciousness among them. The state recognizes that nutritional deficiency problems in the Philippines, based on nutrition surveys, include deficiency in energy, iron, vitamin A, iodine, thiamin and riboflavin. To a minor extent, the Filipino diet is also deficient in ascorbic acid, calcium and folate.

Food fortification is considered important in the promotion of optimal health and to compensate for the loss of nutrients due to processing and/or storage of

food. The State recognizes that food fortification is vital where there is a demonstrated need to increase the intake of an essential nutrient by one or more population groups, as manifested in dietary, biochemical or clinical evidences of taro roots (Aquino, 2014).

More so, the Republic Act No. 10611 otherwise known as Food safety act of 2013, aims to strengthen the food safety regulatory system in the country to protect consumer health and facilitate market access of local foods and food products (Correa, 2014).

a. Protect the public from food-borne and water-borne illnesses and unsanitary, unwholesome, misbranded or adulterated foods; b) Enhance industry and consumer confidence in the food regulatory system; and c) Achieve economic growth and development by promoting fair trade practices and a sound regulatory foundation for domestic and international trade. Towards the attainment of these objectives, the following measures shall be implemented.

Hence, according to Theory of Food by (John S. Allen Ph.D., 2012) argued on his book that each human each have a theory of food that guides how much, and what they eat. This theory of food is analogous to theory of mind, the suite of implicit cognitive skills that people use to negotiate the complex, interactive human social universe. Like language, we have a propensity to acquire a theory of mind, and both develop and become more complex over the course of childhood and adolescence.

The following related literature background provided information about the study;

According to (Mayasari, N., 2010) taro is a starchy plant. The globular fleshy taproot of android family plants is termed as a ‘corm’ which is a subterranean root. The calcium oxalate in taro makes our throat itchy if we don’t boil it long enough. We will not experience an itchy mouth if the taro root crops cook very well, which has less oxalates. To relieve the irritation caused by eating undercooked taro, gargle with a salt or baking soda solution. ‘’Rap hides’’ are bundles of tiny needle-like calcium oxalate crystals found in taro corm’s unique cells. They might irritate your mouth and cause stinging.

Taro plants are monocotyledonals native to the tropics. It was probably cultivated before rice. It has been actively cultivated throughout tropical and sub-tropical major. It also has great cultural importance in Hawaii, where going the crop was not merely and activity of food production but strongly bound to the people’s culture and beliefs about creation. Taro as a type of tubers has spread to various parts of the world. It is considered as a staple food, aside from breadfruit particularly, in several islands in almost all regions (Cho *et al*., 2007).

Plants produce underground corms and stems that are commercialized as food for human consumption and animal fodder. It is also exploited as an ornamental can be found growing mainly in moist forests and wet areas in riparian habitats, riverbanks, along streams, marshes, and canals. *C. esculenta* is a fast-growing plant that can be dispersed by seed and by corms which re-sprout easily forming new plants. *C. esculenta* is thought to have been domesticated in northern

India, but independent domestication in New Guinea has also been suggested (Safo-Kantaka, 2004).

The nutritional value of taro roots contains a wealth of organic compounds, minerals, and vitamins that are essential for human health and can benefit the overall health in a number of different ways. The fiber and resistant starch in taro root helps to delay digestion and lower blood sugar increases after meals. The high starch content of most root crops is considered as an excellent energy source, but they are marginal to poor sources of protein. Root crops contain a wide variety of minerals and trace elements, including relatively substantial quantities of iron and calcium, as well as potassium and magnesium (Langeland et al., 2008).

Furthermore, taro's ability to improve digestion, lower your blood sugar levels, prevent certain types of cancers, protect the skin, boost vision health, increase circulation, decrease blood pressure, aid the immune system and prevent heart disease, while also supporting muscle and nerve health (Huang, et al., 2007).

According to studies, taro can be cooked by steaming, boiling, toasting or frying and can also be made into dessert, cold drinks and snacks, taro porridge, jam, ice cream. Combined with other materials it can be made into other foods, such as taro-corn, and crisp slice cereals.

However, taro has often been neglected because of its non-appealing to children because of their bitterness, undesired texture and low satiating capacity that most children dislike vegetable and crop roots (Zeinstra *et al*., 2010).

In such cases, there have been reports of the use of taro flour for infant formulas and as part of canned baby food in the United States of America. Taro foods are useful to persons allergic to cereals and can be consumed by infants/children who are sensitive to milk. Studies conducted in Asia in the past have reported that babies who were fed poi-a type of baby food prepared from taro were found to suffer less from health conditions such as diarrhea, pneumonia, enteritis and beriberi than babies fed with rice and bread (Darkwa, 2013).

Several studies on taro had been made. In the study of the researcher's general objective was to utilize medical benefits and varieties on how to cook the taro. Taro is rich in starch, which has the characteristics of easy digestibility and small granules. A lot of leftover bits and pieces are left during the processing of taro, which can be reused as starch resources, thus increasing the economic value. Taro starch can be made into all kinds of starch saccharides, such as crystal glucose, fructose syrup, maltose, etc. Taro can also produce alcohol by microbiology fermentation, another direct use of leftover materials.

In Vietnam, taro was a much more important crop. With the development of modern agriculture and the green revolution, taro production started to decrease, mainly because of disease, lack of processing and low market value. Many good, traditional varieties have been lost and replaced with other, more adaptive crops such as sweet potato, maize, and modern rice. However, nowadays taro is still having a high potential for utilization. By the PRA (Participatory Rural Appraisal) method we noticed that taro was used either as food, vegetables, feed, medicine

or ornamental. In some remote villages, the farmers use taro as a staples. Up to now in Vietnam few efforts have been given to taro research and development compared with that for other crops. The research on taro varietal improvement compared with that for other crops. The research on taro varietal improvement or cultural practices has been conducted since 1993. For us, the main problems are the genetic source for resistance to the red mite and leaf blight, early harvest, non-acridity and tolerance to salinity. The utilization of taro germplasm for breeding is limited because of the absence of sufficient and reliable data about the inheritance of the most important plant traits (Zhou et al., 2000).

Candy is defined as preparations of sugar, honey, or other natural or artificial sweeteners in combination with chocolate, fruits, nuts, or other ingredients or flavorings in the form of bars, among others. Candy is made by dissolving sugar in water or milk to form a syrup, which is boiled until it reaches the desired concentration or starts to caramelize. The type of candy depends on the ingredients and how long the mixture is boiled. Customers have turned into very health conscious eaters and prioritize the reduction of intake in sugar, other potentially harmful ingredients, and fat. Candy manufacturers have responded by creating a wide range of sugar-free candies that, because of technological innovations in sweetening products, still provide customers the sweetness they desire. Marketers also keep looking for tasteful substitutes for the saturated fat in candies.

The technical aspect of this study consists of product description candy, product process and equipment/materials. It discusses how the product as an alternative food is produce and what materials and ingredients are needed. The marketing study covers the target, in this area talks about the consumers of the study on how the product will presented. The socio-economic study shows the contribution to the society. This area Proves that this study is not only for profit purposes, but also good for our society. (Alhassan and Nazaruden,2014)

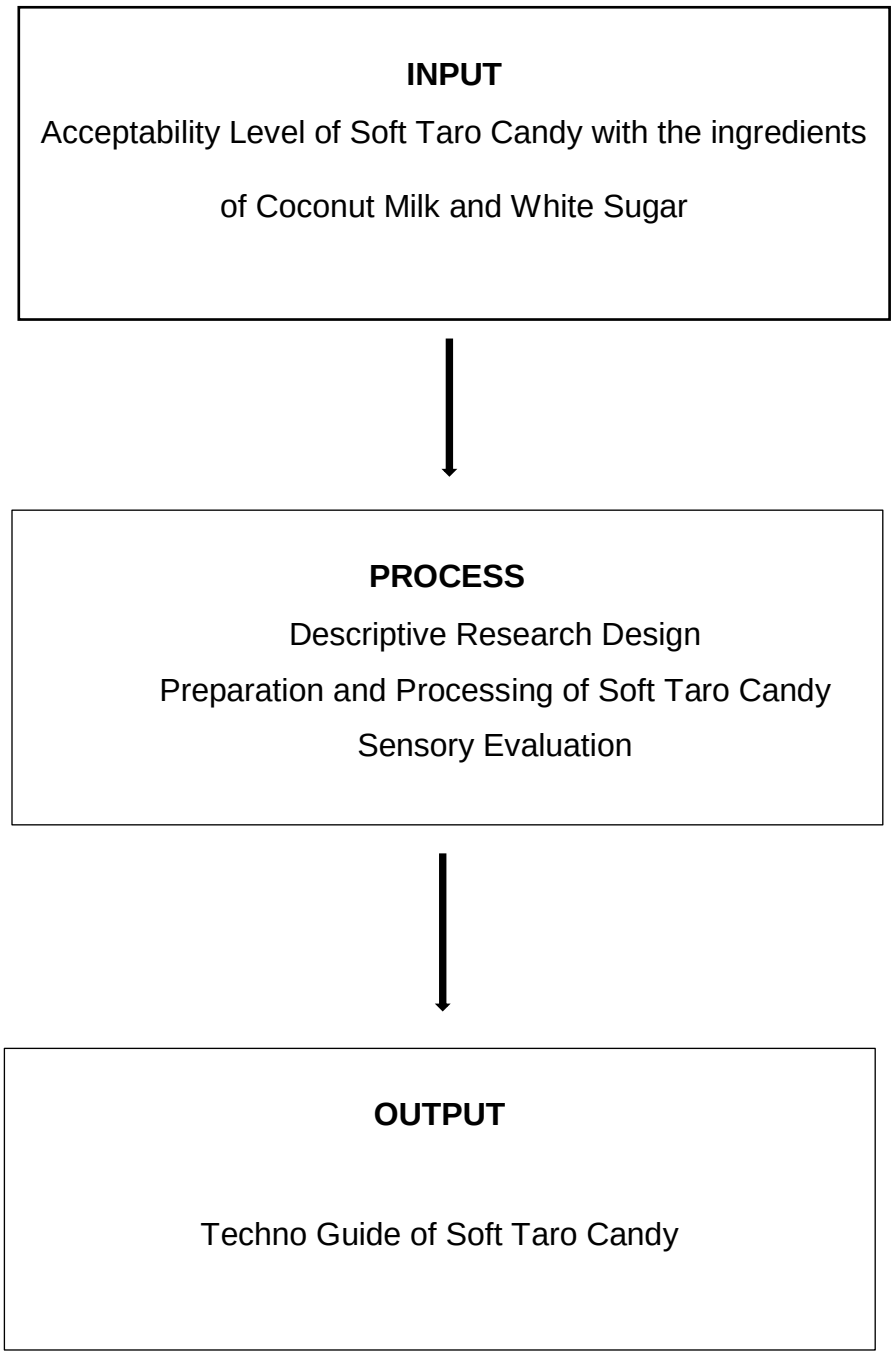

Figure 1. Flow of the Study

THE PROBLEM

Statement of the Problem

This study aimed to determine the acceptability level of soft taro (*Colocasia esculenta*) in the production of soft taro candy.

Specifically, this study sought to answer the following questions;

1. What is the profile of the respondent in terms of:
    1.1 age;
    1.2 gender;
    1.3 civil status and
    1.4 educational level?

2. What is the acceptability level of soft taro candy as perceived by the participants in term of its:
    2.1 appearance;
    2.2 aroma;
    2.3 taste and
    2.4 texture?

3. What treatments has the highest visual quality evaluation level?
    3.1 A ½ cup of mashed taro added to 1 cup of coconut milk and 1 cup of white sugar

2.5 A ¾ cup of mashed taro added to 1 cup of coconut milk and 1 cup of white sugar

2.6 A 1 cup of mashed taro added to 1 cup of coconut milk and 1 cup of white sugar

2.7 A 1 ¼ cup of mashed taro added to 1 cup of coconut milk and 1 cups of white sugar

4. Is there a significant difference among the treatment of soft taro candy in terms of appearance, aroma, taste and texture?

Null Hypothesis

There is no significant difference among treatments of soft taro candy in terms of appearance, aroma, taste, and texture.

Significance of the Study

The finding of the study would be beneficial to the following:

Parent. This study would provide valuable insights to the parents in preparing and serving a healthier food for their family.

Customers. The study would help customers to select the best food to consume that is beneficial to their health and wellness. This would also utilize the quality of the product and the increase its demands in the market of found to be acceptable.

Farmers. The study would be useful to the farmers that grow certain crop roots. It would further provide a big opportunity for the producers of taro to increase their income. As the agent in the cultivation of this resource, farmers would have another option to increase their income.

Community. This study would help the community in utilizing taro after harvesting.

Entrepreneurs. The success of this study would light the way for small business owners to market products like this with health benefits that consumers would avail.

Researchers. The findings of this study would benefit not only the researchers but also other like student, and even consumers. The results can serve as to the student and researchers when they come up with related researchers.

School. The findings may be enhanced in a variety of ways, and taro might be used as a guide for making delectable desserts, meals, candies, or preserves for future research.

Institution. This study would enable the institution to provide an environment of learning, encouraging students to conduct research that has a valid impact in the society.

RESEARCH METHODOLOGY

Design

In order to determine the acceptability level of Soft Taro (*Colocasia esculenta*) candy, the researcher's used Complete Random Design (CRD) in order to come up with the exact measurements of the ingredients in the making soft taro candy. Questionnaires were distributed to the respondent prior to the tasting to determine the acceptability level of soft taro candy as perceived by the respondents.

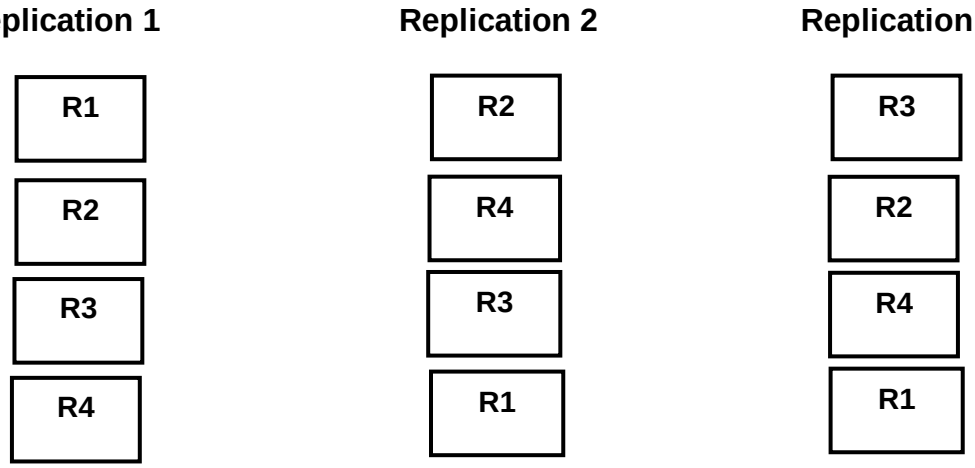

Figure 2. Shows the experimental lay out using CRD

Legend:

T1 = ½ cup of mashed taro + 1 cup of coconut milk + 1 cup of white sugar

T2 = ¾ cup of mashed taro + 1 cup of coconut milk + 1 cup of white sugar

T3 = 1 cup of mashed taro + 1 cup of coconut milk + 1 cup of white sugar

T4 =1 ¼ cups of mashed taro + 1 cup of coconut milk + 1 cup of white sugar

Environment and Participants

The study was conducted in Bohol Island State University- Bilar Campus, Zamora, Bilar, Bohol. The University the Province is offers courses including Bachelor of Science in Industrial Technology, major in Food Preparation Service Management. It was conducted in the Food Technology Laboratory room where the needed materials were available.

Figure 3. MAP OF BOHOL

There were forty (40) respondents of the study consisting of twelve (12) faculty and twenty-eight (28) students of Bachelor of Science in Industrial Technology major in Food Preparation Service Management. The respondents were purposively selected based on their qualification in food preparation, processing and evaluation.

Instrument

In gathering the data, the researchers utilized the modified 5-point hedonic scale test questionnaire to obtain the needed information, which is adopted and modified from 9-point hedonic scale test. Moreover, the tool undergone revisions

and clarifications under the guidance of the panelists. It was used as a research instrument because it is convenient to use and easy to answer by the respondents.

Procedures

Obtaining a Permission from the college. The researchers secured the approval from the Campus Director of the University with the recommendation from the dean of the College for the conduct of the study.

Procurement of Ingredients. Taro root crops were procured and harvested from farmers in Barangay Bugang Sur, Bilar, Bohol and the other ingredients were purchased in the public market for convenience.

Gathering and Assembling of Materials and Equipment. In the preparation of soft taro candy in various treatments, ingredients, procedure and tools were used. The tools and equipment used in this study were knife, mixing bowl, spoon, fork, grater, masher, pan, plate, basin, spatula, and blender.

Procedure in Making Taro Candy. In the preparation of taro candy**,** washing and steaming taro wedges in a steamer for about 30 minutes until it reaches the spoon fork tender and mashed in the mixing bowl. Blend the mashed taro with the coconut milk. And then prepare the pan by dissolving the sugar in water to make syrup, then boil until it reaches the desired concentration or begins to caramelize. In a pan, combine the blended mashed taro and coconut milk. It should be thoroughly mixed until it becomes sticky. Pour quickly into a flattening pan and shape into balls. Lastly, wrap it in water-resistant cellophane and pack.

Data Gathering Procedure

The researchers set up the four treatments in a specified area around one to two meters away from the respondents, with the bottle of water, questionnaire papers, and pencils. With the directions and adhering to strict health protocol and implementation were given to the respondents and given ample time to task and analyze each treatment must be follow.

Visual Quality Evaluation

The researchers stored the product in a clean area expose to the room temperature and cool temperature for fourteen days. The visual observation was done every day to determine whether the product become spoiled, damage and stay the same across the four different treatments.

Statistical Treatment

The data gathered was tallied, tabulated, analyzed, computed and interpreted using Analysis of Variance (ANOVA) to determine the significant difference among treatments.

$$F = \frac{MST}{MSE}$$

$$MST = \frac{\sum_{i=1}^{k}(T_i^2/n_i) - G^2/n}{k-1}$$

$$MSE = \frac{\sum_{i=1}^{k}\sum_{j=1}^{n_i} Y_{ij}^2 - \sum_{i=1}^{k}(T_i^2/n_i)}{n-k}$$

OPERATIONAL DEFINITION OF TERMS

The following terms were defined operationally to aid the understanding of the readers.

Appearance: It refers to the color, size and shape of the taro candy product based on the variety of ingredients used.

Aroma: The smell, scent, odor, aroma, and fragrance of taro candy

Candy: This is a sweet food made with sugar or syrup combined with taro, and coconut milk.

Flavor: The flavor combination elicited by a material in the tongue. This refers to the sensory impression of the designed soft taro candy's taste and scent based on the diversity of components utilized in this study.

Taste: A taste that remains after something is eaten or drunken. In this study, this refers to the aroma and flavor impact of the formulated soft taro candy.

Taro: is a starchy root vegetable. It refers to the main ingredient used in making soft taro candy.

Texture: This pertains to mouth feels whether smooth, rough, and crispy. In this study, texture is a consistency of a surface of soft taro candy

Chapter 2

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter deals with the presentation, analysis and interpretation of the data collected through the modified 5-Hedonic scale sensory questionnaires answered by the forty (40) respondents. The study was conducted at Bohol Island State University Bilar-Campus in the period of May-June 2021.

The succeeding table present the responses of the participants in the study of the acceptability level of soft taro candy in terms of participant's profile in terms of age, gender, civil status and educational background. Likewise, it evaluates the acceptability level of soft taro candy with regards to the different sensory attributes in terms appearance, aroma, taste and texture.

PROFILE OF THE RESPONDENTS

Table 1 shows the demographic profile of the respondents with regards to age, gender, civil status and educational attainment. Responses state that ages 18 to 28 years old got the highest result of 30(75%) from the total number of participants. Followed by the ages 29 to 39 years old with 5(12.5%), then ages from 40 to 50 got 3(7.5%) and lastly ages 51 to 61 years old obtain 2(5%). This imply that majority of the respondents were ages 18 to 28 years old and the lowest belongs to 51 to 61 years old.

As to the gender, there were 19(47.5%) females and 21(52.5%) males. Thirty-one 31(77.5%) of the respondents were single and only 9 (22.5%) were

married. In terms of educational attainment, most of the responses were college level with 28(70%) and the teacher got the lowest range of (30%). This implies that the 28 (70%) of the responses were students identified as respondent of the study.

Table 1

Demographic Profile of the Respondents

N=40

	ITEMS	FREQUENCY	PERCENTAGE(%)
AGE	18-28	30	75%
	29-39	5	12.5%
	40-50	3	7.5%
	51-61	2	5%
Total		40	100%
SEX	Female	19	47.5%
	Male	21	52.5%
Total		40	100%
CIVIL STATUS	Single	31	77.5%
	Married	9	22.5%
Total		40	100%
EDUCATIONAL	Students	28	70%
LEVEL	Teachers	12	30%
Total		40	100%

The acceptability of the product being studied is to measure based on the 5-hedonic scale questionnaire, which in turns is influenced by the sensory properties of the food, previous exposure to it and subsequent expectations, contextual factors, and many other variables. The measurement of food acceptance is highly complex. This study aims to discuss some innate factors that impact on food's sensory acceptability and how these can be measured and understood using sensory evaluation.

Table 2.1 shows the findings on the acceptability level of soft taro candy in terms of appearance.

Food appearance determined mostly by surface color which is the first sensation that consumer perceives and uses as a tool to either accept or reject food (Leon et al., 2006).

Results reveal Treatment 3 obtained the highest weighted mean with 4.03", followed by Treatment 2 with the weighted mean 4.02 then Treatment 4 with the weighted mean of 4.01. While Treatment 1 got the lowest weighted mean of 4.00. However, all treatments were descriptively interpreted as "Very Like". Thus, this further reveals that among the treatments mentioned, Treatment 3 is the most favored treatment in terms of appearance**.**

Table 2.1

Acceptability level on the Appearance of Soft Taro Candy

Treatment	Total Score	No. of Respondents	WM	Descriptive Interpretation
T1	160.34	40	4.00	Very like
T2	160.28	40	4.02	Very like
T3	160.65	40	4.03	Very like
T4	160.97	40	4.01	Very like

Table 2.2 shows the findings on the acceptability level of soft taro candy in terms of aroma. The term “aroma” refers to a pleasant odor that makes the desire to lick the lips. One of the most important aspects determining to perceive total flavor the through fragrance of the food.

Data reveals that Treatment 1 had the highest weighted mean of 4.16 with the descriptive interpretation of “Very Like”, followed by Treatment 2 with the weighted mean of 4.07 described as “Very Like. Although Treatment 3 and Treatment 4 got a low score it is still favored by respondents as reflected by the descriptive interpretation as “Very Like” with a weighted mean of 3.93 and 3.83 respectively. However, in terms of aroma Treatment 1 is the most preferred treatment by the respondents.

Table 2.2

Acceptability level on the Aroma of Soft Taro Candy

Treatment	Total Score	No. of Respondents	WM	Descriptive Interpretation
T1	166.34	40	4.16	Very like
T2	162.66	40	4.07	Very like
T3	157.69	40	3.93	Very like
T4	152.67	40	3.83	Very like

Table 2.3 shows the findings on the analysis on the acceptability level of soft taro candy in terms of taste.

Data reveals that Treatment 1 got the highest weighted mean scale of 4.39 with descriptive interpretation of “Extremely Like”, followed by T2 with the weighted mean 4.10 described as “Very Like”. Treatment 3 and Treatment 4 got a low score but it is still favored by respondents as reflected by the descriptive interpretation as “Very Like” with a weighted mean of 3.93 and 3.77. This implies that Treatment 1 is the most favored treatment in terms of taste.

Table 2.3

Acceptability level on the Taste of Soft Taro Candy

Treatment	Total Score	No. of Respondents	WM	Descriptive Interpretation
T1	175.71	40	4.39	Extremely like
T2	164.35	40	4.10	Very like
T3	156.99	40	3.93	Very like
T4	150.65	40	3.77	Very like

Table 2.4 shows the findings on the analysis of the acceptability level of soft taro candy in terms of texture. Data reveals that Treatment 1 had the highest weighted mean scale with 4.17 with descriptive interpretation of “Very Like”, followed by Treatment 2 with the weighted mean 4.03 described as “Very Like’’. Treatment 3 got the weighted mean of 3.94 and Treatment 4 got weighted mean 3.84 but still the two treatments were described as ‘’Very like’’ even though both treatments got the low score. However, in terms of texture the most preferred treatment is Treatment 1.

Table 2.4

Acceptability level on the Texture of Soft Taro Candy

Treatment	Total Score	No. of Respondents	WM	Descriptive Interpretation
T1	165.34	40	4.17	Very like
T2	156.99	40	4.03	Very like
T3	154.02	40	3.94	Very like
T4	150.36	40	3.84	Very like

Table 2.5 shows the overall acceptability level of soft taro candy in terms of its appearance, aroma, taste and texture.

The presentation reveals that among the overall acceptability level of soft taro candy, treatment 1 got the highest weighted mean of 4.17, followed by treatment 2 with the weighted mean of 4.03, then treatment 3 got the weighted mean of 3.94. And lastly, treatment 4 with the lowest weighed mean of 3.84. It

implies that treatment 1 was the most acceptable by the respondents. Likewise, Treatment 1 was most acceptable in terms of aroma, taste and texture.

According to studies, items with a good overall taste perception score have well-balanced taste sensations. A product's success may be harmed by too much of any of these fundamental tastes, there is a dose optimum that makes flavor composition vital. The right flavor balance is determined by the type of food and the consumer's expectations. Despite the fact that customers are becoming more health-conscious, they are nevertheless seeking for something that would taste good.

According to Dutch study of Michelin-starred chef's that there are sensory cells in our mouth that help us to sense how a product feels, such as whether it is soft and creamy or hard and dry, in addition to taste-sensation cells. As a result, food texture is sometimes referred to as ''mouthfeel.'' The right texture depends on the sort of product; for example, if you're creating a new potato chip variation, it should be crisp and crunchy to indicate freshness. Instead of being heavy and lumpy, whipped cream should be light and silky. Overall gustatory perception is generally strong in products with a mix harsh and soft textures.

Table 2.5

Right Quantity of Taro Combined with White Sugar, and Coconut Milk in Making Candy

Sensory Attributes	T1		T2		T3		T4	
	WM	DI	WM	DI	WM	DI	WM	DI
Appearance	4.00	VL	4.02	VL	4.03	VL	4.01	VL
Aroma	4.16	VL	4.07	VL	3.93	VL	3.83	VL
Taste	4.39	EL	4.10	VL	3.93	VL	3.77	VL
Texture	4.12	VL	3.93	VL	3.85	VL	3.76	VL
Overall Acceptability	4.17	VL	4.03	VL	3.94	VL	3.84	VL

INDICATORS: Range	**Description**	**Legend**
4.20 – 5.00	- Extremely Like (EL)	DI = Descriptive Interpretation
3.40 – 4.19	- Very Like (VL)	
2.60 – 3.39	- Like (L)	
1.80 – 2.59	- Dislike (DL)	
1.00 – 1.79	- Never (N)	

Table 3 presents the visual quality evaluation of the soft taro candy stored in room temperature and cool temperature. The observation reveals that there were no changes occur in the different treatments during day 7 of room temperature. However, in the succeeding days only treatment 1 shows highest visual quality evaluation and it lasted until its ninth day. While the soft taro candy stored in cool temperature, some signs of deterioration which include bad smell, appearing of molds, and yellow coloring pigments in Treatment 3 and Treatment 4 happened in the 8th day of the period. But Treatment 1 extended its visual quality even until 11th day.

Table 3.1

Visual Quality Evaluation of Soft Taro Candy
ROOM TEMPERATURE

Days	T1	T2	T3	T4
1	No Changes	No Changes	No Changes	No Changes
2	No Changes	No Changes	No Changes	No Changes
3	No Changes	No Changes	No Changes	No Changes
4	No Changes	No Changes	No Changes	No Changes
5	No Changes	No Changes	No Changes	No Changes
6	No Changes	No Changes	No Changes	No Changes
7	No Changes	No Changes	No Changes	No Changes
8	No Changes	No Changes	Molds are appearing.	Molds are appearing.
9	No changes	Molds are appearing.	There are molds.	There are molds.
10	Molds are appearing.	There are molds.	There are molds.	There are molds.
11	There are molds.	There are molds.	Slightly unpleasant, there are molds.	Slightly unpleasant, there are molds.
12	There are molds	Slightly unpleasant, there are molds.	Slightly unpleasant, there are molds.	Slightly unpleasant, there are molds.
13	Slightly unpleasant, there are molds.	Unpleasant, there are many molds.	Unpleasant, there are yellow molds, black pigments.	Unpleasant, many molds, black pigment forming.
14	Slightly unpleasant, there are many molds.	Unpleasant, many molds, black pigment forming.	Unpleasant, many molds, black pigment forming.	Unpleasant, small spots, black pigment forming.

Table 3.2

Visual Quality Evaluation of Soft Taro Candy
COOL TEMPERATURE

Days	T1	T2	T3	T4
1	No Changes	No Changes	No Changes	No Changes
2	No Changes	No Changes	No Changes	No Changes
3	No Changes	No Changes	No Changes	No Changes
4	No Changes	No Changes	No Changes	No Changes
5	No Changes	No Changes	No Changes	No Changes
6	No Changes	No Changes	No Changes	No Changes
7	No Changes	No Changes	No Changes	No Changes
8	No Changes	No Changes	Bad smells are appearing.	Bad smells are appearing.
9	No changes	No Changes	Molds are appearing.	Molds are appearing.
10	No changes	Bad smells are appearing	There are molds.	There is yellow mold appearing.
11	No changes	Molds are appearing	There is yellow mold appearing.	There are molds appearing.
12	Bad smells are appearing.	There are molds.	There are many molds.	Slightly unpleasant, there are molds.
13	Mold are appearing.	There is yellow mold appearing.	Slightly unpleasant, there are molds.	There are many black pigments.
14	There are molds.	Slightly unpleasant, there are yellow molds, pigments.	Slightly unpleasant, there are yellow molds, black pigments.	Unpleasant, there many black pigments.

SIGNIFICANT DIFFERENCE AMONG TREATMENT OF SOFT TARO CANDY IN TERMS OF APPEARANCE, AROMA, TASTE AND TEXTURE

To determine the significant difference of soft taro candy in terms of appearance aroma, taste and texture, the researchers use the one-way ANOVA to analyze and interpret the results of the study.

Table 4 present the significant difference of soft taro candy in terms of appearance. Data reveals that the computed p-value of 0.994 which is greater than 0.05 level significance states that there is no significant difference in the appearance of soft taro candy (f = 0.026, p > 0.05). Thus, the null hypothesis is accepted.

Table 4

Analysis of Variance on the Appearance of Soft Taro Candy Using Different Treatment

		Sum of Squares	Df	Mean Square	F	p-value
Appearance	Between Groups	0.002	3	0.001	0.026	0.994
	Within Groups	0.239	8	0.030		
	Total	0.241	11			

Significant at p<0.05

Table 5 present the significant difference of soft taro candy in terms of appearance. Data reveals that the computed p-value of 0.367 is greater than 0.05.This states that there is no significant difference in the appearance of soft taro candy (f = 1.210, p > 0.05). Thus, the null hypothesis is accepted.

Table 5

Analysis of Variance on the Aroma of Soft Taro Candy Using Different Treatment

		Sum of Squares	Df	Mean Square	F	p-value
Aroma	Between Groups	0.190	3	0.063	1.210	0.367
	Within Groups	0.419	8	0.052		
	Total	0.609	11			

Significant at p<0.05

Table 6 present the significant difference of soft taro candy in terms of appearance. Data reveals that the computed p-value of 0.064 is greater than level of significance 0.05 (95%) This states that there is no significant difference in the appearance of soft taro candy (f = 3.626, p > 0.05). Thus, the null hypothesis is accepted.

Table 6

Analysis of Variance on the Taste of Soft Taro Candy Using Different Treatment

		Sum of Squares	Df	Mean Square	F	p-value
Taste	Between Groups	0.641	3	0.214	3.626	0.064
	Within Groups	0.471	8	0.059		
	Total	1.112	11			

Significant at p<0.05

Table 7 present the significant difference of soft taro candy in terms of texture. Data reveals that the computed p-value of 0.403 is greater the 0.05.This states that there is no significant difference in the texture of soft taro candy (f = 1.103, p > 0.05). Thus, the null hypothesis is accepted.

Table 7

Analysis of Variance on the Texture of Soft Taro Candy Using Different Treatment

		Sum of Squares	Df	Mean Square	F	p-value
Texture	Between Groups	0.216	3	0.072	1.103	0.403
	Within Groups	0.523	8	0.065		
	Total	0.740	11			

Significant at p<0.05

Chapter 3

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary, findings, the conclusions derived from the findings and the recommendation drawn from the conclusions.

Summary

The study's purpose was to determine the sensory evaluation of soft taro candy's acceptance level in terms of appearance, aroma, taste, texture and its visual quality evaluation. The research was conducted in Bohol Island State University-Bilar Campus, Zamora, Bilar, Bohol during the academic year of 2020-2022 with the forty (40) respondents consisting of twelve (12) faculty and twenty-eight (28) students of Bachelor of Science in Industrial Technology major in Food Preparation Service Management, whom evaluated the product.

Findings

The researchers came up with the following finding after analyzing and interpreting the data:

Demographic Profile of Respondents

The demographic profile of the respondents taken in terms of age, gender, civil status and educational level. As to age, majority or 30 (75%) belong to the age bracket of 18-28 and most of the respondents were 21 (52.5%) of males. In terms

of civil status there were 31 (77.5%) of single. With regards to educational level, most of them are student of the range of 28 (70%).

Acceptability Level of Soft Taro (*Colocasia esculenta*) Candy

In terms of appearance treatment 3 got the highest weighted mean with 4.03 with the descriptive interpretation of ‘’Very Like’’. In aroma Treatment 1 got the highest weighted mean of 4.16 with the descriptive interpretation of ‘’Very Like’’. In terms of taste, Treatment 1 got the highest weighted mean of 4.39 with the descriptive interpretation of ‘’Extremely Like’’. With regards to texture Treatment 1 was the most pleasant to the respondents because it obtained the highest weighted mean of 4.17 with descriptive interpretation of ‘’Very Like’’. For the overall acceptability level of soft taro candy in terms of appearance, aroma, taste and texture, based on the calculation Treatment 1 get the highest rate of 4.17 describe as” Very Like”.

Visual Quality Evaluation

The visual quality evaluation of the Soft Taro Candy stored in Room Temperature and Cool Temperature. The visual observation reveals no changes in the different treatments during day 7 in room temperature. However, in the succeeding days only treatment 1 shows highest visual quality evaluation and can be consumed until its ninth day. While the soft taro candy stored in cool temperature, some signs of deterioration which include bad smell, appearing of

molds, and yellow coloring pigments appeared in the 8th day in Treatment 3 and Treatment 4.

Significant Difference among Treatments of Soft Taro Candy in terms of Appearance, Aroma, Taste and Texture.

In the analysis of variance in terms of appearance, aroma, taste and texture, it stated that there is no significant difference in all treatment of soft taro candy. Thus, the null hypothesis is accepted.

Conclusions

With the findings of the study, the following conclusion were drawn:

Based on the findings of the study, the researchers concluded that the treatment 1, with ½ cup of mashed taro revealed as the most highly acceptable treatment based on the result. However, the respondents found all of the treatments were acceptable and potentially with higher visual quality if properly stock. Therefore, taro can be utilized as another product that can provide nutritious and delicious candy for all people regardless of ages. Moreover, it can ensure food security and sustainability were food supply is in high demand, even provide a living to those who are unemployed.

Recommendations

Based on the results the following are recommended:

1. The researcher may innovate other food products out of taro and visual quality evaluation must also take into consideration.
2. The researchers may improve the appearance, aroma, taste, texture by adding other flavors to the combination of candy for variation.
3. As a sort of entrepreneurial activity, the school might refine and enhance the *Colocasia esculenta* soft taro candy product for general welfare. Thus, can be utilized by school as extension program.

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APPENDIX A
Instrument

Republic of the Philippines
BOHOL ISLAND STATE UNIVERSITY
Zamora, Bilar, Bohol

Vision: A premier S&T for the formation of a world-class and virtues human resource for sustainable development in Bohol and the country.

Mission: BISU is committed to provide quality higher education in the arts and sciences, as well as in the professional and technological fields; undertake research and development, and extensions services for the sustainable development of Bohol and the country

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5- Hedonic Scale of Sensory Evaluation on the Acceptability Level of Soft Taro Candy *(Colocasia esculenta)*

Respondent's No: _____ Date of Evaluation: _____
Age:_____ Sex:_____ Time of Evaluation:_____
Civil Status: _____
Educational attainment:_____

Direction:Please read the following items in the table and put the check mark (/). In order to gather information for the study, the researcher used a sensory evaluation test questionnaire to gather the data.

Parameters	Description	Rating	T1	T2	T3	T4
Appearance	Extremely like	5				
	Very like	4				
	Like	3				
	Dislike	2				
	Extremely dislike	1				
Aroma	Extremely like	5				
	Very like	4				
	Like	3				
	Dislike	2				
	Extremely dislike	1				
Taste	Extremely like	5				
	Very like	4				
	Like	3				
	Dislike	2				
	Extremely dislike	1				
Texture	Extremely like	5				
	Very like	4				
	Like	3				
	Dislike	2				
	Extremely dislike	1				

Legend:
5= Extremely like. The product is good in appearance, aroma, taste and texture
4= Very like. The product is almost acceptable
3= Like. You like the product but you feel like there is something lacking
2= Dislike. You don't like the product
1= Extremely Dislike. The product is awful and unacceptable

APPENDIX B

RAW DATA

APPEARANCE																
RN	T1				T2				T3				T4			
	R1	R2	R3	Ave.	R1	R2	R3	Ave.	R1	R2	R3	Ave.	R1	R2	R3	Ave.
1	4	5	4	4.33	4	5	5	4.67	4	5	4	4.33	4	5	5	4.67
2	4	5	4	4.33	3	4	3	3.33	2	3	4	3	2	3	3	3
3	4	4	4	4	3	4	3	3.33	3	5	3	3.67	3	3	4	3.33
4	4	5	4	4.33	3	4	3	3.33	3	4	3	3.33	3	4	4	4
5	5	5	3	4.33	4	4	5	4.33	4	3	4	3.33	5	3	5	4.33
6	3	5	4	4	3	4	3	3.33	4	4	5	4.33	4	4	5	4.33
7	5	4	5	4.67	4	5	4	4.33	4	5	4	4.33	4	3	5	4
8	4	4	4	4	5	3	4	4	4	5	3	4	3	3	5	3.67
9	4	4	3	3.67	5	4	4	4.33	4	4	5	4.33	3	4	5	4
10	3	5	4	4	4	5	5	4.67	4	5	5	4.67	5	5	3	4.33
11	5	5	4	4.67	5	4	4	4.33	5	4	5	4.67	5	5	5	5
12	5	5	3	4.33	5	4	3	4	5	4	3	4	5	4	3	4
13	5	3	4	4	5	3	5	4.33	5	3	4	4	5	4	4	4.33
14	3	5	3	4	5	4	3	4	3	3	5	3.67	3	3	4	3.33
15	3	4	3	3.33	4	4	5	4.33	4	4	3	3.33	4	2	3	3
16	5	4	4	4.33	4	4	4	4	4	4	3	3.67	5	3	5	4.33
17	3	3	5	3.67	4	4	5	4.33	5	4	3	4	5	3	5	4.33
18	4	5	4	4.33	4	4	3	3.67	4	5	3	4	4	5	4	4.33
19	3	3	2	2.67	5	4	4	4.33	5	4	3	4	5	4	4	4.33
20	1	4	3	2.67	4	4	3	3.67	4	4	5	4.33	4	4	5	4.33
21	5	4	3	4	4	4	5	4.33	5	4	3	4	3	3	5	3.67
22	2	4	5	3.67	3	3	4	3.33	3	4	5	4	4	3	5	4
23	3	5	4	4	3	4	2	3	3	3	4	3.33	2	3	4	3
24	1	3	4	2.67	4	4	5	4.33	4	4	5	4.33	4	3	5	4
25	3	5	4	4	5	4	3	4	4	4	4	4	3	4	2	3
26	4	3	4	3.67	5	3	4	4	3	3	3	3	3	3	2	2.67
27	3	3	4	3.33	4	4	5	4.33	4	4	3	3.67	4	4	4	4
28	4	3	5	4	4	4	5	4.33	4	5	5	4.67	5	4	5	4.67
29	3	5	4	4	3	4	4	3.67	4	5	4	4.33	4	5	3	4
30	5	4	5	4.67	4	4	3	3.67	4	5	4	4.33	4	5	4	4.33
31	3	5	3	3.67	3	4	3	3.33	3	4	3	3.33	3	4	5	4
32	4	5	4	4.33	5	4	5	4.67	3	1	2	2	4	1	3	2.67
33	5	4	5	4.67	5	4	5	4.67	5	4	5	4.67	5	4	5	4.67
34	2	4	4	3.33	3	5	4	3.33	5	4	5	4.67	5	4	4	4.33
35	5	4	3	4	5	4	3	4	4	4	4	4	3	4	3	3.33
36	4	5	4	4.33	4	4	2	3.33	5	3	4	4	5	3	5	4.33
37	5	5	5	5	5	5	3	4.33	5	5	5	5	5	5	5	5
38	4	4	4	4	5	4	4	4.33	5	5	5	5	4	5	4	4.33
39	5	4	5	4.67	4	4	5	4.33	4	5	4	4.33	5	5	5	5
40	5	4	5	4.67	4	5	4	4.33	5	5	5	5	5	5	5	5
				160.34				160.28				160.65				160.97

AROMA																
RN	T1				T2				T3				T4			
	R1	R2	R3	Ave.	R1	R2	R3	Ave.	R1	R2	R3	Ave.	R1	R2	R3	Ave.
1	4	4	5	4.33	4	4	3	3.7	4	4	4	4	4	4	5	4.33
2	4	5	4	4.33	3	4	4	3.7	3	3	4	3.3	2	2	4	2.67
3	3	4	5	4	3	4	3	3.3	3	5	3	3.7	3	3	2	2.67
4	5	5	3	4.33	5	5	4	4.7	4	4	3	3.7	4	4	3	3.67
5	4	5	5	4.67	4	4	5	4.3	4	3	4	3.7	4	2	4	3.33
6	5	5	5	5	5	4	4	4.3	4	4	3	3.7	3	4	2	3
7	5	3	5	4.33	4	3	4	3.7	4	4	3	3.7	3	3	4	3.33
8	5	4	3	4	5	3	3	3.7	5	5	4	4.7	3	4	3	3.33
9	4	5	4	4.33	5	4	3	4	4	3	5	4.3	5	3	3	3.67
10	3	5	4	4	3	5	3	3.7	3	5	4	4	4	5	5	4.67
11	5	3	3	3.67	5	3	5	4.3	5	3	4	4	4	2	4	3.33
12	5	4	3	4	5	3	5	4.3	5	3	3	3.7	5	5	4	4.67
13	5	4	3	4	5	5	5	5	5	5	4	4.7	5	4	5	4.67
14	5	4	3	4	4	4	5	4.3	3	4	5	4	2	4	5	3.67
15	3	5	4	4	3	4	5	4	3	4	4	3.7	4	4	4	4
16	4	3	5	4	4	3	5	4	4	3	4	3.7	4	3	4	3.67
17	4	3	2	3	4	3	5	4	4	3	4	3.7	4	3	3	3.33
18	4	5	5	4.67	4	5	4	4.3	4	5	3	4	4	5	3	4
19	5	3	5	4.33	5	2	4	3.7	4	3	5	4	5	2	5	4
20	4	4	3	3.67	4	4	5	4.3	4	4	5	4.3	5	4	5	4.33
21	4	3	4	3.67	5	3	5	4.3	4	3	5	4	2	3	5	3.33
22	3	4	4	3.67	3	4	5	4	3	4	3	3.3	2	2	4	2.67
23	4	4	5	4.33	3	3	4	3.3	3	3	5	3.7	3	3	5	3.67
24	4	3	5	4	4	3	4	3.7	4	3	5	4	4	3	5	4
25	3	5	5	4.33	5	5	4	4.7	3	5	4	4	4	4	5	4.33
26	5	2	4	3.67	3	2	5	3.3	3	2	4	3	3	2	4	3
27	5	4	3	4	5	4	5	4.7	3	4	3	3.3	3	5	4	4
28	4	3	5	4	3	3	4	3.3	3	5	4	4	5	4	5	4.67
29	5	5	4	4.67	5	4	3	4	5	4	5	4.7	5	4	3	4
30	4	4	5	4.33	5	4	5	4.7	5	4	3	4	5	4	5	4.67
31	4	4	5	4.33	3	4	5	4	3	4	5	4	3	4	5	4
32	5	5	4	4.67	4	4	3	3.7	4	1	5	3.3	4	1	5	3.33
33	5	4	5	4.67	5	4	3	4	4	4	5	4.3	5	4	3	4
34	4	3	5	4	4	5	5	4.7	5	3	4	4	5	3	5	4.33
35	5	3	4	4	4	4	5	4.3	4	5	5	4.7	2	5	3	3.33
36	3	5	4	4	3	3	4	3.3	4	4	5	4.3	4	4	5	4.33
37	5	3	4	4	5	4	4	4.3	5	5	4	4.7	5	5	5	5
38	5	5	4	4.67	4	3	5	4	5	2	4	3.7	5	2	5	4
39	4	3	5	4	5	4	5	4.7	4	5	3	4	5	4	3	4
40	5	5	4	4.67	4	4	5	4.3	5	5	3	4.3	2	5	4	3.67
				166				163				158				152.7

TASTE																
RN	T1				T2				T3				T4			
	R1	R2	R3	Ave.	R1	R2	R3	Ave.	R1	R2	R3	Ave	R1	R2	R3	Ave.
1	4	3	4	3.67	4	3	4	3.67	4	3	3	3.33	4	3	5	4
2	4	5	4	4.33	3	4	3	3.33	3	3	3	3	2	2	5	3
3	5	5	4	4.67	4	4	5	4.33	2	5	5	4	1	4	4	3
4	4	5	5	4.67	3	4	5	4	2	4	5	3.67	3	4	5	4
5	5	5	4	4.67	5	4	5	4.67	4	3	5	4	4	3	5	4
6	5	5	5	5	5	3	4	4	5	4	5	4.67	4	4	5	4.33
7	5	5	4	4.67	3	4	3	3.33	3	5	5	4.33	3	3	3	3
8	5	4	5	4.67	5	5	3	4.33	4	3	5	4	3	3	4	3.33
9	5	5	5	5	5	4	4	4.33	5	3	3	3.67	5	3	4	4
10	5	5	3	4.33	5	5	4	4.67	5	5	5	5	5	5	5	5
11	5	4	5	4.67	5	4	5	4.67	5	3	4	4	4	2	5	3.67
12	5	4	5	4.67	5	3	4	4	5	3	4	4	5	5	4	4.67
13	5	5	4	4.67	5	5	5	5	5	4	4	4.33	5	4	5	4.67
14	5	3	4	4	4	3	5	4	3	2	5	3.33	1	2	4	2.33
15	4	5	4	4.33	3	4	5	4	3	4	4	3.67	3	4	5	4
16	4	5	3	4	4	4	5	4.33	4	4	3	3.67	5	4	5	4.67
17	3	4	5	4	4	3	5	4	5	3	4	4	4	2	3	3
18	5	5	4	4.67	4	5	3	4	3	4	3	3.33	2	5	4	3.67
19	5	4	5	4.67	5	3	4	4	5	3	4	4	4	3	5	4
20	5	4	5	4.67	5	4	5	4.67	4	4	5	4.33	3	4	5	4
21	5	5	3	4.33	4	4	3	3.67	4	4	5	4.33	3	4	3	3.33
22	3	5	4	4	3	4	5	4	3	5	5	4.33	4	2	4	3.33
23	4	5	5	4.67	2	4	4	3.67	3	3	5	3.67	2	3	4	3
24	4	4	5	4.33	3	4	4	3.67	2	3	5	3.33	2	2	4	2.67
25	3	5	4	4	5	5	4	4.67	4	5	3	4	4	5	4	4.33
26	5	5	4	4.67	5	4	3	4	5	3	4	4	5	2	2	3
27	5	5	3	4.33	5	3	5	4.33	5	3	3	3.67	5	4	2	3.67
28	3	4	5	4	4	5	3	4	4	3	5	4	4	3	4	3.67
29	3	5	5	4.33	3	5	4	4	4	3	2	3	4	3	3	3.33
30	5	5	4	4.67	5	5	3	4.33	5	4	3	4	4	4	5	4.33
31	3	4	5	4	3	4	5	4	5	4	4	4.33	3	4	3	3.33
32	5	5	4	4.67	4	5	3	4	4	1	4	3	4	1	5	3.33
33	5	3	4	4	5	5	4	4.67	4	3	3	3.33	5	3	4	4
34	3	4	4	3.67	2	5	5	4	4	3	3	3.33	5	3	4	4
35	5	3	4	4	4	4	3	3.67	3	5	5	4.33	2	4	4	3.33
36	5	5	3	4.33	5	4	3	4	5	4	5	4.67	5	4	4	4.33
37	5	4	5	4.67	5	5	4	4.67	5	5	4	4.67	5	5	5	5
38	4	3	4	3.67	5	3	4	4	5	2	5	4	5	2	5	4
39	5	4	5	4.67	4	4	3	3.67	3	5	4	4	4	4	5	4.33
40	4	5	5	4.67	5	4	3	4	5	5	4	4.67	4	5	3	4
				175.7				164.4				157				150.7

TEXTURE																
RN	T1				T2				T3				T4			
	R1	R2	R3	Ave.	R1	R2	R3	Ave.	R1	R2	R3	Ave.	R1	R2	R3	Ave.
1	3	4	5	4	4	4	5	4.33	4	4	3	3.67	4	4	4	4
2	3	5	4	4.33	3	4	4	3.67	2	3	3	2.67	2	2	5	3
3	4	5	5	4.67	3	4	5	4	3	4	4	3.67	3	3	3	3
4	4	5	3	4	3	5	4	4	3	5	3	3.67	3	5	3	3.67
5	4	5	5	4.67	4	4	4	4	4	3	3	3.33	4	3	3	3.33
6	4	5	5	4.67	3	3	4	3.33	5	4	3	4	4	4	4	4
7	5	5	4	4.67	4	4	4	4	4	4	3	3.67	3	3	5	3.67
8	3	3	5	3.67	5	3	5	4.33	4	4	4	4	3	3	3	3
9	4	5	4	4.33	5	4	5	4.67	4	3	4	3.67	5	3	4	4
10	4	5	3	4	5	5	4	4.67	5	5	4	4.67	5	5	4	4.67
11	4	4	5	4.33	5	3	4	4	5	3	4	4	5	3	5	4.33
12	4	4	5	4.33	4	5	3	4	4	5	4	4.33	4	5	4	4.33
13	4	5	5	4.67	4	5	4	4.33	4	4	5	4.33	4	4	4	4
14	3	4	5	4	5	3	4	4	2	3	4	3	2	2	4	2.67
15	4	5	5	4.67	5	4	4	4.33	5	4	5	4.67	5	4	3	4
16	3	4	5	4	4	4	5	4.33	4	3	5	4	4	3	5	4
17	3	3	5	3.67	4	4	5	4.33	5	2	4	3.67	5	1	5	3.67
18	5	5	4	4.67	4	4	3	3.67	3	5	3	3.67	2	5	4	3.67
19	3	4	5	4	5	4	4	4.33	4	4	5	4.33	3	4	5	4
20	3	4	5	4	4	4	4	4	5	3	4	4	3	3	5	3.67
21	4	5	4	4.33	4	4	3	3.67	3	3	5	3.67	3	4	4	3.67
22	2	4	5	3.67	3	4	4	3.67	3	4	5	4	4	3	4	3.67
23	4	4	4	4	2	3	3	2.67	1	3	3	2.33	1	3	3	2.33
24	4	4	3	3.67	1	4	5	3.33	3	3	4	3.33	3	2	5	3.33
25	2	5	5	4	5	5	3	4.33	4	4	3	3.67	3	4	4	3.67
26	3	5	5	4.33	3	4	4	3.67	3	3	4	3.33	3	2	4	3
27	4	1	4	3	4	3	2	3	4	3	5	4	4	5	5	4.67
28	3	3	4	3.33	4	4	3	3.67	4	5	5	4.67	5	3	4	4
29	3	5	4	4	4	2	3	3	5	4	5	4.67	3	4	2	3
30	5	4	3	4	4	4	4	4	5	5	3	4.33	4	5	5	4.67
31	4	4	5	4.33	3	4	3	3.33	3	4	5	4	3	4	4	3.67
32	4	5	3	4	5	1	3	3	4	1	5	3.33	4	1	3	2.67
33	4	3	5	4	5	3	4	4	4	3	5	4	5	3	4	4
34	2	4	5	3.67	3	4	4	3.67	4	3	5	4	5	3	3	3.67
35	5	4	4	4.33	4	5	3	4	4	4	2	3.33	2	4	5	3.67
36	3	5	5	4.33	4	4	5	4.33	5	3	3	3.67	5	3	5	4.33
37	4	3	4	3.67	5	4	5	4.67	5	5	4	4.67	5	5	3	4.33
38	5	4	4	4.33	5	3	5	4.33	5	3	4	4	5	3	4	4
39	4	3	5	4	4	4	4	4	3	5	3	3.67	4	4	5	4.33
40	5	5	5	5	4	5	4	4.33	5	5	3	4.33	5	5	5	5
				165				157				154				150

APPENDIX C

APPROVED LETTERS

Republic of the Philippines
BOHOL ISLAND STATE UNIVERSITY
Bilar Campus
Zamora, Bilar, Bohol

April 15, 2021

MARIETTA C. MACALOLOT, Ph.D.
Campus Director
BISU-Bilar Campus

Greetings!

We the undersigned, a third year college students taking up Bachelor of Science and Industrial Technology Major in Food Preparation Service Management are doing a research study entitled, **"SENSORY EVALUATION ON THE ACCEPTABILITY LEVEL OF SOFT TARO (*Colocasia eculenta*) CANDY"** as a requirement for our Research 1 & 2 subject in the S.Y 2021-2022.

In this connection, we would like to ask permission from your office to allow us to distribute and to gather the data necessary in this study. We assure that these undertakings will follow the health protocols set upon by the University in the distribution and retrieval of the data for safety purposes for both parties.

Thank you and more power.

Very truly yours,

Judy Ann B. Banga
Jhorize E. Deguiñon
Jean H. Estorninos
Elmer C. Quimpan
Ellen Joy P. Taguba
Student Researchers

Noted by:

HERBERTO PIOLLO
Adviser

Recommending Approval:

ARLEN B. GUDMALIN, Ph.D.
Dean,CTAS

Approved by:

MARIETTA C. MACALOLOT, Ph.D.
Campus Director

APPENDIX D

REQUEST LETTER

Republic of the Philippines
BOHOL ISLAND STATE UNIVERSITY
Zamora, Bilar, Bohol

COLLEGE OF TECHNOLOGY AND ALLIED SCIENCES

April 16, 2021

TO WHOM IT MAY CONCERN,

Good day!

We the third year college students taking up Bachelor of Science and Industrial Technology Major in Food Preparation Service Management are doing a research study entitled, **"SENSORY EVALUATION ON THE ACCEPTABILITY LEVEL OF SOFT TARO (*Colocasia eculenta*) CANDY"** as a requirement for our Research 1 & 2 subject. We would like to know from you and to get your ideas and opinions on this study.

We would like to request you to answer this questionnaire as honestly as you can.

Thank you very much for your cooperation.

Very truly yours,

Judy Ann B. Banga
Jhorize E. Deguiñon
Jean H. Estorninos
Elmer C. Quimpan
Ellen Joy P. Taguba
Student Researchers

Noted:

(Sgd) **NELIA Q. CATAYAS**
Chairperson

Recommending Approval:

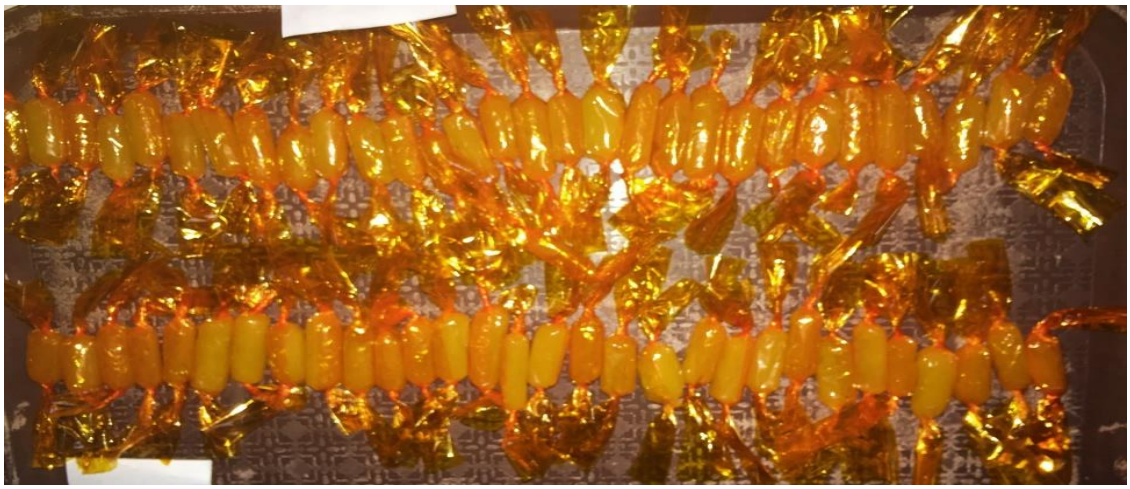
(Sgd) **HERBERTO PIOLLO**
Thesis Adviser

Approved by:

ARLEN B. GUDMALIN, Ph.D.
Dean,CTAS

APPENDIX E

Taro and Soft Taro Candy



APPENDIX F

COMPUTATION OF THE ONE-WAY ANALYSIS OF VARIANCE

ONEWAY Appearance Replications BY Appearance Treatments

Descriptives

APPEARANCE Replications

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
1.00	3	4.0000	.22913	.13229	3.4308	4.5692
2.00	3	4.0267	.11676	.06741	3.7366	4.3167
3.00	3	4.0367	.05132	.02963	3.9092	4.1641
4.00	3	4.0133	.22546	.13017	3.4533	4.5734
Total	**12**	**4.0192**	**.14817**	**.04277**	**3.9250**	**4.1133**

	Minimum	Maximum
1.00	3.80	4.25
2.00	3.90	4.13
3.00	3.98	4.08
4.00	3.78	4.23
Total	**3.78**	**4.25**

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.002	3	.001	.026	.994
Within Groups	.239	8	.030		
Total	**.241**	**11**			

ONEWAY Aroma Replications BY Aroma Treatments

Descriptives

AROMA Replications

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
1.00	3	4.1600	.15100	.08718	3.7849	4.5351
2.00	3	4.0667	.28431	.16415	3.3604	4.7729
3.00	3	3.9333	.12583	.07265	3.6208	4.2459
4.00	3	3.8300	.30000	.17321	3.0848	4.5752
Total	**12**	**3.9975**	**.23530**	**.06793**	**3.8480**	**4.1470**

	Minimum	Maximum
1.00	4.00	4.30
2.00	3.75	4.30
3.00	3.80	4.05
4.00	3.53	4.13
Total	**3.53**	**4.30**

ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.190	3	.063	1.210	.367
Within Groups	.419	8	.052		
Total	**.609**	**11**			

ONEWAY Taste Replications BY Taste Treatments

Descriptives

TASTE Replications

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
1.00	3	4.3933	.08145	.04702	4.1910	4.5957
2.00	3	4.1033	.07506	.04333	3.9169	4.2898
3.00	3	3.9300	.26458	.15275	3.2728	4.5872
4.00	3	3.7700	.39154	.22605	2.7974	4.7426
Total	**12**	**4.0492**	**.31790**	**.09177**	**3.8472**	**4.2512**

	Minimum	Maximum
1.00	4.30	4.45
2.00	4.03	4.18
3.00	3.63	4.13
4.00	3.40	4.18
Total	**3.40**	**4.45**

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.641	3	.214	3.626	.064
Within Groups	.471	8	.059		
Total	**1.112**	**11**			

ONEWAY Texture Replications BY Texture Treatments

Descriptives

TEXTURE Replications

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
1.00	3	4.1267	.38553	.22259	3.1690	5.0844
2.00	3	3.9267	.06807	.03930	3.7576	4.0958
3.00	3	3.8500	.13229	.07638	3.5214	4.1786
4.00	3	3.7633	.30139	.17401	3.0146	4.5120
Total	**12**	**3.9167**	**.25931**	**.07486**	**3.7519**	**4.0814**

	Minimum	Maximum
1.00	3.70	4.45
2.00	3.85	3.98
3.00	3.70	3.95
4.00	3.48	4.08
Total	**3.48**	**4.45**

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.216	3	.072	1.103	.403
Within Groups	.523	8	.065		
Total	**.740**	**11**			

APPENDIX G

COMPUTATIONS OF POST HOC TESTS

Multiple Comparisons

Dependent Variable: Appearance_Replications

Tukey HSD

(I) Appearance_Treatments	(J) Appearance_Treatments	Mean Difference (I-J)	Std. Error	Sig.
1.00	2.00	-.02667	.14119	.997
	3.00	-.03667	.14119	.993
	4.00	-.01333	.14119	1.000
2.00	1.00	.02667	.14119	.997
	3.00	-.01000	.14119	1.000
	4.00	.01333	.14119	1.000
3.00	1.00	.03667	.14119	.993
	2.00	.01000	.14119	1.000
	4.00	.02333	.14119	.998
4.00	1.00	.01333	.14119	1.000
	2.00	-.01333	.14119	1.000
	3.00	-.02333	.14119	.998

Multiple Comparisons

Dependent Variable: Appearance_Replications

Tukey HSD

(I) Appearance_Treatments	(J) Appearance_Treatments	95% Confidence Interval	
		Lower Bound	Upper Bound
1.00	2.00	-.4788	.4255
	3.00	-.4888	.4155
	4.00	-.4655	.4388
2.00	1.00	-.4255	.4788
	3.00	-.4621	.4421
	4.00	-.4388	.4655
3.00	1.00	-.4155	.4888
	2.00	-.4421	.4621
	4.00	-.4288	.4755
4.00	1.00	-.4388	.4655
	2.00	-.4655	.4388
	3.00	-.4755	.4288

Multiple Comparisons

Dependent Variable: Aroma_Replications

Tukey HSD

(I) Aroma_ Treatments	(J) Aroma_Treatments	Mean Difference (I-J)	Std. Error	Sig.
1.00	2.00	.09333	.18685	.957
	3.00	.22667	.18685	.636
	4.00	.33000	.18685	.354
2.00	1.00	-.09333	.18685	.957
	3.00	.13333	.18685	.889
	4.00	.23667	.18685	.606
3.00	1.00	-.22667	.18685	.636
	2.00	-.13333	.18685	.889
	4.00	.10333	.18685	.943
4.00	1.00	-.33000	.18685	.354
	2.00	-.23667	.18685	.606
	3.00	-.10333	.18685	.943

Multiple Comparisons

Dependent Variable: Aroma_Replications

Tukey HSD

(I) Aroma_ Treatments	(J) Aroma_Treatments	95% Confidence Interval	
		Lower Bound	Upper Bound
1.00	2.00	-.5050	.6917
	3.00	-.3717	.8250
	4.00	-.2683	.9283
2.00	1.00	-.6917	.5050
	3.00	-.4650	.7317
	4.00	-.3617	.8350
3.00	1.00	-.8250	.3717
	2.00	-.7317	.4650
	4.00	-.4950	.7017
4.00	1.00	-.9283	.2683
	2.00	-.8350	.3617
	3.00	-.7017	.4950

Multiple Comparisons

Dependent Variable: Taste_Replications

Tukey HSD

(I) Taste_ Treatments	(J) Taste_ Treatments	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval
					Lower Bound
1.00	2.00	.29000	.19814	.499	-.3445
	3.00	.46333	.19814	.168	-.1712
	4.00	.62333	.19814	.054	-.0112
2.00	1.00	-.29000	.19814	.499	-.9245
	3.00	.17333	.19814	.818	-.4612
	4.00	.33333	.19814	.391	-.3012
3.00	1.00	-.46333	.19814	.168	-1.0979
	2.00	-.17333	.19814	.818	-.8079
	4.00	.16000	.19814	.849	-.4745
4.00	1.00	-.62333	.19814	.054	-1.2579
	2.00	-.33333	.19814	.391	-.9679
	3.00	-.16000	.19814	.849	-.7945

Multiple Comparisons

Dependent Variable: Taste_Replications

Tukey HSD

(I) Taste_Treatments	(J) Taste_Treatments	95% Confidence Interval
		Upper Bound
1.00	2.00	.9245
	3.00	1.0979
	4.00	1.2579
2.00	1.00	.3445
	3.00	.8079
	4.00	.9679
3.00	1.00	.1712
	2.00	.4612
	4.00	.7945
4.00	1.00	.0112
	2.00	.3012
	3.00	.4745

Multiple Comparisons

Dependent Variable: Texture_Replications

Tukey HSD

(I) Texture_Treatments	(J) Texture_Treatments	Mean Difference (I-J)	Std. Error	Sig.
1.00	2.00	.20000	.20881	.776
	3.00	.27667	.20881	.574
	4.00	.36333	.20881	.365
2.00	1.00	-.20000	.20881	.776
	3.00	.07667	.20881	.982
	4.00	.16333	.20881	.860
3.00	1.00	-.27667	.20881	.574
	2.00	-.07667	.20881	.982
	4.00	.08667	.20881	.974
4.00	1.00	-.36333	.20881	.365
	2.00	-.16333	.20881	.860
	3.00	-.08667	.20881	.974

Multiple Comparisons

Dependent Variable: Texture_Replications

Tukey HSD

(I) Texture_Treatments	(J) Texture_Treatments	95% Confidence Interval	
		Lower Bound	Upper Bound
1.00	2.00	-.4687	.8687
	3.00	-.3920	.9453
	4.00	-.3053	1.0320
2.00	1.00	-.8687	.4687
	3.00	-.5920	.7453
	4.00	-.5053	.8320
3.00	1.00	-.9453	.3920
	2.00	-.7453	.5920
	4.00	-.5820	.7553
4.00	1.00	-1.0320	.3053
	2.00	-.8320	.5053
	3.00	-.7553	.5820

APPENDIX H

DOCUMENTATION












RESEARCHER'S DATA

PERSONAL INFORMATION

Name:	Judy Ann B. Banga
Address:	Magsaysay, Sevilla, Bohol
Date of Birth:	February 10, 2000
Email:	bangajudyann@gmail.com
Civil Status:	Single
Parents:	Proceso M. Banga
	Lilia B. Banga

EDUCATIONAL ATTAINMENT

Elementary:	Magsaysay Elementary School
	Magsaysay, Sevilla, Bohol
	2012
Secondary:	Bayawahan National High School
	Bayawahan, Sevilla, Bohol
	2018
Tertiary:	Bohol Island State University (BISU)
	Zamora, Bilar, Bohol
	2021
Course	Bachelor of Science in Industrial Technology
	Major in Food Preparation Service
	Management

SEMINARS, TRAINING & WORKSHOP

NCII in Cookery

Ca-Lim Tech Training and Assessment Center, Inc

San Isidro, Baclayon, Bohol

May 04, 2019

Nutri-Dish Cooking Contest

BISU-Bilar Campus

July 27, 2018

Safety Awareness in the Food Industry

BISU-Bilar Campus

October 24, 2018

Comtech Resources Development Program

Cristal-e College, Ma. Clara St., Tagbilaran City

February 2016- May 2016

RESEARCHER'S DATA

PERSONAL INFORMATION

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EDUCATIONAL ATTAINMENT

Elementary:	Bilar Central Elementary School
	Poblacion Bilar, Bohol
	2012
Secondary:	Bohol Island State University (BISU)
	Zamora Bilar, Bohol
	2018
Tertiary:	Bohol Island State University (BISU)
	Zamora, Bilar, Bohol
	2021
Course	Bachelor of Science and Industrial Technology
	Major in Food Preparation Service
	Management

SEMINARS, TRAINING & WORKSHOP

NCII in Cookery

Ca-Lim Tech Training and Assessment Center, Inc

San Isidro, Baclayon, Bohol

May 04, 2019

Safety Awareness in the Food Industry

BISU-Bilar Campus

October 24, 2018

RESEARCHER'S DATA

PERSONAL INFORMATION

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EDUCATIONAL ATTAINMENT

Elementary:	Bilar Central Elementary School
	Poblacion Bilar, Bohol
	2012
Secondary:	Bilar National High School
	Yanaya Bilar, Bohol
	2018
Tertiary:	Bohol Island State University (BISU)
	Zamora, Bilar, Bohol
	2021
Course	Bachelor of Science and Industrial Technology
	Major in Food Preparation Service
	Management

SEMINARS, TRAINING & WORKSHOP

NCII Holder in Food and Beverage

2018

Nutri-Dish Cooking Contest

BISU-Bilar Campus

July 27, 2018

Safety Awareness in the Food Industry

BISU-Bilar Campus

October 24, 2018

NC II Holder in Cookery

Dao Tagbilaran, City

2017

NCII Holder in Bread and Pastry

Tesda Bilar

2017

NC II Holder Food and Beverage

Cortes, Bohol

RESEARCHER'S DATA

PERSONAL INFORMATION

Name:	Elmer C. Quimpan
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	Andresa C. Quimpan

EDUCATIONAL ATTAINMENT

Elementary:	Cabacnitan Elementary School
	Cabacnitan Bilar, Bohol
	2012
Secondary:	Bilar National High School
	Yanaya Bilar, Bohol
	2018
Tertiary:	Bohol Island State University (BISU)
	Zamora, Bilar, Bohol
	2021
Couse	Bachelor of Science and Industrial Technology
	Major in Food Preparation Service
	Management

SEMINARS, TRAINING & WORKSHOP

NCII Holder in Food and Beverage

2018

Safety Awareness in the Food Industry

BISU-Bilar Campus

October 24, 2018

NC II Holder in Cookery

Dao Tagbilaran, City

2017

NCII Holder in Bread and Pastry

Tesda Bilar

2017

NC II Holder Food and Beverage

Cortes, Bohol

RESEARCHER'S DATA

PERSONAL INFORMATION

Name:	Ellen Joy P. Taguba
Address:	Villa Aurora Bilar,Bohol
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Email:	tagubaellenjoy067@gmail.com
Civil Status:	Single
Parents:	Tito T. Taguba
	Expedita P. Taguba

EDUCATIONAL ATTAINMENT

Elementary:	Bilar Cental Elementary School
	Poblacion Bilar, Bohol
	2012
Secondary:	Bilar National High School
	Yanaya, Bilar, Bohol
	2018
Tertiary:	Bohol Island State University (BISU)
	Zamora, Bilar, Bohol
	2021
Course	Bachelor of Science and Industrial Technology
	Major in Food Preparation Service
	Management

SEMINARS, TRAINING & WORKSHOP

Tourism Promotion Services

Tesda, Tagbilaran

April 28, 2017

Nutri-Dish Cooking Contest

BISU-Bilar Campus

July 27, 2018

Safety Awareness in the Food Industry

BISU-Bilar Campus

October 24, 2018

NCII in Cookery

Ca-Lim Tech Training and Assessment Center, Inc

San Isidro, Baclayon, Bohol

May 04, 2019