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ACCEPTABILITY OF AMPALAYA SEEDS AS COFFEE

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The researchers conducted a study exploring the potential of utilizing Ampalaya seeds as a substitute for traditional coffee beans. The primary objective of this investigation was to develop an improved and distinctive coffee product, considering that coffee is among the most widely consumed beverages worldwide. Both coffee and Ampalaya offer a myriad of health benefits for both mental and physical well-being. This study, therefore, serves as a valuable resource that can inspire further research endeavors by other individuals or departments.The study's overarching goal can be summarized in two main aspects. Firstly, it aimed to ascertain whether Ampalaya seeds could effectively serve as an alternative to traditional coffee beans. Secondly, it sought to create a coffee product that is not only more affordable but also superior in quality compared to commercially available coffee. Ampalaya possesses strikingly similar characteristics to traditional coffee, exhibiting a bitter and slightly sour aroma and taste. However, given its higher nutritional content and associated health benefits, Ampalaya emerges as a more advantageous alternative.Ampalaya presents a diverse array of varieties, each imparting distinct flavors and appearances to the final coffee product. While this coffee substitute is not only healthful but also straightforward to prepare, individuals can easily cook or roast Ampalaya beans using conventional methods such as ovens or pans. Through two trials, the researchers established that there was minimal discernible difference between Ampalaya seed coffee and commercially available coffee in terms of aroma, taste, appearance, and overall quality.Consequently, the researchers conclude that Ampalaya seeds have the potential to serve as a viable source for coffee production. Prior to this study, a toxicity assessment was conducted at Quirino State University to ascertain the safety of Ampalaya seeds for consumption.

Keywords: Coffee bean, Bitter Grourd Seeds, Toxicity Assessment

1. INTRODUCTION

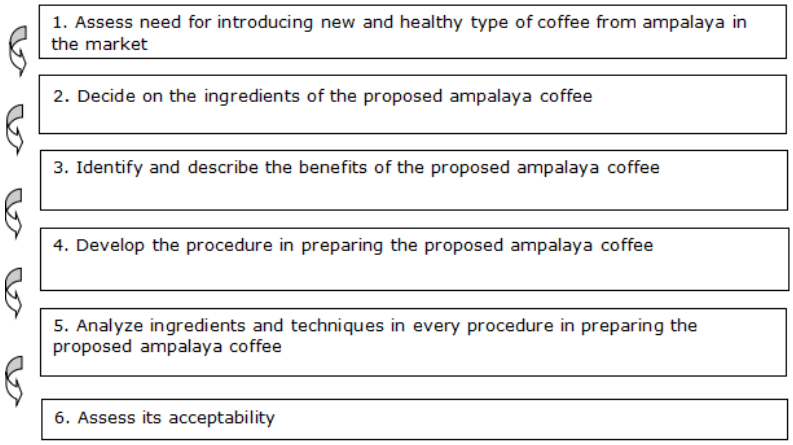
Coffee is celebrated for its invigorating qualities, particularly in combating sleepiness, especially during mornings and afternoons, becoming an integral part of daily routines. However, excessive coffee consumption can be detrimental to our health, leading to various adverse effects, including insomnia, nervousness, restlessness, upset stomach, irritability, rapid heartbeat, and muscle tremors.

Ampalaya, commonly known as bitter gourd, bitter melon, bitter squash, or bitter pear, is a widely cultivated plant known for its pronounced bitter taste, grown in various regions across the globe. It belongs to the tropical and subtropical vine family, Cucurbitaceae, and is commonly cultivated in Asia, Africa, and the Caribbean for its edible fruit, which varies in shape and bitterness. This herbaceous vine can reach lengths of up to 5 meters, producing fruits characterized by their warty, elongated shape. These fruits have a hollow cross-section, with a relatively thin layer of flesh surrounding a central seed cavity filled with large, flat seeds.

Bitter gourd is typically consumed while still green or as it begins to turn yellow. At this stage, the flesh is crunchy and watery, akin to cucumber, chayote, or green bell pepper, albeit with a bitter taste. The skin is tender and edible, while the seeds and pith are less intensely bitter and can be removed before cooking. As the fruit ripens, the flesh becomes tougher, bitterer, and less palatable. This study endeavors to bridge the gap between tradition and innovation by assessing the acceptability of bitter gourd seeds as a coffee bean substitute, potentially offering a sustainable and eco-friendly option for coffee lovers in the future. Hence, this study aims to assess the cytotoxicity of ampalaya seeds and investigate its acceptability as a potential new coffee variant.

2. RESEARCH METHODOLOGY

This study employed the development researchdesign, since, it proposed a new variant of ampalaya coffee. This research used the principles and methodologies of Borg's Research and Development (R&D) with slight modifications to suit the needs of this study. This is shown in the flow chart given below:



As shown in the figure above, it employed the following: (1) Assess the need for developing a new type of coffee fromampalaya; (2) decide on the ingredients of the proposed ampalaya coffee; (3) describe the benefits of ampalaya coffee; (4) develop

the purpose; (5) analyze ingredients and technique in every procedure in preparing the proposed ampalaya coffee; (6) assess its acceptability

Assess the need for need for developing new kind of coffee

The needs for developing the new kind of coffee, is the proper measurement in each of the ingredients to be used to get the exact taste ofampalaya coffee.

1. Decide on the ingredients of the proposed amplaya coffee

The researchers decide to use the following ingredients for new amapalaya coffee:

Ingredients of Ampalaya Coffee

- Ampalaya
- Sugar
- Water

2. Benefits of the proposed ampalaya coffee;

According to a clinical study in Illinois discovered that caffeine has the ability to reduce the swelling of the blood vessels and can lessen the intensity and frequency of headaches. Some subjects were experimented and 58 percent reported beneficial relief.

Coffee has the ability to lessen the risk of having Alzheimer's disease and Parkinson's disease. These two are the most common neurodegenerative discover in the world. By drinking coffee, the risk of this disease will lessen 32-60 percent in accordance with Authority Nutrition.

Cancer is one of the leading causes of death; by drinking coffee this can be prevented. Coffee can lessen the risk of obtaining two types of cancer. According to Authority Nutrition, the two types of cancer are live cancer and colorectal cancer while colorectal cancer is the fourth one.

3. Develop the procedure;

The purpose of this research is to develop a new flavor or variant of coffee that everyone will surely love to drink, but affordable and give a lot of benefits to the people who will try to drink and use in dishes this kind of coffee. It is having a healthy flavor that contains many vitamins and nutrient and prepared with tender loving care since it was been experimented in safety laboratory.

4. Analyze ingredients and technique in every procedure in preparing the proposed ampalayacoffee;

The new proposed ampalaya coffee ingredients contain of ampalaya, sugar, and water. The techniques or preparation of ampalaya coffee is to dry in 4 to 6 days

5. Assess its acceptability

Through food tasting and floating questionnaires the researchers able to assess the acceptability of the product.

This study was conducted at Cagayan Valley Computer and Information TechnologyCollege, Centro East Santiago City.

Respondents of this study were the students of Cagayan Valley Computer and Information Technology College. A total of thirty (30) students were served as the respondents of the study.

The researchers secured a clear area to hold the sensory test, making sure that it is away from noise and cooking smells which may distract the people taking part in the test. Samples were displayed in a serving plate as there were people taking part in the test. A rectangular table divided into thirty (30) counters were prepared for the thirty (30) respondents in the vicinity of CVCITC. The forty samples were jumbled and coded with a number or letter. The product was cooked far from the eyes of the respondents and platted to a small container according to their treatment. A refilling water station was placed on each side of the table for the respondents to cleanse their palate after tasting each food sample. The respondents tasted one sample at a time and recorded their responses.

The studyutilized hedonic test questionnaire for students of CVCITCwho tasted the experiment product. This hedonic evaluation entailed which one of the three experiments was most acceptable.

3. RESULTS AND DISCUSSION

A. Level of Acceptability

Table 1. Mean Score on the Level of Acceptability of Ampalaya Seeds as New Variant of Coffee

Indicators	Treatment 0		Treatment 1		Treatment 2	
	Mean	DI	Mean	DI	Mean	DI
Taste	4.43	NL/D	3.54	NL/D	3.53	NL/D
Aroma	4.53	L	3.89	NL/D	3.89	NL/D
Texture	4.50	L	3.88	NL/D	3.98	NL/D
Color	4.73	L	4.10	NL/D	4.16	NL/D
Overall Mean	3.89	L	3.86	NL/D	4.55	NL/D

The ratings were as follows: 1.0 -1.49= Very Much Disliked (VMD); 1.50 -2.49 = Much Disliked (MD); 2.50 - 2.49 = Disliked (D); 3.50-4.49 = Neither Like nor Dislike (NL/D); 4.50-5.49 = Liked; 5.50-6.49 = Like a Lot (LL) 6.50-7.00 = Very Much Liked (VML)

The foregoing table presents the mean score on the level of acceptability of Ampalaya Seeds as to the following attributes. The results revealed that Treatment 2 or the Slightly Sweet Ampalaya Coffee is the most accepted treatment with mean score of 4.55 which interpreted as "Liked" as compared to the Treatment 0 and 1 that vouched lower perception with mean scores of 3.86 and 3.89 and equated as "Neither Like or Dislike". This only means that the commercial product which is Ampalaya Coffee was more accepted as compared to Sweet Ampalaya Coffee and Slightly Sweet Ampalaya Coffee. Furthermore, improvement in all product attributes such as taste, aroma, color and texture must be done in order to be accepted by the market.

B. Standard Procedure of making Ampalaya Coffee in the following treatments:

1.1 Treatment 0 – Ampalaya Coffee

Ingredients	**Procedure**
1. Ampalaya Seed 15 grams 2. Water 1000ml	1. Remove and Clean The Seeds of Ampalaya Fruit. 2. Peel the cover of ampalaya seeds inside. 3. Dry the seeds in 4-to-6 days until its color turns to brown. 4. Roast the seeds until its color turns to black. 5. Use coffee grinder or mortar and pestle to pulverized the seeds of Ampalaya.

1.2 Treatment 1 – Sweet Ampalaya Coffee

Ingredients	**Procedure**
1. Ampalaya Seeds 15grams 2. ½ cups Sugar 3. Water 1000ml	1. Remove and Clean the seed of Ampalaya Fruit. 2. Peel the cover of Ampalaya Seed inside. 3. Dry the seed in 4 to 6 days until the color turns to brown. 4. Roast the seed until its color turns to black. 5. Use coffee grinder or mortar and pestle to pulverized the seed of Ampalaya 6. Boil the 1000ml of water in a pot until its boil then add the grinded Ampalaya Seeds Stir it until the color of the water turns into black and Add ½ cup of Sugar and stir it again.

1.3 Treatment 2- Slightly Sweet Amplaya Coffee

Ingredients	**Procedure**
1. Ampalaya Seeds 15grams 2. ¼ cups of Sugar 3. Water 1000ml	1. Remove and clean the seed of Ampalaya fruit. 2. Peel the cover of ampalaya seeds inside. 3. Dry the seed in 4 to 6 days until its color turns to brown. 4. Roast the seed until its color turns to black. 5. Use the coffee grinder or mortar and pestle to pulverized the seeds of Ampalaya 6. Boil the 1000ml of water in a pot until its boil then add the grinded Ampalaya Seeds Stir it until the color of the water turns into black and Add 1/4 cup of Sugar and stir it again.

4. CONCLUSIONS AND FUTURE WORKS

Based on the objectives and findings of the study, the following are drawn:

1. Aroma - The aroma of the seeds smelled like the *kapengbarako*. Just smelling the powder, it would be hypothesized it is coffee.

2. Taste - the final product actually tasted like the commercially available coffee.

3. Appearance - Between the product that the researchers made and the commercially available coffee, there were a slight difference with the appearance. The commercially available coffee is pure powder unlike the product the researchers made; bits of seeds are still uncooked.

4. Quality - When the powder is poured into a hot water not all of the powder is fully dissolved. As said, some bits are left uncooked.

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