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SENSORY EVALUATION OF GUSO *Eucheuma spinosum* and BANANA *Musa acuminata xbalbasiana colla* BLOSSOMLONGGANISA

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Abstract *The main thrust of this study was to determine the sensory evaluation and level of liking of Guso and Banana blossom longganisa in terms ofappearance, aroma, taste, and texture in three treatments; T1-Classic, T2-Cheese, and T-3 Hot and Spicy by utilizing 80 respondents. The study used the experimental parallel group design employing the questionnaire as an instrument in gathering the date and applying the 4-point Hedonic Scale. There were 80 respondents in the study composed of fifteen cooks from the restaurants in tagbilaran city, twenty food technology educators, fifteen food technology students of bisu main campus Tagbilaran, fifteen homemakers, and fifteen consumers. To determine the sensory evaluation of the product, the data gathered were tabulated using the Weighted Mean to find out the respondents' perception towards its sensory evaluation. The findings revealed that in terms of appearance Treatment 2 got the highest rating of 3.22 which described as "moderately appealing". In terms of aroma, Treatment 2 got a highest rate of 2.54 which described as "moderately pleasant". Treatment 3 got the highest rate of 3.27 among the treatments in terms of taste which has a "moderately spicy" taste. And for the texture, treatment 2 got the highest rate of 2.54 which described as "moderately tender". On the overall liking of the product, Treatment 2 or cheesy taste got the highest weighted mean, followed by treatment 3 the spicy taste, then the Treatment 1 the original flavor described as "like moderately". There is no significant difference in each treatment of Guso and Banana blossom longganisa. Thus, the null hypothesis is accepted. The overall result revealed that average satisfaction of Guso Eucheuma spinosum and Banana Musaacuminata x Balbasiana colla Longganisa was met. It can be deduced that this innovated longganisa is acceptable for food and can be used as substitute of the longganisa made out of meat sold in the market.*

Keywords: *Longganisa, euchema cottoni, banana blossoms, sensory evaluation*

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I. INTRODUCTION

The main purpose of the research study was to determine the sensory characteristics ofGuso *Eucheuma spinosum*and Banana *Musa acuminata x balbasiana colla*Blossom Longganisa in terms of appearance, aroma, taste, and texture in three treatments. The researcher used the experimental design in making the longganisa while descriptive design was utilized in determining the shelf-life, the sensory characteristics and level of liking. The study was conducted in Tagbilaran City, Bohol because of the abundance of existing food outlets in these areas. These places are deemed progressive in restaurant facilities. They were identified as follows: Fifteen Food Technology Students of BISU Tagbilaran; twenty Food Technology Educators; Fifteen cooks from the restaurants in Tagbilaran; and thirty homemakers from Tagbilaran with the total of 80 respondents.They were given three samples of the product along with a questionnaire for sensory characteristics and the level of liking. Clear instructions were given to the respondents to get an accurate response. Longganisa is a food eaten during breakfast. It is usually made from ground pork or ground chicken. The researcher thought of making another variety of longganisa using a locally grown seaweed and banana blossoms to attract the children to eat these foods which they do not like in the usual way of cooking. Euchema *Cottoni* has a component ofcarrageenanwhich is used as plant-based binding and thickening agents. Banana (Musa) blossoms on the other hand are commonly grown in Bohol which is usually prepared also as salad or guisado. The researcher preferred green seaweed (Eucheuma Spinosum) and Banana blossoms for longganisa innovation because of their availability.

The researcher preferred Guso and Banana blossoms for longganisa innovation because of the availability in the local market, lost cost, and its health benefits.Guso contains vitamins and minerals that strengthen immune system and good source of iron for healing anemia. It improves thyroid function and helps to normalize and balance thyroid hormones. While banana blossoms contain phenolic acids, tannins, flavonoids and various other antioxidants. These antioxidants neutralize free radicals, prevent oxidative damage, and

reduces the risk of heart diseases and cancer. The richness of iron in banana flowers can remarkably pump iron stores and improves symptoms associated with anaemia such as fatigue, tiredness, irregular heartbeat, pale skin, cold feet and hands. Regular addition of banana flower in the meal increases the levels of red blood cells and combats iron deficiency anaemia.The Guso and Banana Blossom Longganisa also highlight the iodine and iron as an additional nutrient in it where the usually available longganisa in the market doesn't have it. World Health Organization (WHO) estimates two billion people are anemic. One causes of anaemia is dietary iron deficiency. Another the most common cause of goiter worldwide is iodine deficiency in the diet. In addition, researchers estimate that goiter affects 200 millionof the 800 million people who are iodine-deficient worldwide. The most common cause of goiter worldwide is iodine deficiency in the diet (WHO, 2013).

Iron is one of the most common nutrient deficiencies in the world, affecting more than 25% of people worldwide. This number rises to 47% in preschool children. Unless they're given iron-rich or iron-fortified foods, they are very likely to lack iron. Around 30% of menstruating women may be deficient as well due to monthly blood loss, and up to 42% of young, pregnant women may be deficient as well (Bjarnadottir, 2019). Iodine deficiency is one of the most common nutrient deficiencies, affecting nearly a third of the world's population. Globally, more than 1·9 billion individuals have inadequate iodine nutrition. About 44–50% of women in certain regions have iodine deficiency, compared to 7% of men.Fruits and seaweeds provide good health and is good all ages as it plays a very important role in man's diet. It has been recognized as good source of vitamins and minerals. This nutrients are essential health and maintenance of the body. It may reduce the risk of developing diseases.

II. OBJECTIVE

The researcher aimed to produce another product of longganisa made from banana blossoms and guso. Banana blossoms is proven rich in iron, protein, fiber, calcium, magnesium, vitamin E, and potassium. On the other hand, guso also has proven rich in iodine, protein, vitamin B, fiber, iron, zinc, and sodium that are essential to human body and is available locally.

III. METHODOLOGY

Research design

This study employed experimental research using parallel group design in choosing the identified respondents to assess the three treatments. These treatments were examined and criteria are set as bases for comparisons. Descriptive research design was also used to determine the sensory characteristics and level of liking of Guso and Banana Blossom Longganisa in terms of appearance, aroma, taste, and texture of the three treatments.The respondents were categorized according to their expertise and work experiences however, they will use the same questionnaire and rating sheet.

The study was conducted to gastromes in Bohol, Philippines particularly in Tagbilaran City, Bohol because of the abundance of existing food outlets in this area. This place was deemed progressive in Tourism facilities especially restaurants. The researcher visited the restaurants, schools, and houses wherein the target respondents had the product tasting. Fifteen Food Technology Students of BISU Tagbilaran; twenty Food Technology Educators; Fifteen cooks from the restaurants in Tagbilaran; and thirty homemakers from Tagbilaran with the total of 80 respondents.The identified respondents were believed to have the capacity to assess and rate the products. The researcher used the purposive sampling technique in getting the number of respondents who participated the survey through questionnaire and rating sheet.

The researcher used the modified 4-point Hedonic Scale to identify the level of likeness of the products. In order to arrive at a definite interpretation of the differences of the potentiality level of the treatments, the researcher sets a hypothetical range of each scale.The following scale observed: four (4) - like very much which refers to extreme satisfaction of the product, three (3) - like moderately, an average satisfaction of the product, two (2)- like slightly which describes the minimal satisfaction of the product, while one (1) – dislike refers to the total dissatisfaction. Relevant questionnaires were distributed that serve as rating sheet for sample tasting. On the questionnaire, treatments were represented with codes to avoid pre-judgement and rating scale for sensory characteristics and overall likeness was also provided. The collected data treated using Weighted Mean to determine the profile on the potentially level of the three treatments in terms of the sensory characteristics and overall liking.

IV. RESULTS AND DISCUSSION

After the data were meticulously analyzed and interpreted, the researcher came up with the following findings:

1. The product description of Guso *Eucheuma cottoni* and Banana blossom *Musa acuminata colla* Longganisa

1.1 Ingredients and Costs

The ingredients of the three varieties were easily acquired in the locality and prices were found reegulated by local authority. For the Guso *Eucheuma cottoni* and Banana blossom *Musa acuminata colla* Longganisa, Treatment 1 revealed has the lowest cost of ingredients while Treatment 2 has the highest cost of ingredients. However, the three treatments displayed closer costing.

1.2 Tools and Equipment

Same tools and equipment were used for the three treatments. The tools and equipment were commonly available in a household kitchen and much more available in a commercial kitchen and are easy to handle to operate.

1.3 Procedures

Steps in making the Guso *Eucheuma cottoni* and Banana blossom *Musa acuminata colla* Longganisa have been meticulously followed. Especially that time, temperature, and food safety practices were highly considered and observed diligently.

1.4 Shelf life

The shelf life of Guso *Eucheuma cottoni* and Banana blossom *Musa acuminata colla* Longganisa lasted up to 19 days which is deemed safe for consumption and stored in a freezer. The 20th day onwards was declared unsafe for consumption due changes observed on the product. The productcontains high moisture content which was apprehend that contributes to early spoilage of the longganisa.

1.5 Nutritional Analysis of Treatment 3

The test report of Treatment 3 revealed that Guso and Banana blossom Longganisa content in iron, protein, fiber, calcium, iodine, and moisture and less in fat, and crude ash.

2. Sensory characteristics and level of liking of the three treatments of Guso and Banana blossom Longganisa

2.1 Appearance

Three treatments visually have a little difference on the color because of the twist made from Treatment 1 for Treatments 2 and 3. The desired color of the Treatment 1 or Original was Light Brown, Treatment 2 was Brown, and Treatment 3 was Reddish-Orange. But all of them based on the data collected were moderately appetizing.

2.2 Aroma

The aroma of Guso and Banana blossom Longganisa dominates on the three treatments. Treatment 1 and 2 similar aroma, while Treatment 3 has spicy –mixed aroma. Overall, the three treatments have moderate pleasant smell.

2.3 Taste

The three treatments have varied taste. Treatment 1 or original flavour has savory taste, Treatment 2 has sweet dominant taste, and Treatment 3 has spicy taste. Each of them has distinct stand alone taste that suits to the preference of the costumers.Moreover, the three treatments have a moderate taste based on the data.

2.4 Texture

The texture of the three treatments were similar. Cooking duration also was the same that resulted to have closely similar texture as an evident from data collected. Of the four sensory attributes, texture has lowest rating.

3. Significant Difference on the level of liking of Guso *Eucheuma cottoni* and Banana blossom *Musa acuminata colla* Longganisa among the three treatments.

Treatment 2, a Sweet-flavored Guso and Banana blossom Longganisa dominates the highest level of liking of the three treatments with an average weighted mean of 2.96- like moderately. It was followed by Treatment 3, a Spicy flavoured Guso and Banana blossom Longganisa that got 2.79 weighted mean, and treatment 1, that has 2.65 weighted mean. The overall result expressed the acceptability of the three treatments in terms of appearance, aroma, taste, and texture and overall level of liking because it achieved the average satisfaction rate for the product.

It was found out that the ingredients were not difficult to find because these are locally available and the tools and equipment can be easily be acquired because it is commonly used in the kitchen. The procedures were easy to follow. The shelf life was shorter and it needs further study to extend the shelf-life longer. Based on the result, Treatment 3 got the highest weighted mean for the appearance and aroma. Treatment 2 got the highest weighted mean for the taste and texture. On the overall liking of the product, Treatment 2 or sweet taste got the highest weighted mean, followed by treatment 3 the spicy taste, then the Treatment 1 the original flavor described as “like moderately”.

The result revealed that, the three treatments of Guso and Banana blossom Longganisa have reached the average satisfaction in terms of appearance, aroma, taste, and texture. Treatment 3, spicy flavour got the best appearance among the three treatments. The aroma of this treatment was moderately pleasant and the taste was moderately spicy because of the chili in it.Treatment 2, the Sweet flavour Guso and Banana blossom

Longganisa got the highest average weighted mean for the overall level of liking among the three treatments with the descriptive rating of "Like Moderately". Furthermore, the impressive response of the selected respondents expressed a future patronage of the product once it will be ventured for business.

V. CONCLUSION

Based on the findings and conclusion, the following recommendations were drawn:

1. For even better result and sustainable production, the researcher suggests that:
- Natural and organic shelf-life extender is recommended to preserve longer;
- Explore the used of other flavors to create more variety of Guso and Banana blossom Longganisa;
- Guso and Banana blossom Longganisa can also be mixed with other dishes to create another tasteful dish.

2. Farmers may consider additional plantation and increase the harvest to support on the mass production of Guso and Banana blossom Longganisa.

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