



# Sensory Acceptability Of *Cucurbita Maxima* Jam In Nueva Ecija University Of Science And Technology, San Isidro Campus

Jomell M. Santiago

Nueva Ecija University of Science and Technology, Cabanatuan City, Nueva Ecija, Philippines

(jomellsantiago8854@gmail.com)

## Abstract

This research study aimed to ascertain the sensory acceptability of *Cucurbita maxima* jam as to appearance, taste, color, texture and general acceptability. The 73 evaluators, purposely picked from the students of Nueva Ecija University of Science and Technology, San Isidro Campus, were utilized as respondents. The respondents were chosen using purposive sampling. The respondents used a modified sensory evaluation score sheet anchored on the Five-Point Hedonic Scale to assess the finished products. Mean and T-Test were utilized as the statistical tools. As a whole, results disclosed that *Cucurbita maxima* jam was acceptable as to appearance, taste, color, texture, and general acceptability. The researcher recommended follow-up studies regarding the chemical content and analysis, nutritional content and shelf life of jam must be determined.

*Keywords: sensory acceptability, Jam, squash, product development*

## Introduction

Filipinos like to eat sweets like fruit jam. They are well-known for their unique flavors, which they are always looking for. These flavors show that people have different tastes, and the majority of people believe that jam can only be made with sweet fruits as the main ingredient. However, a vegetable like a squash as the jam is not popularly known since only sweet fruits are commonly used in making jams. Squash is a member of the Cucurbitaceae family of gourds, a group of flowering plants widely grown as vegetables and feed for cattle. The fruit of edible species is frequently served as a cooked vegetable. Squash is one of the world's most nutritious and appetizing vegetables and is helpful in health and medicine (Tarroza, 2017).

Fruits, sugar, pectin, and edible acids are used to make jams, jellies, and marmalades, and they are some of the oldest food preservation methods known to man. They are a means to make food more stable by increasing the amount of insoluble solids (Herbstreith& Fox, 2017). Jam is created from fruit that has been crushed or ground. It tends to keep its shape, but it is not as hard as jelly (Dinstel, 2017). Jam is a mixture of sugars, fruit pulp, and purée, as well as water, that has been gelled to an appropriate consistency (Codex Stan, 2009). Jam is usually made by heating sugar and water with mashed or chopped fruit or vegetable pulp.

Besides its variety, versatility, and delicious flavor, the great thing about squash is its nutritional content. Nutrients make a food healthful, and squash, regardless of variety, has plenty. The essential squash nutrients are vitamin A, vitamin C and potassium. Most squash varieties contain plenty of these three in a 1-cup serving, and they are all essential nutrients. Essential nutrients cannot be manufactured by our bodies (Lewis, 2015). Squash has a wealthy nutritional profile consisting of various organic compounds, nutrients, vitamins, and minerals responsible for its impressive health benefits. This list includes a massive amount of vitamin A and significant amounts of vitamin A, vitamin C, carotene, fiber, and folate.

Squash is a very versatile vegetable when it comes to cooking. It can be used in soups, salads, cooked whole or sliced in half, steamed, and as a substitution for other components, among other things (Tarroza, 2017). The researcher decided to use squash as the main ingredient in making jam. The study aimed to discover if it is possible to use squash to make jams instead of using sweet fruits.

## Objectives of the Study

This study aimed to ascertain the sensory acceptability of using squash in making *Cucurbita maxima* jam. Specifically, it aimed to determine the level of sensory acceptability of *Cucurbita maxima* jam in terms of appearance, taste, color, texture and general acceptability.

## Methodology

### Research Design

This study utilized descriptive research to determine the acceptability level of *Cucurbita maxima* jam among respondents as to general acceptability, appearance, taste, color and texture. The *Cucurbita maxima* jam was prepared in this study, wherein one treatment is enriched with evaporated milk.

### Sampling Design

Individuals were chosen as samples based on the researchers' goals for their controls using the method of purposeful sampling. It is a non-scientific sampling method in which a person is chosen for inclusion in the sample because there is good evidence that he is representative of the entire community.

### Respondents

The study respondents were composed of 73 students of Nueva Ecija University of Science and Technology, San Isidro Campus.

### Procedure

Mise en place is a procedure for putting things in order. Squash should be peeled and chopped into parallel shapes. Make small gratings from the squash, squeeze it gently until the puree comes out, and then combine it with the evaporated milk. Preparation: Heat the pan to a high temperature. Melt 2 table spoons of butter in a cooking pan and set aside to cool. Add 2 cups of condensed milk to the mixture. Allow the squash to simmer before adding the remaining 2 cups of evaporated milk. Cook it until it turns mustard yellow in color.

### Instrument

A customized sensory evaluation score sheet was used to collect data using the Five-Point Hedonic Scale. The following scores and descriptions were used to evaluate each replication of the two (2) treatments: Five (5) for Very Liked; Four (4) for Moderately Liked; Three (3) for Slightly Liked; Two (2) for Disliked; and One (1) for Very Disliked. Using the following rubric from Table 1, respondents rated the various preparations in terms of appearance, taste, color, texture, and general acceptability.

Table 1. Rubric for Evaluating *Cucurbita maxima* jam

CRITERIA	5 Liked Very Much	4 Liked Moderately	3 Liked Slightly	2 Disliked	1 Disliked Very Much
Appearance	Looks very palatable that captures one's attention	Looks pleasing in its appearance	Looks slightly pleasing	Disliked the appearance and can't capture one's appetite	Very disliked appearance
Taste	It tastes savory with quality	It tastes partially good	It tastes not that good or bad	Disliked taste cause it lacks something	Very disliked taste
Color	Very appealing	Appealing	Slightly appealing	Not appealing	Not very appealing
Texture	Very soft and moist	Soft and moist	Slightly soft and moist	Hard and lacks moisture	Very hard
General Acceptability	Very much acceptable	Moderately Acceptable	Slightly Acceptable	Not Acceptable Very Much	Not Acceptable

After the sensory evaluation of the treatment, the score sheets were recorded, tallied, summarized and prepared for computation. Mean was used in determining the level of acceptability of its appearance, taste, color, texture, and general acceptability. The following scale and descriptions were used:

- 4.21 - 5.00 – Liked Very Much
- 3.41 - 4.20 – Liked Moderately
- 2.16 - 3.40 – Liked Slightly
- 1.81 - 2.15 – Disliked
- 1.00- 1.80 – Disliked Very Much

In order to determine if there are significant differences in the level of acceptability of *Cucurbita maxima* jam, the T-Test was computed using Statistical Package for Social Science (SPSS) in calculations.

### 3. Results and Discussion

Table 2 shows the sensory acceptability level of *Cucurbita maxima* jam as to appearance among the respondents. Both treatments' appearance was liked moderately by the respondents. It only implies that the appearance of *Cucurbita maxima* jam was acceptable.

Table 2. Mean Ratings of *Cucurbita maxima* jam as to Appearance

Treatment	Weighted Mean	Interpretation
Not enriched with evaporated milk	3.95	Liked Moderately
Enriched with evaporated milk	4.17	Liked Moderately

Table 3 shows the sensory acceptability level of *Cucurbita maxima* jam as to taste among the respondents. The taste of the treatment enriched with evaporated milk was liked very much, while the respondents moderately liked the treatment without evaporated milk. It only implies that the taste of *Cucurbita maxima* jam was acceptable.

Table 3. Mean Ratings of *Cucurbita maxima* jam as to Taste

Treatment	Weighted Mean	Interpretation
Not enriched with evaporated milk	3.79	Liked Moderately
Enriched with evaporated milk	4.25	Liked Very Much

Table 4 shows the sensory acceptability level of *Cucurbita maxima* jam as to color among the respondents. Both treatments' colors were liked moderately by the respondents. It only implies that the color of *Cucurbita maxima* jam was acceptable.

Table 4. Mean Ratings of *Cucurbita maxima* jam as to Color

Treatment	Weighted Mean	Interpretation
Not enriched with evaporated milk	3.75	Liked Moderately
Enriched with evaporated milk	4.01	Liked Moderately

Table 5 shows the sensory acceptability level of *Cucurbita maxima* jam as to texture among the respondents. The treatment enriched with evaporated milk was liked very much, while the respondents moderately liked the treatment without evaporated milk. It only implies that the texture of *Cucurbita maxima* jam was acceptable.

Table 5. Mean Ratings of *Cucurbita maxima* jam as to Texture

Treatment	Weighted Mean	Interpretation
Not enriched with evaporated milk	3.79	Liked Moderately
Enriched with evaporated milk	4.33	Liked Very Much

Table 6 shows the sensory acceptability level of *Cucurbita maxima* jam as to general acceptability among the respondents. The general acceptability of the treatment enriched with evaporated milk was liked very much, while the respondents moderately liked the treatment without evaporated milk. It only implies that the appearance of *Cucurbita maxima* jam was acceptable.

Table 6. Mean Ratings of *Cucurbita maxima* jam as to General Acceptability

Treatment	Weighted Mean	Interpretation
Not enriched with evaporated milk	3.82	Liked Moderately
Enriched with evaporated milk	4.37	Liked Very Much

Table 7 shows the difference between the sensory acceptability level of *Cucurbita maxima* jam enriched with evaporated milk and the treatment that was not enriched with evaporated milk. The data revealed that the difference between the appearance and color of the two treatments have no significant difference. This implies that the appearance and the color of the two treatments was the same or there were no variations as evaluated by the respondents. It only means that the addition of evaporated milk does not affect the appearance and color of *Cucurbita maxima* jam. Meanwhile, the data revealed that the difference between the taste, texture and general acceptability of the two treatments is significant. It only means that the addition of evaporated milk affects the taste, texture and general acceptability of *Cucurbita maxima* jam. The sweet taste of evaporated milk (which is actually an assurance of proper sterilization and, therefore, safety) is something some people still find a new experience in food (Hollinger and Roberts, 1929). The lactose and proteins in the evaporated milk react with other sugars during baking or cooking. The evaporated milk fat possesses a unique flavor which is widely exploited in the manufacture of products known for their richness and quality in taste and texture, which cannot be achieved with other fats (Goff, 2017). Also, Goff (2017) added that “one of the properties of evaporated milk is its hydration or water-binding property wherein its mode of action was its water retention capacity produces better texture in food products and help to maintain their keeping qualities and shelf life.

Table 7. Difference between the two treatments of *Cucurbita maxima* jam

Criteria	Treatment	p-value	Interpretation
Appearance	Not enriched with evaporated milk	0.15	Not Significant
	Enriched with evaporated milk		
Taste	Not enriched with evaporated milk	0.02*	Significant
	Enriched with evaporated milk		
Color	Not enriched with evaporated milk	0.051	Not Significant
	Enriched with evaporated milk		
Texture	Not enriched with evaporated milk	0.020*	Significant
	Enriched with evaporated milk		
General Acceptability	Not enriched with evaporated milk	0.004*	Significant
	Enriched with evaporated milk		

\* Significant at the 0.05 level

## Conclusion

The purpose of this study was to see if *Cucurbita maxima* jam was acceptable on a sensory level. *Cucurbita maxima* jam was accepted by the respondents, according to the results. Evaporated milk, on the other hand, impacts the treatment's taste, texture, and general acceptance, according to the findings. Evaporated milk has a particular flavor and a sweet taste, and because it is water-binding, it improves the texture of meals. The general acceptance of the two *Cucurbita maxima* jam treatments was not comparable due to this. It is advised that further research be conducted on the chemical composition and analysis and the nutritional value and shelf life of jam.

## REFERENCES

CODEX STAN 296-2009. CODEX STANDARD FOR JAMS, JELLIES AND MARMALADES. Retrieved from: [http://www.fao.org/input/download/standards/11254/CXS\\_296e.pdf](http://www.fao.org/input/download/standards/11254/CXS_296e.pdf)

Dinstel, Roxie Rodgers 2017. Jams & Jellies. Retrieved from: <https://uaf.edu/files/ces/publicationsdb/catalog/hec/FNH00562E.pdf>

Goff, (2017). Welcome to the Dairy Education Book Series. Professor H. Douglas Goff, Dairy Science and Technology Education Series, University of Guelph, Canada. Date Modified: 2017-03-06. <http://www.milkingredients.ca/index-eng.php?id=179> & <https://www.uoguelph.ca/foodscience/industry/dairy-education-ebook-series>



Herbstreith & Fox, 2017. Jams, Jellies and Marmalades. Retrieved from: [http://www.herbstreith-fox.de/fileadmin/tmpl/pdf/broschueren/Konfituere\\_englisch.pdf](http://www.herbstreith-fox.de/fileadmin/tmpl/pdf/broschueren/Konfituere_englisch.pdf)

Hollinger, Martha, and Roberts, Lydia, 1929. Overcoming Food Dislikes: A Study with Evaporated Milk. *J. Home Econ.* 21:923-932, 1929

Lewis, Andrea 2015. The health benefits of squash. <https://dailyjuicecafe.com/blogs/blog/64413637-the-health-benefits-of-squash>

Yuri Tarroza (2017). "The utilization of Squash into Jam for Kids and Adults in Calumpit for year 2017 to2018".[https://www.academia.edu/31612660/\\_The\\_utilization\\_of\\_Squash\\_into\\_Jam\\_for\\_Kids\\_and\\_Adults\\_in\\_Calumpit\\_for\\_year\\_2017\\_to\\_2018\\_](https://www.academia.edu/31612660/_The_utilization_of_Squash_into_Jam_for_Kids_and_Adults_in_Calumpit_for_year_2017_to_2018_)