

Formulation and Sensory Qualities of Guya Gummy (*Annona muricata* Linn.) Candy and Crafting of Its Cooking Guide

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Abstract

The Study focused on the Formulation of Guya (*Annona muricata* Linn.) Gummy Candy and Crafting of its Cooking Guide. This study is the formulation of guya gummy candy and craft a Cooking guide for BTLED students. The study aims to: sought to answer the following questions: determine the sensory qualities of different formulation of Soursop processed into Gummy Candy in terms of: color, taste, texture and general acceptability; determine the significant difference in the sensory qualities among the products, determine the qualitative attributes of the developed products in terms of: microbial load of the products, salmonella, E-coli and coliform: nutrient content, soluble Sugar and pH. Determine the return of investment of the most preferred formulation and determine the level of acceptability of crafted cooking guide in terms of: content, format, presentation and Organization and accuracy and up-to-datedness of Information.

In the evaluation of the soursop gummy candy product, sensory evaluation score sheet was used for sensory evaluation. Hedonic Rating Scale from 1-7 was used to evaluate the sensory qualities of the product, seven (7) being the highest value and one (1) for the lowest ratings. While as to evaluation on the acceptability of the

laboratory guide, adopted survey questionnaire was used for the evaluation. The 4 – point Likert Scale was used where 4 is the highest and 1 is the lowest. Results of the evaluation were statistically analyzed and interpreted.

The color, highly significant difference among treatments was obtained. Treatment 2 was by 7 the evaluators with the highest mean rating of 8.13, and describe as “like very much”. The taste, treatment 2 obtained the highest mean rating of 8.05, describe as “like very much”. In texture, treatment 2 has the highest rating of 8.23 described to have “like very much,” and in general acceptability it is rated as “acceptable” with the highest main rating of 8.0

Derived from the results of laboratory analysis, results were analyzed: The vitamin C using volumetric method is 17.85 %, total sugar of 32.88 (g/100g) using titrimetric method and lastly pH of 3.37 using glass electrode. The result of the total coliform count and *E. coli* of Soursop gummy candy contained in plastic tub which was <3.0 MPN/g, it only means that it goes with the acceptable limit of 3 to <102 cfu/g (FDA, 2013). With regards to salmonella spp. Detection** (presence or absence) results showed absent in 25 g.

Results of the analysis showed that Treatment 1 obtained the highest ROI of 93.76 %; Result implies that the higher net income and ROI were realized when there is a higher percentage of production.

This study also concluded that the crafting a cooking guide had a very high level of

acceptability and can be used as instructional material in both teachers and students. Crafting of cooking guide that incorporates sensory evaluation techniques for soursop gummy candies present a unique opportunity for culinary students.

Keywords: Guya gummy candy, soursop formulation, sensory evaluation, microbial analysis, cooking guide, return on investment, culinary education

INTRODUCTION

In culinary education, hands on experience are essential for developing students' skills and creativity. One way to make learning more engaging and practice is by integrating sensory evaluation into food preparation. This study focuses on the developing a cooking guide that incorporates the sensory evaluation of soursop (*Anona muricata* Linn.) in gummy candy production. Soursop is known for its unique sweet – tart flavor and potential health benefits, making it an interesting ingredient for confectionery products.

By creating a cooking guide, cookery students can explore the process of making gummy candy while learning how to assess its texture, taste, aroma, and overall acceptability. This approach not only enhances their technical skills but also strengthen their understanding of product development and consumer preferences.

Eating too much non- nutritious gummy candy can cause a lot of problems for our health. Since gummies are pack with sugar, it can lead to tooth decay and cavities. It adds also a lot of extra calories without providing the vitamins and minerals our bodies need, which can cause weight gain and even increase the risk of diabetes overtime.

In overeating gummies is believed to harm public health because they contain high levels of sugar and additives, along with unwanted compounds produced during heat processing. Now, these products have been linked to a higher risk of obesity, tooth decay, and high blood sugar. The low nutritional value of these products has been called into question, and industries are under growing pressured to reduce sugar content to meet consumer demand for healthier options.

Reducing or replacing sugars with other sweetener like honey or fruits could be a healthier alternative for gummies. Juices or purees from fruits are also sources of flavor for healthier gummy candies. One of the best sources is the soursop fruit which contain low calories and contains vitamins, minerals, and bioactive compound.

The municipality of Upi, Maguindanao del Norte which have a good climatic condition and abundant in terms of agronomic and horticultural crop production. One of this is soursop (*Annona muricata* Linn.) or also known as “guyabano” in the Philippines, this fruit is often familiar around the world, but insignificant products are developed.

Soursop (*Annona muricata* linn) is a member the Annonaceae family and is widely grown and distributed in tropical and subtropical regions worldwide. The stem, leaves, roots, fruits, seed, peels, and pulp of soursop have been used in traditional medicine to treat various ailments.

This study intends to introduce Guya gummy candy to the community in simple and convenient way. The researcher is inspired to create a product that easy to consume, widely available, and appealing to consumers of all ages. The method involves preserving the fruits as candy making it easy to enjoy anytime and anywhere, without worrying about the fruiting season. By turning the fruit into candy after its harvest, people can conveniently enjoy healthy gummy candy whenever and whatever they like. This also aims to create a candy made from Soursop fruit and enhance its nutritional value. To make the candy more appealing and enjoyable for consumers of all ages, gelatin will be added to give it a chewier, more appetizing texture.

This study aims to provide a valuable learning resource that bridges theoretical knowledge with practical application, helping students gain deeper insights into the culinary field.

METHODOLOGY

Research Design

This study were an experimental design and descriptive design. It is an experimental design where it is for the formulation and sensory qualities of guya gummy candy where the products is subjected to sensory appraisal. According to Walker (2004), sensory appraisal is a scientific discipline used to evoke, measure, analyze, and interpret reactions to those characteristics of food and materials as they are perceived by the senses of sight, smell, taste, touch.

Descriptive design is a sensory evaluation and guide development approaches, methods to analyze data and craft an informative guide. A type of research that aims to systematically describe a phenomenon, situation or population. This design is often used to gather quantifiable information and can involve methods likes surveys and observation. (Babbie, E.R. (2013)

Experimental Design and Treatments

This research study laid out in a Completely Randomize Design (CRD) with four treatments. Every treatment will have a different levels of soursop puree added by the primary ingredients.

This experimental design is the process of planning a study to meet specified objectives and ensuring that the data obtained can be analyzed to yield valid and objective conclusion. It involves the selection of variables, the method of assigning subjects to group, and the procedure used for data collection and analysis. (Montgomery, D.C., 2017)

The treatments are as follows:

- T1 - 500 grams soursop puree +200 grams unflavored gelatin + 1 ¼ cup water + 250 g sugar (white) and 1/2 tsp carrageenan
- T2 - 350 grams soursop puree + 200 grams unflavored gelatin + 1 ¼ cup water + 250 g sugar (white) and 1/2 tsp carrageenan
- T3 - 250 grams soursop puree+ 200 g unflavored gelatin + 1 ¼ cup water + 250 g sugar (white) and 1/2 tsp carrageenan
- T4 - 500 grams soursop pulp + 200 grams unflavored gelatin + 1 ¼ cup water+ 250 g sugar (white) and 1/2 tsp carrageenan

A. Preparation of Materials/ Utensils

All the materials/ utensils used in this study were sanitized and air dried carefully to avoid contamination.

B. Preparation of Soursop Puree

The soursop harvested at maturity stage “rare-ripe” peeled, remove the seeds and slice in thin, squeeze the pulp to get the puree or the juice of the sliced soursop and strained the puree. Put in a clean container.

C. Preparation of Soursop Pulp

The soursop harvested at maturity stage “rare-ripe” peeled, remove the seeds and slice in thin, squeeze the pulp, strained the puree and get the pulp. Blend the pulp into a blender until smooth and will blend. Put in a clean container.

D. Preparation of Gummy Candy

Prepare the gelatin mixture. Pour the $\frac{1}{2}$ cup cold water into a large bowl. Sprinkle evenly with the gelatin and allow to soak while waiting the gelatin to submerge, prepare the sugar syrup by bringing the $\frac{3}{4}$ cup water and 2 cup sugar in a saucepan. Bring to a boil. And simmer for 5 minutes, after that add the hot sugar syrup to the gelatin mixture and stir until the gelatin is completely dissolved, Split the mixture into bowls and add the sour sop puree as flavor. Then bring to a boil in a double boiler pan, stir constantly until it boils. Remove from pan.

Pour the mixture into the molder evenly let it cool for 15 minutes. If it is already done or set cut into desire shape of gummy candy, ready to serve or pack in a dry container and sealed.

In preparing gummy candy this is a great entry point into product development and sensory evaluation. Learners can experiment with flavor, colors, and texture to discover how ingredients and techniques affect the final product. This kind of activity encourages creativity, critical thinking and collaboration – skill that are essential in both culinary arts and food science. (Chin, N. L., Ooi, S. Y., & Yusof, Y. A., 2016)

Evaluation of Cooking Guide

Based on the discoveries made during the product's development, the researcher creates a cooking guide for Cookery students. This guide contains the explanation of various gummy candy items that utilized soursop in place of commercially flavoring. Additionally, it provided information about the essential tools, equipment, ingredients, procedures, along with images of the final products, a cost breakdown, study questions, and references.

To assess the quality of the worksheet, were identified to assess the material rating form for printed educational resources developed by the Department of Education, was used. The evaluation used four key factors such as, content; format; presentation and organization; and accuracy and up-to-datedness of information. If the worksheet fails to meet at least one of these four evaluation criteria, it will not receive a recommendation for use.

RESULT AND DISCUSSION

Based on the findings of the study treatment 2 composed of more puree and less sugar and water produces appealing color, tasty, soft and acceptable. The product has no salmonella, e-coli and coliform detected that it can be safe for human consumption. The nutrient analysis it is rich in vitamin C and low in sugar.

Results of return of investment, Treatment 1 obtained the highest ROI followed by Treatment 2. then the Treatment 3 and the last is Treatment 4 implies that the higher net income and ROI were realized when there is a higher percentage of production.

The developed craft cooking guide in terms of content, format, presentation and organization and accuracy and up -to datedness of information is highly acceptable.

This is to indicate that Guya Gummy candy is acceptable for food consumption. The crafted cooking guide is acceptable and can be used for learning instruction for the cookery students and for the TLE teachers.

Recommendation

Based on the aforementioned summary and conclusions, the following recommendations are offered:

1. It is recommended to enhance the formulation of the Guya Gummy Candy with some fruit puree.
2. It is recommended that the Guya Gummy Candy can be commercialization with appropriate packaging.
3. Study on the fortification of this product is also highly recommended.
4. It is recommended that the crafted cooking guide can be an instructional material for the cookery students.

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