



TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
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DEVELOPMENT OF MOCKTAIL DRINKS WITH BUTTERFLY PEA FLOWER EXTRACT

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EXECUTIVE SUMMARY

This research study aimed at developing an acceptable mocktail drink that utilizes the extract of butterfly pea flowers, available in the Philippines.

The trainer of Bartending NC II noted that the flowers of the butterfly pea plant or *Clitoris ternatea* is used in food- ice cream and tea. She wanted to assess the possibility of creating mocktail drinks using the extract of the flowers with its unique color.

The conceptual framework utilized was the Product Development framework, a systematic, commercially oriented research to develop products and processes satisfying a known or suspected consumer need. The Bartending NC II qualification spearheaded the product development process. Factors considered in the product development included the taste, appearance, consistency, aroma and general acceptability.

After the initial idea generation, screening and development of three product samples using apple, lemon and orange juices for the blended drinks, product test was with a controlled group consisted of twenty (20) respondents. An evaluation sheet using the nine-point hedonic scale was devised for the conduct of testing to establish the overall preference and acceptability with the products from the respondents.

The results of the product tests showed that the lemon juice-based drink with butterfly pea flower extract have the highest degree of preference among the three samples. Twenty five percent of the respondents marked extremely like from the survey while forty percent noted like very much. It was noted that the lemon taste is very apt for the drink and the color is appealing.

Based on the results of the product test, it was concluded that the lemon-based mocktail with butterfly pea flower extract is the most viable for introduction to the market. The general quality was acceptable and satisfied the expectations of the intended consumers. Recommendations were the production and distribution of the recipe at TESDA Women's Center Bartending class. Likewise, the conduct of a research study to determine the longevity of the extract's shelf life and the development of alcoholic drinks using the same were suggested.



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INTRODUCTION

Background of the Study

Asia Pacific is one of the fastest growing markets for non-alcoholic drinks (Reportlinker, 2015). Non-alcoholic beverages are also known as 'virgin drinks.' Soft drinks, juices, ready-to-drink tea and coffee, bottled water, and energy drinks are the most-consumed non-alcoholic drinks globally. Changing customer needs and introduction of new flavors and product variants are the major factors driving demand for non-alcoholic drinks. With large number of upcoming business utilities in power, construction and automotive sector in developing countries, the per-capita income is expected to increase over the forecast period, thereby increasing the disposable income of the regions. Increasing disposable income in emerging economies, including the Philippines, is expected to have high impact on demand for non-alcoholic drinks in the long run.

Health and wellness have significantly posed positive impact on the food and beverages industry. Increase in awareness of various health problems associated with alcohol has shifted the consumer preference from alcoholic drinks toward nonalcoholic drinks. Growing consumer demand for healthy and premium beverages that are distinct from mass market offerings will create conditions for greater dynamism in the global drinks industry. Business researches forecast the drinks sector will become more dynamic as offshoot categories gain momentum in developed markets. Health-consciousness will shape consumption patterns within the drinks sector. Low- and non-alcoholic beer, craft soda and relaxation drinks will experience rapid growth on the back of the trend (BMI Research, 2016). Health-consciousness will shape consumer preferences, which will increasingly shift towards natural ingredients, functional beverages and low-sugar/calorie beverages. Expectations on premium juice and plant-based beverages sales to benefit from health-consciousness trends throughout the forecast period.



Along this line, the TESDA Women Center had an idea to use the butterfly pea flower or *Clitoris ternatea L.* with its distinct blue-purple hue to create innovations in the non-alcoholic beverages. Specifically, this study aims to follow the global trend and develop mocktail drinks using butterfly pea flower extract.

Statement of the Problem

The TESDA Women's Center envisions to be the lead TVET institution of excellence in empowering Filipino Women. One of the qualifications offered at TWC is Bartending NC II which produces skilled workers for the hotel and restaurant industry. Among the core competencies taught in the qualification is Prepare and mix cocktails and non-alcoholic concoctions. One of the trainers had a trip in the Visayas and tasted a peculiar blue-colored ice cream flavor using butterfly pea flowers. She learned that this flower is also used a tea. This led her to determine the possibility of using the extract of the flower to develop bluish purple mocktails.

TWC has had a long history of support to the national government's programs in innovating food and beverage products, including the development of affordable vegetable-based snack food recipes for grade school and high school students. This research is aligned on this context focusing on a different age demographic.



Objectives of the Study

This technology research attempted to develop a mocktail or non-alcoholic bar drink using the extract of butterfly pea flowers for the market. The distinct bluish-purple color is new to the market and the flowers are affordable and convenient to purchase, making it easier to prepare and serve non-alcoholic drink. This research employed the New Product Development (NPD) process as a model.

The objectives of this research are the following:

1. To develop mocktail drinks using butterfly pea flower extract; and
2. To determine product cost and acceptability.

Scope and Delimitation

The research was focused on the development of mocktail drinks using butterfly pea flower extract, which are available in the country. Acceptability of the product developed was determined by conducting product test survey with 20 respondents from TWC, Taguig City.

Both quantitative and qualitative data were gathered. Quantitative data were obtained from the results of the consumer survey and evaluations conducted with the respondents. Qualitative data were gathered also from the group discussion and feedbacks of participants during the product testing. The conduct of consumer survey was limited to 20 participants because of limited number of available respondents.



CONCEPTUAL FRAMEWORK

Review of Related Literature

Trends in non-alcoholic drinks

According to the website Statista, revenue in the Non-Alcoholic Drinks market amounts to US\$6,713m in 2017. The market is expected to grow annually by 5.7 % until 2021 (Statista, 2017). In particular, ready-to-drink cans and pouches are popular with consumers because of the convenience they offer. Specifically, RTD alcoholic drinks allow consumers to emulate the out-of-home experience at a cheaper price. “Ready to drink” (RTD) refers to packaged beverages that are sold in a prepared form and are ready for consumption (Market Research, 2017). Unlike traditional beverage mixes, powders, or brew-it-yourself tea or coffee products, ready-to-drink beverages can be immediately consumed upon purchase. Bottled or canned ice tea, coffee, fruit or vegetable smoothies, energy drinks, yogurt drinks and alcopops (ready-made alcohol cocktails) are all examples of RTD beverages.

At present, soft drinks segment has witnessed large-scale adoption of nonalcoholic drinks market. However, this segment is anticipated to witness decline in market share due to growth in health concerns such as obesity and diabetics. Moreover, government regulations related to sugary drinks and increase in import duties have further hindered the market growth of soft drinks. Juice and dairy drinks are some of the other segments in market. The rapid growth of these segment markets is expected in subsequent years mainly due to rise in health and wellness demand. These products have the potential to generate high returns due to its natural and organic contents.

A positive outlook for the relaxation drinks segment is expected to gain traction as consumers increasingly seek viable alternatives to alcoholic beverages. Relaxation



drinks are non-alcoholic beverages that contain natural ingredients, which are claimed to reduce stress and anxiety (BMI Research, 2016). These beverages mimic the relaxation effects of alcohol. As consumers become aware of this attribute, they will increasingly substitute alcoholic beverages with relaxation drinks. Furthermore, these beverages contain less sugar than conventional carbonated soft drinks and use natural ingredients, which will be attractive to health-conscious consumers.

Craft soda will see a rapid rise in growth over our forecast period. Strong growth in the segment will be driven by a variety of factors; however, rising demand for non-alcoholic beverages that are distinct from mass-market offerings will be the primary driver. There is currently no working definition for craft soda; however, the category is characterized by the use of natural ingredients and production of small batches. It is expected that the young adult consumer segment (ages 20-39 years) will drive growth in the segment as it has shown preference towards authentic, premium and innovative non-alcoholic drinks products (BMI Research, 2016):

- Unique and sophisticated flavor profiles of craft sodas will appeal to consumers seeking non-alcoholic beverages that align with mature tastes.
- Positive health perceptions towards natural ingredients such as cane sugar as opposed to high-fructose corn syrup will attract consumers that switched out of the carbonated soft drinks category due to an aversion towards artificial ingredients.
- Emerging cocktail culture will drive growth in the segment as cocktail combinations require innovative flavor profiles, such as those found in craft sodas. Furthermore, the emerging dry bar culture will support growth in the segment, as value propositions of these bars will lie in interesting mocktail flavors. Dry bars are alcohol-free establishments that serve non-alcoholic alternatives.
- Consumer preferences towards premium alcohol will compel consumers to use premium mixers in their spirits so as to not compromise the quality and flavor of these beverages.



Finally, forecast for flavors in 2017 indicate that floral flavors are popping up and making their way into food and beverages including alcoholic and non-alcoholic beverages and dairy products such as yogurt and ice cream. Flavors in this group include: Blueberry Hibiscus, Orange Blossom Vanilla, Raspberry Lavender (Global Food Forums, 2017). Hence, there is an opportunity to look into the Butterfly pea flower as a source of flavor and color for beverages.

Butterfly Pea Flower

The *Clitoriaternatea* or Butterfly Pea flower, a twining evergreen perennial herb with compound leaves. The stems are pubescent and spindly. The flowers are in various shades of blue or pure white. The fruits are pods resembling thin peas. The plants belong to the family Fabaceae. The roots, seeds and flowers have medicinal value and are used to treat various ailments (Gomez and Kalamani, 2003).

Butterfly pea powder is derived from the butterfly pea plant, a vining flower that has crept along trellises and up the sides of buildings across Thailand and Burma for centuries. The plant's petals are a pulsing indigo, and have the appearance of a flared, soft tongue, ready to lap up the morning dew. More accurately, the flower is shaped almost identically to a woman's clitoris. The similarity is so uncanny that the plant's official scientific name is *Clitoriaternatea*: literally "clit tea." The flowers bloom both voraciously and fleetingly—particularly during monsoon season—blossoming around sunrise at 6 a.m. and lasting only 24 hours before withering (Dizon, 2014).

Butterfly pea plants have long been used to create a natural dye for edible dishes across Southeast Asia, including the popular Malay glutinous rice dish *kuihketan*, which causes cream-colored sticky rice to turn a shade of blue that rivals the peacock's satiny sapphire body. A style of steamed dumplings shaped like flowers—*chormaung*—derive their periwinkle hue from butterfly pea buds and have been lauded in the pages of Thai literature for centuries. Butterfly pea buds themselves have a subdued flavor similar to a slightly more herbal black tea, but the plant primarily functions as a natural dye that's subtle in flavor but bold in visual pop. The flowers are most famously used to make a traditional Thai welcome tea known as *dokanchan*, which hotels there frequently



serve to travelers upon their arrival(Baird, 2015). Both hot and cold versions of *dokanchan* are widely offered, prepared in an almost identical fashion. Butterfly pea pods are soaked until their color begins to bleed out, then the drink is consumed either piping hot or on ice with a dollop of treacly honey and a wheel of lemon or lime on the side. The burst of citrus causes the drink to have a punchy aftertaste, but it also serves a more arresting purpose—making the drink change colors.

Butterfly pea tea has an incredibly sensitive pH balance, meaning even the slightest shift in acidity can turn a beverage from deep blue, to a vibrant plum, to a fizzy magenta. The drink becomes a sippable chameleon: The more acid that comes in contact with the tea, the lighter in color it becomes. From pH 8 to pH 4, the tea is a regal shade of blue. It quickly shifts into deep purple terrain at pH 3, and finally bursts into carnation pink territory at pH 2 (Baird, 2015).

The flower has finally made its way into rocks glasses primarily by way of the first-ever commercially produced concentrate from the Wild Hibiscus Flower Company, [b'lure](#) (Baird, 2015). Packaged in a dropper bottle, b'lure is essentially a butterfly pea simple syrup that enables drinks to appear just a little more oceanic with a few drops of the liquid rationed out like dashes of bitters.

Recent studies found significant levels of some non-enzymic antioxidants namely ascorbic acid, reduced glutathione and total carotenoids in the leaves and flowers of two varieties of *Clitoriaternatea*, one bearing blue flowers and the other bearing white flowers (Phrueksanan W., 2014). The benefits that can be extracted from the flower include: it is a natural anti-oxidant, improves blood circulation and helps prevent hair loss and graying hair. There are studies that claim that it cleanses the blood, improves night vision, revitalizes skin and hair (Dizon, 2014). Another research study has concluded that the extract of *Clitoriaternatea* has been demonstrated to possess anti-diabetic activity and has strong antiglycation and antioxidant properties and might have therapeutic potentials in the prevention of advanced glycation end products or AGE-mediated diabetic complication (Chayaratasanin P., 2015)



Conceptual Framework

Product and Process Development (commonly referred to as Product Development) is systematic, commercially oriented research to develop products and processes satisfying a known or suspected consumer need. Product development is a method of industrial research in its own right. It is a combination and application of natural sciences with the social sciences into one type of integrated research whose aim is the development of new products. The most widely referenced normative product development models are those of Booz, Allen and Hamilton Inc. (1982) and that of Cooper and Kleinschmidt (1986). There are essentially four basic stages in these models for every product development process. These are:

- product strategy development;
- product design and development;
- product commercialization;
- product launch and post-launch.

Each stage has activities that produce outcomes (information) upon which management decisions are made. In practice, some of the activities performed in the product development process can be truncated, or some stages can be omitted or avoided based on a company's accumulated knowledge and experience. Having defined product development, it is now necessary to examine the issue of what constitutes a new or innovative product. Newness of a product may be judged differently according to those who perceive it. In the context of consumer goods such as clothing, there are three groups of actors: consumers, distributors, and producers. Each may have a different view of whether or not a product is new.

Crucial to the discussion of product development is to recognize that "innovation" is contextual. The consumers' perception of product newness depends on the location of the consumer and the types of clothing currently on the market.

The challenge for product development is to develop a product, which is acceptable to the target consumer. The specific flavors, ingredients and levels of



sweetness and acidity used in beverages are significantly some of the factors that target customers are concerned about.

A major feature that distinguishes food product development is the ethical considerations of producing a large volume of safe and healthy food for human consumption. This is coupled to the fact that food raw materials are available at all times, affordable and are easy to prepare.

New Product Development Process

Idea Generation

Basic survey questionnaire are utilized in this process to identify the needs of the intended clients and describe the problems that might occur when these needs are not addressed. Ideas from other members of the organization are also generated as a significant part of this process that will take on affordability, accessibility and other specifics of the product development.

Idea Screening

This step is crucial to ensure that unsuitable ideas, for whatever reason are rejected as soon as possible. Ideas are considered objectively; ideally by a group or committee focusing mainly on the needs of the intended clients as a result of the survey done. Shortlists of ideas were documented.

Concept Development and Testing

Once the ideas have passed the screening stage, a small group discussion is conducted. The idea is now a concept, with enough in-depth information that the consumer can visualize it. A sample of the products is pre-tested by the group.

Aside from patent research, design due diligence, and other legalities involved with new product development, knowing where the product will be work best - who are



the consumer? How will the consumer accept the new product? Do they really want or need it? This stage will be a chance to develop the concept further.

Product Development

In this process, the trainer involved used various raw materials for product development. Number of products were produced and presented initially to a small group.

Product Testing (Internal Clients)

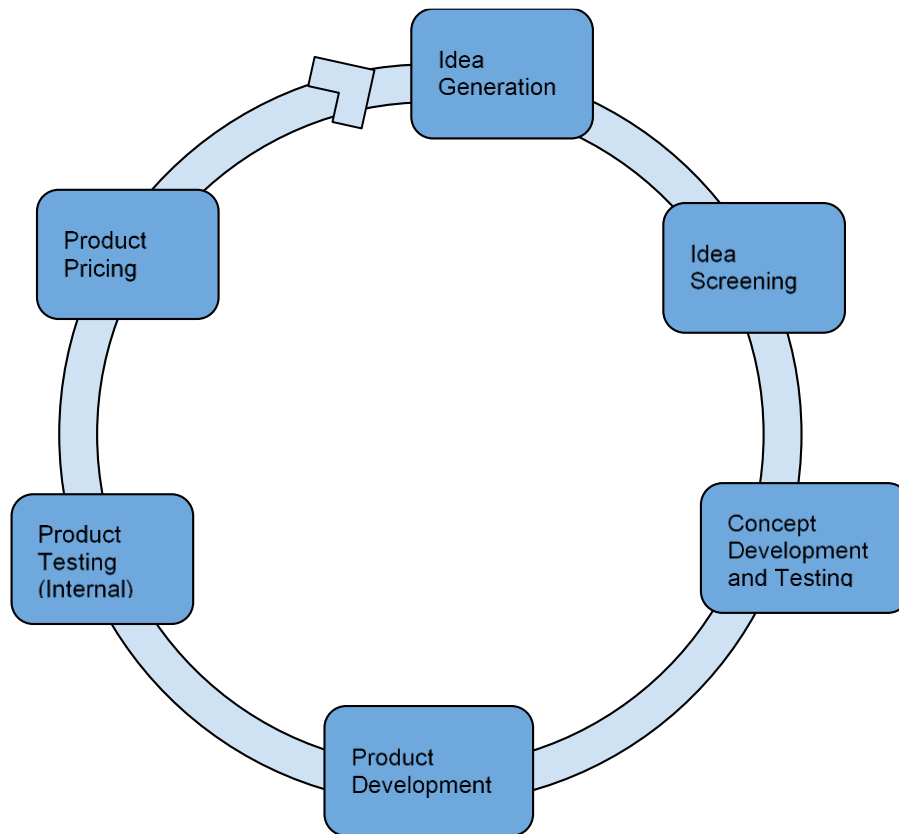
Product testing were participated by selected members of TWC trainees with the consideration that this group have experience in tasting mocktails. This process aims to gather feedbacks on the flavor, acidity, aroma and overall quality of the product.

Product Pricing

At this stage, new product developed have gone mainstream. Once the consumers are purchasing the products, it should be at a reasonable cost.



Figure 1. Conceptual Framework of New Product Development



METHODOLOGY

Idea Generation and Screening

The experimental stage involved determination of method to use in developing the mocktails. Initial tests primarily focused on blended drinks. However, it was observed that the coloring of the butterfly pea flower extract was diffused when ice is added in the drinks and the consistency in color is harder to maintain as the blended drink warms up. As such, the research team decided to focus more on build and shaken mocktails that mixes several drinks before serving them on ice. The research team was composed of the TESDA Women Center (TWC) trainer in Bartending NC II who led the conduct of design development with assistance from Bartending NC II trainees. The TWC Center Chief provided technical guidance in the research design and methodology while the team of TWC Research provided assistance in the conduct of consumer survey and technical writing. Some selected TWC Bartending trainees participated also as part of the research team in the conduct of experiments on recipe modification, costing and consumer testing to encourage them and experience the conduct of research.

The general idea was to develop a mocktail or non-alcoholic drink with the butterfly pea flower extract as one of the main ingredients. This implied that the products developed did not have to taste like any mocktail in the market. Further, the study aimed to identify the product that would have its own unique attributes which would be acceptable to consumers.



Concept Development and Product Development

Looking at all the available mocktails in the market that utilize the butterfly pea flower as an ingredient, the research team then developed the recipe of the product. This was led by the Bartending NC II trainer. An important consideration in the concept and product development was the extraction of the butterfly pea flower juice. Annex A details the procedure of the extraction method. The flowers were ordered from Market, Market Taguig City through the assistance of the Cookery NC II trainer.

Likewise, another consideration was the fruit juices to be used for the recipes. The research team decided to use apple juice, orange juice and lemon juice. The reasons for choosing these are the price of the juice are affordable and the juices are readily available in supermarkets. This would avoid the price and resource constraints. After the determination of the main ingredients, the amount per ingredients were identified through basic recipes in mocktails. The recipes of the three mixtures are shown in Annex 2. Food safety practices were carefully observed during the entire experimental and formulation stage.



Figure 2. Product Samples of Three Mocktail Drinks



Sensory Evaluation and Respondents of the Study

The next step involved was conducting drink tasting with a controlled group consisted of twenty (20) trainees. An evaluation sheet using the nine-point hedonic scale (Annex 3) was devised for the conduct of taste testing of the mocktail samples to establish the overall preference and acceptance of butterfly pea flower extract drinks from the panelists. The respondents wrote the number (1-9) corresponding to the appropriate rating scale to express their feeling of how much they liked or disliked the product.





Figure 3. Conduct of Product Test

Product Testing

The sensory evaluation was conducted on December 19, 2017 at TWC, Taguig City. Four (4) members of the research team facilitated the survey with assistance from the Bartending trainees. After the preparation of sample drinks by the trainer, a brief orientation was conducted on the purpose of the activity. Initially, the names of the sample drinks were not revealed yet but it was just labeled as Product 222, 444 and 888. The sample drinks were then prepared and served. The products were tasted individually and simultaneously. Bottled drinking water and lemon sliced were also distributed to help the respondents distinguish the taste of one drink sample after the other. Feedback regarding the general comments were gathered from the trainees through the survey form after the taste testing.



Figure 4. TWC trainer preparing the mocktail drinks with butterfly pea flower extract



Product Costing

Product costing of each of the three mocktail samples was computed to determine its affordability and compare the cost with the prices of products in the market.



RESULTS AND DISCUSSION, CONCLUSION AND RECOMMENDATION

Recipe Formulation/Development of Mocktail Drinks with Butterfly Pea Flower Extract and Results of Product Evaluation

The three recipes for mocktail drinks were produced by the research team and were subjected for testing with twenty (20) respondents. The survey was conducted to determine the over-all acceptability and which among the 3 recipes of the mocktail drinks was the most preferred by the trainees of TWC.

Tables 1 and 2 show the profile of respondents who participated in the product testing. There were more female respondents (85.00%) compared to male (15.00%) with age ranging from 16 to 40 years old. Majority or 70% of the respondents belong to the 21-35 age group.

Table 1. Profile of Respondents by Sex

Sex	Frequency	%
M	3	15.00%
F	17	85.00%

Table 2. Profile of Respondents by Age

Age Range	Frequency	%
16-20	1	5.00
21-25	8	40.00
26-30	4	20.00
31-35	6	30.00
36-40	1	5.00
Total	20	100.00



Table 3 shows the results of evaluation of the three mocktail drinks with butterfly pea flower extract that were sampled by the research team in terms of percentage (%) of responses in liking of the respondents/panelists.

Table 3. Percentage (%) Liking of Panelists by Product

Description of Preference	% General Acceptability		
	Apple with Butterfly pea flower extract	Lemon with Butterfly pea flower extract	Orange with Butterfly pea flower extract
1-Dislike extremely	0.00%	0.00%	0.00%
2-Dislike very much	0.00%	0.00%	0.00%
3-Dislike moderately	0.00%	0.00%	0.00%
4-Dislike Slightly	0.00%	0.00%	0.00%
5-Neither like nor dislike	5.00%	0.00%	5.00%
6-Like Slightly	15.00%	5.00%	20.00%
7-Like Moderately	50.00%	30.00%	50.00%
8-Like Very Much	25.00%	40.00%	25.00%
9-Like extremely	5.00%	25.00%	0.00%

The 9-point hedonic scale of liking was considered as the most appropriate to use in this study because of its usefulness in planning and choosing the right recipe. Drinks that were liked by the panelists were selected while those that were disliked could be removed. The goal here was not to compare the comparative degree of liking between drinks but merely to register whether a drink under study was liked well enough to remain on the list of recipes. The judgments were more absolute than comparative.

It can be inferred from Table 3 that the respondents the Butterfly pea flower extract with lemon was more liked among the three samples. Analyzing the scale, the mocktail drink with the more positive acceptability is the lemon-based drink with 95% of ranking from like moderately to like extremely. On the other hand, while apple-based drink registered a 5.00% of like extremely, 5.00% also responded with neither like nor



dislike or were neutral on the general acceptability of the product. This means that a significant number of respondents are ambivalent on their preference in the sample. On the other hand, the orange-based drink with butterfly pea flower extract registered 0.00% on like extremely and responses were concentrated more on like very moderately to like very much. 5.00% of the respondents meanwhile were neutral with the general acceptability.

The general comments of the panelists and photos taken during the conduct of the product test are presented below.

Apple with Butterfly pea flower extract	Lemon with Butterfly pea flower extract	Orange with Butterfly pea flower extract
<ul style="list-style-type: none"> • Mejo magkalasa ng orange • Maganda yong appearance okay naman ang lasa • Hindi flavorful, medyo matabang pero masarap • Medyo okay ang lasa • It looks refreshing, same as taste 	<ul style="list-style-type: none"> • I like that it has a sourness to it • No odor • Not much aroma, color is really good very appealing • The lemon flavor was very potent • Mas masarap • Mas gusto ko • Mas, mas maasim • Masarap sya Medyo maasim pero nag-cocompliment sa sprite yung konting asim • I like it very much • Masarap sya pero walang amoy • Better to serve with vodka • The color and appearance is presentable • Medyo mapakla 	<ul style="list-style-type: none"> • Masarap • Medyo matabang pero maganda ang appearance • Light ang lasa walang dating pero masarap • Gusto ko kasimalasa • Good taste



Product Costing

The cost of materials, supplies, labor and miscellaneous expenses of the mocktail drink with butterfly pea flower extract was computed based on the current market price. Table 4 presents the summary of costing with suggested selling price.

Conclusion

Based on the results of the sensory evaluation and product test, it is concluded that the lemon based mocktail drink with butterfly pea flower extract could be the most viable product as non-alcoholic drink among the product samples. The product provides consumers with an appealing and uniquely colored non-alcoholic drink with a pleasing taste. The recipe is easy to prepare and purchase as well such that bartenders can offer this to the market. The general quality is acceptable and satisfies the needs of the intended consumers.

Recommendations

The result of the study proved that the developed mocktail drink with butterfly pea flower extract was generally satisfying and acceptable for the intended clients. Hence it is recommended that the product be produced and included in menus offered at TESDA Women's Center and have the recipe distributed to students of Bartending NC II. Furthermore, it is recommended that the further studies on the shelf life of the butterfly pea flower extract be conducted as well as determination of the best process for extraction. It is also suggested that further studies on alcoholic drinks with butterfly pea flower extract be developed including those that mix with vodka, as one of the respondents commented.



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ANNEXES



ANNEX 1- EXTRACTION PROCESS OF BUTTERFLY PEA FLOWER







ANNEX 2- RECIPES OF MOCKTAIL DRINKS WITH BUTTERFLY PEA FLOWER EXTRACT



ANNEX 3

MOCKTAIL DRINKS WITH BUTTERFLY PEA FLOWER EXTRACT SURVEY FORM

Name of Panelist (Optional): _____ Date: _____
 Sex: _____ Age: _____

Instructions:

Evaluate the given samples on how much you like or dislike each product. Use the appropriate scale below in choosing your rating which best describes your feeling. Take a drink of water after each product tasted.

Sensory Attribute	Product Sample		
Appearance			
Color			
Odor			
Consistency			
Flavor			
General acceptability			

Rating Scale: (Appearance, Color, Odor, Consistency and Flavor)	Rating for General Acceptability
7- Like very much 6- Like moderately 5- Like slightly 4- Neither like nor dislike 3- Dislike slightly 2- Dislike moderately 1-Dislike	9- Likely extremely (sagad na saga dang pagkagusto) 8- Like very much (gustong gusto) 7- Like moderately (medyo gusto) 6- Like slightly (konting gusto) 5- Neither like or dislike (hindi gusto at hindi ayaw) 4- Dislike slightly (konting ayaw) 3- Dislike moderately (medyo ayaw) 2- Dislike very much (ayaw na ayaw) 1 – Dislike extremely (sobrang pagkaayaw)

Comments: _____



