

Acceptability Of Veggie-Steamed Bun

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ABSTRACT: The purpose of this experimental study was to determine if assorted vegetables can be used as Steamed-Bun filling. Specifically, it aimed to determine the following: 1. Perform the steps involved in preparing Veggie-Steamed Bun., 2. Find the level of acceptability of Veggie-Steamed Bun in terms of the sensory qualities such as appearance; aroma; taste; and texture, 3. Determine the significant difference on the level of acceptability of the Veggie-Steamed Bun based on sensory qualities as rated by teenagers; housewives; and food experts, and lastly was to compare the cost of Veggie-Steamed Bun to those available in the restaurants. The study employed experimental method which is a process of arriving at dependable solutions to problems through the planned and systematic collection, analysis and interpretation of the data. The palatability of the Veggie Steamed was highly acceptable as to its sensory qualities as rated by teenagers as seen in the overall mean of 4.28 and standard deviation of 0.513. Acceptable as rated by housewives and food experts with the same overall mean of 4.14 and standard deviation of 0.647. There is no significant difference on the palatability of Veggie-Steamed Bun as to its sensory qualities as rated by the different group of respondents. It was concluded that the methods in making veggie-steamed bun were considered acceptable, since it does not require state of the art equipment. The palatability of the Veggie Steamed was highly acceptable as to its sensory qualities as rated by teenagers while only acceptable as rated by housewives and food experts and the cost of Veggie-Steamed Bun is highly competitive to those readily available in the restaurants.

Furthermore, the following recommendations were given:

1. The Veggie-steamed bun is recommended for laboratory testing and patenting.
2. Further study should be conducted to test the shelf life of the Veggie-steamed bun.
3. A study on marketability of this study must be conducted.
4. Develop other recipe like empanada, bread roll and savory tarts based from this study.

Index Terms—acceptability, veggie-steamed bun, sensory qualities, palatability, aroma, taste, texture

1 INTRODUCTION

Studies reveal that the number one cause of malnutrition is poverty. This is brought about the increasing prices of prime commodities and continuous decline in the purchasing power of peso, thus the Filipino family should start learning how to use his home and lot of spare time to produce some foods that will help supplement not only its food needs but also its budget. (Talao, 2010) Because of these reasons, the researchers conceptualize of a product that can be developed which will not only give advantage to those who will eat it due to the nutrients that can be provided to the body but can also help to alleviate poverty through selling the product. They also come up with the idea to use vegetables as the main ingredients of steamed-bun filling instead of the usual meat filling to make it a healthier product. Veggie is a short term for vegetables. A vegetable usually means an edible part of the plant other than fruit or seeds; it can be leaf, stems, or roots. Some can be consumed raw and some must be cooked in order to be edible. Vegetables contain essential vitamins and minerals that the needs that's why it can be used as substitute for steamed-bun filling. Steamed-Bun (Siopao) is a dish that Filipinos adopted from the Chinese and become very popular and a favorite among many. It is one of snacks or meals that does not require utensils to eat and can be consumed on the go. It can be easily found on the sidewalks, at vendors, eatery and fine restaurants as well .Making Veggie-Steamed Bun (Siopao) will help introduce new variety of products. The process on how to make this can be taught to some nearby community as extension project for livelihood program to earn additional income. Preparing this product does not require state of the art equipment as well as complex procedure that's why anybody can prepare the Veggie-Steamed Bun. When proven acceptable and underwent a laboratory testing, this product can be introduce to nearby restaurants to be included in their menu list to have a new variety on the traditional steamed bun or siopao. More importantly, this can also be marketed in the University canteen for production purposes and income generating project of the Bachelor of Technical Education (BTTE) major in Food Service Management in

Laguna State Polytechnic University, Main Campus, Sta, Cruz, Laguna, Philippines.

Objectives

The purpose of this experimental study was to determine if assorted vegetables can be used as Steamed-Bun filling. Specifically, it aimed to answer the following:

1. Perform the steps involved in preparing Veggie-Steamed Bun.
2. Find the level of acceptability of Veggie-Steamed Bun in terms of the sensory qualities such as:
 - 2.1. appearance;
 - 2.2. aroma;
 - 2.3. taste; and
 - 2.4. texture?
3. Determine the significant difference on the level of acceptability of the Veggie-Steamed Bun based on sensory qualities as rated by:
 - 3.1. teenagers;
 - 3.2. housewives; and
 - 3.3. food experts?

Review of Related Literature

Steamed-Bun is common in traditional Asian cooking, this food item consists of soft bun filled with sweet or savory ingredients. Often served as dim sum, a meal with a variety of small servings, Steamed Buns for many years were provided as the main food during a noon or evening meal. Today however, Steamed Buns are served as a breakfast food, as a snack or as only one of several foods served during the main meal. The process to cook the bun involves steaming rather than baking, providing a white soft-textured result throughout the bun, rather than a golden brown, crisp outer crust that is soft and white only on the inside. Typically produced from leavened dough, the Steamed Bun can be made as a seasoned bun to hold a filling of cooked meat and vegetables blended into a semi-smooth texture or it may be made as a sweet bun containing a filling of pureed fruits or sweet bean pastes. When served, the sweet bun will generally be

designated with a small colored spot in the center of the bun where it closes together on the top. Referred to as Mantou in China, the Steamed Buns are now becoming a food that is served in many homes as a small appetizer or to accompany other foods as a flavorful addition to a meal. (steamykitchen.com/39943-chinese-steamed-buns-recipe.html) Palatability is a food's ability to evoke a sense of pleasure and enjoyment when eaten, which is also referred to as the hedonic reward. A food's perceived level of palatability is largely dependent on the individual's preferences. Certain factors such as taste, texture, smell, and appearance also strongly influence whether a food is considered to be palatable. People tend to eat larger amounts of foods that are palatable before deciding they are full than of less enjoyable dishes. The most palatable foods are not always highly nutritious, which can present a challenge for those trying to eat healthfully. A food with a high level of palatability provides a person with an intense sense of pleasurable satisfaction. The sensations these foods create while being eaten activate the pleasure center in the brain. This often leaves a person wanting more because the experience was so enjoyable, and some may develop cravings for particular dishes. To a certain extent, how palatable an individual perceives a certain food is depends on personal preference. For example, one person may find sweet, creamy dishes to be the most palatable, while another may prefer crunchy, salty foods. (www.wisegeekhealth.com/what-is-palatability.htm) Sensory evaluation is a scientific discipline that analyses and measures human responses to the composition of food and drink, e.g. appearance, touch, odor, texture, temperature and taste. In schools it provides an ideal opportunity for students to evaluate and give feedback on their dishes, test products and experimental designs. The precise way in which sensory evaluation is conducted, along with the different tests and sensory language used, needs to be taught. This will help students to understand the process and develop their sensory vocabulary. It also means that students will record and generate evaluative feedback to support their work. (www.foodfactoflife.org.uk/Sheet.aspx?siteid=19§ionid=83&contentid=308) Our 10,000 or so taste buds play the most vital role in food selection. Beyond taste, sensory properties such as smell, sound, appearance and texture influence what we select to eat. Food must taste delicious, certainly, but mouthfeel, texture, looks and smell are also important to the overall eating experience. Foods must smell fresh or ripe, and have what we recognize as the proper color, size, shape, consistency and opacity. Thumping a melon, for example, tells us a lot about its texture and ripeness, as does checking other foods for flakiness, moistness, dryness, oiliness and so on. Sound is important, as consumers know foods must maintain a certain level of crunch, bubble, sizzle, pop, snap and crackle, without negatively affecting shelf life or nutritional profile. Food that's supposed to be crispy and crunchy should have the same crunch and crispness every time it's eaten. (www.foodprocessing.com/articles/2016/sensory-properties-in-food-development)

Ingredients Used

Table 1. *The Ingredients used in Preparing Veggie-Steamed Bun*

QUANTITY	UNIT	DESCRIPTION
1	kilo	Superior flour
1	Pack (small)	yeast
1/4	kilo	sugar
1/4	bar	butter
3	pcs	egg
1/2	kilo	chayote
1/2	kilo	carrots
1/2	kilo	Mango sprout
1/2	kilo	cabbage
1/4	kilo	shrimp
1/2	kilo	Sweet potato
1	Bottle (small)	Oyster sauce
3	pcs	tofu
1	clove	garlic
2	pcs	onion

The table shows the quantity, unit of measurement and description of the ingredients used in preparing Veggie-Steamed Bun.

Procedure

1. The dough using the basic dough recipe was prepared.
2. The tofu was fried and set aside.
3. The garlic and onion was sautéed using butter, then the fried tofu, shrimp sweet potato and mango sprout were added.
4. After a while the remaining vegetables was added.
5. The dough filling was seasoned with oyster sauce, salt and pepper to taste.
6. It was removed on fire when done.
7. The dough was cut approximately 50 grams each.
8. The dough was filled with the vegetable filling and a slice of salted egg.
9. It was steamed for 20 minutes or until done.
10. Be sure that it was cooled before packing.

Result and Discussion

The discussions below was the ratings obtained from the different respondents about the sensory qualities of the Veggie-Steamed Bun that served as the basis in formulating the findings, conclusions and recommendations.

Table 3. *Mean Level of Acceptability of Veggie-Steamed Bun as Rated by teenagers*

CRITERIA	X	SD	VI
APPEARANCE			
1. The off-white color of the Veggie Steamed Bun gave the impression of being palatable.	4.25	0.516	HA
2. The shape of the Veggie-Steamed Bun attributed to its eye appeal.	4.05	0.516	HA
AVERAGE	4.15	0.516	A
AROMA			
1. The distinct odor of the different vegetables used was not recognized in the steamed bun.	4.34	0.675	HA
2. The smell of the veggie-steamed bun has distinct characteristics that lead to enhance appetite.	4.43	0.422	HA
AVERAGE	4.38	0.548	HA
TASTE			
1. The finished product has improved taste	4.32	0.483	HA

due to the used of different vegetables as Steamed Bun filling.			
2. The blending of all ingredients reached the desired degree of flavor.	4.33	0.483	HA
AVERAGE	4.33	0.483	HA
TEXTURE			
1. The texture of the dough is somehow firm and get chewy.	4.33	0.483	HA
2. The texture of the filling was a little bit sticky inside as felt by the mouth.	4.15	0.527	A
AVERAGE	4.24	0.505	HA
OVERALL MEAN/SD	4.28	0.513	HA

It is seen in the table that the appearance achieve the off-white color of the Veggie-Steamed Bun gave the impression of being palatable was highly acceptable as reflected by the computed mean of 4.25 and standard deviation of 0.516, it also shows that the shape of the Veggie-Steamed Bun attributed to its aesthetic eye appeal was acceptable as reflected in the computed mean and standard deviation of 4.05 and 0.516 respectively. For the aroma of the Veggie-Steamed Bun, the distinct odor of the different vegetables used is not recognized was highly acceptable as reflected in the computed mean of 4.34 and standard deviation 0.675, it also prove that the smell of the Veggie-steamed Bun has distinct characteristics that lead to enhance the appetite was highly acceptable with the computed mean of 4.33 and standard deviation of 0.422. As to the taste of the finished product that had improved due to the used of different vegetables as filling, it is highly acceptable as reflected in the computed mean and standard deviation of 4.33 and 0.483 respectively. It also shows that the blending of all ingredients reaching the degree of desired flavor was highly acceptable as reflected in the computed mean of 4.33 and standard deviation of 0.483. Lastly the texture of the dough which is firm and get chewy was highly acceptable while the texture of the filling which is a little bit sticky as felt in the mouth is acceptable as reflected in the computed mean of 4.33 and 4.15, standard deviation of 0.483 and 0.527 respectively. The palatability of the Veggie Steamed was highly acceptable as to its sensory qualities as rated by teenagers as seen in the overall mean of 4.28 and standard deviation of 0.513.

Table 4. Mean Level of Acceptability of Veggie-Steamed Bun as Rated by housewives

CRITERIA	X	SD	VI
APPEARANCE			
1. The off-white color of the Veggie Steamed Bun gave the impression of being palatable.	4.09	0.699	A
2. The shape of the Veggie-Steamed Bun attributed to its eye appeal.	3.91	0.568	A
AVERAGE	4.00	0.633	A
AROMA			
1. The distinct odor of the different vegetables used was not recognized in the steamed bun.	4.09	0.699	A
2. The smell of the veggie-steamed bun has distinct characteristics that lead to enhance appetite.	4.27	0.707	HA
AVERAGE	4.18	0.703	A
TASTE			
1. The finished product has improved taste due to the used of different vegetables as Steamed Bun filling.	4.27	0.516	HA
2. The blending of all ingredients reached	4.45	0.675	HA

the desired degree of flavor.			
AVERAGE	4.36	0.596	HA
TEXTURE			
1. The texture of the dough is somehow firm and get chewy.	3.91	0.632	A
2. The texture of the filling was a little bit sticky inside as felt by the mouth.	4.09	0.675	A
AVERAGE	4.00	0.654	A
OVERALL MEAN/SD	4.14	0.647	A

It is seen in the table that the appearance achieve the off-white color of the Veggie-Steamed Bun gave the impression of being palatable was highly acceptable as reflected by the computed mean of 4.09 and standard deviation of 0.699, it also shows that the shape of the Veggie-Steamed Bun attributed to its aesthetic eye appeal was acceptable as reflected in the computed mean and standard deviation of 3.91 and 0.568 respectively. For the aroma of the Veggie-Steamed Bun, the distinct odor of the different vegetables used is not recognized was highly acceptable as reflected in the computed mean of 4.09 and standard deviation 0.699, it also prove that the smell of the Veggie-steamed Bun has distinct characteristics that lead to enhance the appetite was highly acceptable with the computed mean of 4.27 and standard deviation of 0.707. As to the taste of the finished product that had improved due to the used of different vegetables as filling, it is highly acceptable as reflected in the computed mean and standard deviation of 4.27 and 0.675 respectively. It also shows that the blending of all ingredients reaching the degree of desired flavor was highly acceptable as reflected in the computed mean of 4.36 and standard deviation of 0.596. Lastly the texture of the dough which is firm and get chewy was highly acceptable while the texture of the filling which is a little bit sticky as felt in the mouth is acceptable as reflected in the computed mean of 3.91 and 4.09, standard deviation of 0.632 and 0.675 respectively. The palatability of the Veggie Steamed was acceptable as to its sensory qualities as rated by housewives as seen in the overall mean of 4.14 and standard deviation of 0.647.

Table 5. Mean Level of Acceptability of Veggie-Steamed Bun as Rated by food experts

CRITERIA	X	SD	VI
APPEARANCE			
1. The off-white color of the Veggie Steamed Bun gave the impression of being palatable.	3.96	0.675	A
2. The shape of the Veggie-Steamed Bun attributed to its eye appeal.	3.87	0.422	A
AVERAGE	3.91	0.548	A
AROMA			
1. The distinct odor of the different vegetables used was not recognized in the steamed bun.	4.06	0.516	A
2. The smell of the veggie-steamed bun has distinct characteristics that lead to enhance appetite.	4.22	0.516	HA
AVERAGE	4.14	0.516	A
TASTE			
1. The finished product has improved taste due to the used of different vegetables as Steamed Bun filling.	4.59	0.000	HA
2. The blending of all ingredients reached the desired degree of flavor.	4.41	0.422	HA
AVERAGE	4.50	0.211	HA
TEXTURE			

1. The texture of the dough is somehow firm and get chewy.	4.23	0.516	HA
2. The texture of the filling was a little bit sticky inside as felt by the mouth.	3.87	0.422	A
AVERAGE	4.05	0.469	A
OVER ALL MEAN/SD	4.14	0.647	A

Table 7. Significant difference between the teenagers and food experts on the Acceptability of Veggie-Steamed Bun

Type of Respondents	Mean X	Mean Difference	T-Value	Critical T-Value	Verbal Interpretation
Teenagers	4.64	0.13	1.990	2.042	Not Significant
Food experts	4.51				

It is seen in the table that the appearance achieve the off-white color of the Veggie-Steamed Bun gave the impression of being palatable was highly acceptable as reflected by the computed mean of 3.96 and standard deviation of 0.675, it also shows that the shape of the Veggie-Steamed Bun attributed to its aesthetic eye appeal was acceptable as reflected in the computed mean and standard deviation of 3.87 and 0.422 respectively. For the aroma of the Veggie-Steamed Bun, the distinct odor of the different vegetables used is not recognized was highly acceptable as reflected in the computed mean of 4.06 and standard deviation 0.516, it also proved that the smell of the Veggie-steamed Bun has distinct characteristics that lead to enhance the appetite was highly acceptable with the computed mean of 4.22 and standard deviation of 0.516. As to the taste of the finished product that had improved due to the used of different vegetables as filling, it is highly acceptable as reflected in the computed mean and standard deviation of 4.59 and 0.000 respectively. It also shows that the blending of all ingredients reaching the degree of desired flavor was highly acceptable as reflected in the computed mean of 4.41 and standard deviation of 0.422. Lastly the texture of the dough which is firm and get chewy was highly acceptable while the texture of the filling which is a little bit sticky as felt in the mouth is acceptable as reflected in the computed mean of 4.23 and 3.87, standard deviation of 0.516 and 0.422 respectively. The palatability of the Veggie Steamed was acceptable as to its sensory qualities as rated by food experts as seen in the overall mean of 4.14 and standard deviation of 0.647.

Table 6. Significant difference between the teenagers and housewives

Type of Respondents	Mean X	Mean Difference	T-Value	Critical T-Value	Verbal Interpretation
Teenagers	4.64	0.24	1.990	2.042	Not Significant
Housewives	4.40				

The table shows the significant difference between the teenagers and housewives on the acceptability of Veggie-Steamed Bun. It can be seen that the teenagers' result has a greater mean which is 4.64 while the housewives' result is only 4.40, it also resulted that the t-value is 1.990 is less than the critical t-value of 2.042 at 0.05 level of significance and verbally interpreted as not significant, which means that the hypothesis was accepted.

The table shows the significant difference between the teenagers and food experts on the acceptability of Veggie-Steamed Bun. It can be seen that the teenagers' result has a greater mean which is 4.64 while the food experts' result is only 4.51, it also resulted that the t-value is 1.990 is less than the critical t-value of 2.042 at 0.05 level of significance and verbally interpreted as not significant, which means that the hypothesis was accepted

Conclusions

The following conclusions were drawn from the discussions of this study:

1. The methods in making veggie-steamed bun were considered acceptable.
2. The palatability of the Veggie Steamed was highly acceptable as to its sensory qualities as rated by teenagers while only acceptable as rated by housewives and food experts.
3. There is no significant difference on the palatability of Veggie-Steamed Bun as to its sensory qualities as rated by the different group of respondents.
4. The cost of Veggie-Steamed Bun is highly competitive to those readily available in the restaurants.

Recommendations

The following were the recommendations/suggestions on this study:

1. The Veggie-steamed bun is recommended for laboratory testing and patenting.
2. Further study should be conducted to test the shelf life of the Veggie-steamed bun.
3. A study on marketability of this study must be conducted.
4. Develop other recipe like empanada, bread roll and savory tarts based from this study

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