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Research Article

Exploring The Culinary Harmony of Squash and Pineapple Fusion in Cake Making

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ABSTRACT

This experimental research aimed to formulate a cake made from the mixture of squash and pineapple. It utilized a Completely Randomized Design (CRD) with three (3) treatments and evaluated as to its sensory qualities and acceptability in terms of appearance, aroma, taste and texture by 40 evaluators composed of experts and consumers. Score cards with Nine (9) Point Hedonic Scale was used to evaluate the product. The mean and Analysis of Variance (ANOVA) were used to analyze the data with alpha set at 0.01 level of significance. Findings on the evaluation of sensory qualities and acceptability of the three (3) treatments showed that Treatment C with the proportion of 100grams combination of squash and pineapple showed the most preferred among the treatments with verbal interpretation of "Liked Extremely" in terms of appearance, aroma, taste and texture based on the evaluation of experts and consumers. The finding led to the conclusion that the squash-pineapple cake was acceptable in terms of its appearance, aroma, taste and texture.

Keywords*: Acceptability, Cake, Fusion, Pineapple, Sensory qualities, Squash*

Introduction

Baked products like cakes, cookies, bars and many other can be good ways for introducing innovative healthy products that will be likely consumed both by young and old ones, especially those observing strict diet. A healthy diet is essential for achieving good health and nutrition that protects people from chronic diseases. Eating food that contains less sugar, less salt and trans-fats, and high fiber is necessarily for a healthy diet. It has been evident with various epidemiological studies that high intake of dietary fiber has been found to be associated with reduced blood pressure, LDL cholesterol and associated cardiovascular diseases (Lupton and Turner, 2003). Fruits and vegetables are a good source of fiber. Thus, introducing baked products made from fusion of vegetables and fruits like squash and pineapple is highly valued.

Squash, a vegetable abundantly grown in the Philippines, has proven to be very useful main ingredient or substitute component in food preparation. It is rich in vitamin A and C that are good for the eyesight, resistance to infection, normal growth, and healthy skin.

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Likewise, pineapple is tropical and nutritious fruit rich in vitamins C. It is also used as main ingredient in cooking dishes and delicacies because of its good taste and rich fiber content. It is largely consumed as canned pineapple slices, chunk and dice, pineapple juice, fruit salads, sugar syrup, alcohol, citric acid, pineapple chips and pineapple puree, while its chunks are used in desserts such as fruit salad, as well as in some savory dishes, including pizza toppings and a grilled ring on a hamburger (Tamim, 2014).

This study was conducted in order to maximize the use of squash and pineapple which are abundantly found in the locality and elevate one's product into a healthier one in order for the consumers to taste something new, but nutritious. Thus, the researcher thought of utilizing squash and pineapple in making cake that could be used as an alternative ingredient in food product. This would lead into minimizing the use of commercial product resulting to save money, time and effort.

Objectives: This study aimed to develop a nutritious cake from the fusion of squash and pineapple. Specifically, it sought to;

1. Determine the sensory qualities of the cake made from the fusion of squash and pineapple in terms of appearance, aroma, texture, and taste using three (3) treatments.
2. Find out the acceptability of the cake made from the fusion of squash and pineapple in terms of the sensory qualities in terms of three (3) treatments.

Review and Related Literature

Squash is a part of the same family as the pumpkin and zucchini. It is often thought of as a fruit due to the presence of seeds, and in some cases, people prefer to eat it raw. The squash was an imported crop during the pre-Columbian Era. Squash was a trendy shape in the Moche ceramics from Northern Peru. It is one of the earliest plants domesticated in America. Five species of squash were domesticated independently before European contact. Wild squashes are extremely toxic to humans and other mammals; wild squash contains cucurbitaceous which are poisonous to smaller bodied mammals such as humans. It is a flowering plant which is usually served cooked, and its seeds and blossoms are also cooked and eaten. There are various types of squashes that are edible. Zucchini, crookneck, pattypan and such are quick-growing types. The winter squashes are large fruited; these fruits can be stored for many months after their season has passed. Evidence shows that the consumption of squash started around 75000 years ago in America and Mexico. The European settled transported squash seeds back to their land. Squash is thought to be a mix of pumpkin and zucchini. While squash tend to be quite nutritious, with high levels of vitamins A and C, niacin, riboflavin, and iron, their attraction to humans extends beyond this to more internal and aesthetic values. Their great variety in colors, color patterns, and shapes—from light green or white to deep yellow, orange, and dark green, from solid to striped, and from flattened to cylindrical to crookneck varieties—combined with their special aroma and taste, offers humans a unique visual and culinary experience (Roush, 1997).

Pineapples are tropical fruit that are rich in vitamins, enzymes and antioxidants. They may help boost the immune system, build strong bones and aid indigestion. Also, despite their sweetness, pineapples are low in calories. Pineapples are members of the bromeliad family, and one of the few bromeliads to produce edible fruit, according to the biology department at Union County College. The fruit is actually made of many individual berries that fuse together around a central core. Each pineapple scale is an individual berry.

Pineapples' nutritional benefits are as fascinating as their anatomy. "Pineapples contain high amounts of vitamin C and manganese," said San Diego-based nutritionist Laura Flores. These tropical treats are also a good way to get important dietary fiber and bromelain (an enzyme). "As well as having high amounts of manganese, which is important for antioxidant defenses, pineapples also contain high amounts of thiamin, a B vitamin that is involved in energy production," Flores said.

Methodology

Research Design

The method used in this study was the experimental method of research utilizing the Completely Randomized Design (CRD). The Nine (9) Point Hedonic rating scale was used to determine the sensory qualities in terms of appearance, aroma, taste, and texture, and acceptability of the product. The experiment was carried out in three (3) treatments with the different amount of squash which is 50 grams for Treatment A, 75grams for Treatment B, and 100 grams for Treatment C. To obtain the desired result of the products the process of experimental trial and error was done.

The gathered data were computed using the mean and Analysis of Variance (ANOVA) with 0.01 level of significance.

Experimental Treatments

Table 1. Treatments used in making squash pineapple cake

Ingredients	**Treatments**		
	A	B	C
Squash	50 g.	75 g.	100 g.
Pineapple crushed	100 g.	100 g.	100 g.
All purpose flour	250 g.	250 g.	250 g.
Baking powder	5 g.	5 g.	5 g.
Baking soda	5 g.	5 g.	5 g.
Vanilla	1 tsp.	1 tsp.	1 tsp.
Eggs	2 pcs.	2 pcs.	2 pcs.
Corn oil	125 ml.	125 ml.	125 ml.
Refine sugar	75 g.	75 g.	75 g.
Iodized salt	2 gm.	2 gm.	2 gm.

Procedure in the Preparation of squash-pineapple cake.

1. Mise en place ingredients, utensils and equipment needed.
2. Pre heat the oven for15 minutes.
3. Sift the four ingredients, all purpose flour, baking powder, baking soda, iodized salt.
4. In a separate bowl, combine oil and sugar. Add egg one at a time, beating well each after each addition.
5. Stir in the vanilla, add the dry ingredients, then add the grated squash and pineapple.
6. Mix until well blended. Pour into prepared round pan and bake for 35 minutes or until the product is done.

Results and Discussions

Sensory Qualities of Squash-Pineapple Cake

The result of the sensory qualities of the squash-pineapple cake is shown in Table 2. In terms of appearance, Treatment C (100 grams squash and 100 grams pineapple) had the highest preference over other treatments with a mean score of 8.9, followed by Treatment A with a mean score of 8.7 and Treatment B with an adjectival 8.5 description of "Extremely Appealing" respectively. This means that the appearance of a squash-pineapple cake is acceptable to the experts. The result is in consonance with the result of Mercadal et al. (2022) in their study that the squash cupcake is natural.

In terms of aroma, Treatment C got the mean score of 8.9 followed by Treatment B with the mean score of 8.6 with the adjectival description of "Extremely Pleasant" and Treatment A (50 gram squash and 100 grams pineapple) got the mean score of 7.9 with adjectival description of "Very Much Pleasant.

In terms of taste, Treatment C got the highest mean score of 9.2 with the adjectival description of "Extremely Delicious" followed by Treatment B with the mean score of 9.1 and Treatment A with the mean score of 8.7.

In the terms of texture, data showed that Treatment C had the highest preference over the two (2) treatments with a mean score of 8.8 with the adjectival description of "Extremely

Smooth", followed by Treatment B with a mean score of 8.1 and Treatment A with a mean score of 8.0. The result shows that the texture of the squash-pineapple cake is acceptable. The right texture of the cake should be moist, spongy, soft or smooth, and delicious. To achieve better texture cakes, it is essential to carefully and properly follow the procedures (Mercadal et al., 2022).

Table 2. Sensory qualities of squash-pineapple cake in terms of appearance, aroma, taste and texture

Sensory Qualities	**Treatment A**		**Treatment B**		**Treatment C**	
	Mean	**AD**	**Mean**	**AD**	**Mean**	**AD**
Appearance	8.7	EA	8.5	EA	8.9	EA
Aroma	7.9	VMP	8.6	EP	8.9	EP
Taste	8.7	ED	9.1	ED	9.2	ED
Texture	8.0	VMS	8.1	VMS	8.8	ES

Legend:

Scale of Means	**Qualitative Description**
8.12 – 9.00	Extremely Appealing
	Extremely Pleasant
	Extremely Delicious
	Extremely smooth

In the terms of general acceptability, appearance of Treatment C (100 grams of squash, 100 grams of pineapple fruit) had the highest preference over the two (2) treatments with a mean score of 8.40, followed by Treatment A (50 grams squash and 100 grams of pineapple fruit) with a mean score of 8.23 and Treatment B (75 grams of squash, 1000 grams of pineapple fruit) with a mean score of 8.20 with an adjectival description of "Liked Extremely" respectively.

For aroma, data revealed that Treatment C had the highest preference over the two treatments with a mean score of 8.40, followed by Treatment A with a mean score of 8.33 and Treatment B with a mean score of 8.28 with an adjectival description of "Liked Extremely" respectively.

In the terms of taste, data revealed that Treatment C had the highest preference over the two treatments with a mean score of 8.57, followed by Treatment A with a mean score of 8.33 and Treatment B with a mean score of 8.32 with an adjectival description of "Liked Extremely" respectively.

For texture, data revealed that Treatment C had the highest preference over the two treatments with a mean score of 8.53, followed by Treatment A with a mean score of 8.47 and Treatment B with a mean score of 8.43 with an adjectival description of "Liked Extremely" respectively.

Based on the results, Treatment C (100 grams of squash, and 100 grams pineapple fruit) got the highest result among the treatments because of the overall grand mean of 8.48 with a qualitative description of "Liked Extremely" as evaluated by experts.

Table 3. General Acceptability of Squash-Pineapple Cake

TREATMENTS	**A**		**B**		**C**	
Quality Attributes	***Mean***	***AD***	***Mean***	***AD***	***Mean***	***AD***
Appearance	8.23	LE	8.20	LE	8.40	LE
Aroma	8.33	LE	8.28	LE	8.40	LE
Taste	8.33	LE	8.32	LE	8.57	LE
Texture	8.47	LE	8.43	LE	8.53	LE
Acceptability	8.34	LE	8.31	LE	8.48	LE

Legend:

Scale of Means	Qualitative Description
8.12 – 9.00	Liked Extremely
7.23 – 8.11	Liked Very Much
6.34 – 7.22	Liked Moderately

Conclusion and Recommendation

The fusion of squash and pineapple can be considered in baking palatable cake. It is acceptable in terms of its appearance, aroma, taste, and texture. The said mixture can be recommended for consumption of consumers and mass production as well.

References

Berrin, K. and Larco Museum. 1997. *The Spirit of Ancient Peru: Treasures from the Museo Arqueológico Rafael Larco Herrera*. New York: Thames and Hudson. ISBN 0500018022.

Herbst, S. T. 2016. *The New Food Lover's Companion: Comprehensive Definitions of Nearly 6,000 Food, Drink, and Culinary Terms. Barron's Cooking Guide.* Hauppauge, NY: Barron's Educational Series. ISBN 0764112589.

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Roush, W. 1997. Archaeobiology: Squash seeds yield new view of early American farming. *Science* 276(5314): 894-895. Retrieved April 12, 2018.

Smith, B. D. 1997. The initial domestication of *Cucurbita pepo* in the Americas 10,000 years ago. *Science* 276(5314): 932-934. Retrieved April 12, 2018.

Smith, B. D. 2006. Eastern North America as an independent center of plant domestication. *PNAS* 103(33): 12223-12228. Retrieved April 12, 2018.

Tamim, E. 2014. Effect of cake fortified with pineapple consumption on hyperuricemic rat Ebtehal Abdulaziz A Al Tamim