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ACCEPTABILITY AND MARKETABILITY OF NEW RECIPES OF LECHE FLAN

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ABSTRACT:

The study aims to determine the acceptability and marketability of the different recipes of Leche Flan. The different recipes included carrot leche flan, squash leche flan and ampalaya leche flan.

Acceptability in indicated by its sensory qualities of color, flavor, texture and appearance. Marketability is indicated by the number of sold products for a certain number of days.

The process of research involved experimentation for the try-out and revision of the products and descriptive method for the determination the of the acceptability of the products through taste evaluation. Marketability was determined or direct counting of sold products.

The acceptability of the new recipes of Leche Flan was evaluated by (l0) selected students of LSPU-Santa Cruz Campus, twenty (20) Housewives from Sta Cruz Laguna and twenty (20) experts from LSPU-Santa Cruz Campus and Siniloan Campus taken on quota sampling technique.

Weighted Mean was used to determine the acceptability of the products, Mean and Rank was used to describe the marketability of the products and F-test was used to determine the difference in the acceptability and marketability.

Findings revealed that carrot is evaluated the best in color, flavour, texture and appearance. Squash is rated the least in color, flavour and texture and ampalaya is the least in appearance. The most marketable is ampalaya leche flan and the least is squash leche flan.

F-ratio revealed no significant difference in the evaluation made by the groups of taste evaluators on the sensory qualities of the different recipes in color, texture, taste and appearance. On the other hand, a significant difference was seen in its marketability.

It is concluded therefore that all the recipes of leche flan are acceptable to the different groups of possible consumers but have different chance of being sold in the market.

It is recommended that the recipes of leche flan be utilized and promoted in the community for domestic consumption or small scale business and that higher education institutions utilize it as income generating project, extension project for livelihood and short term course.

BACKGROUND and RATIONALE

Several families specially the poor ones are deprived of nutritious food due to its high cost. Whereas, children from rich families also missed the opportunity for nutritious food due to eating patterns and lifestyles. Children are tolerated to each much less nutritious foods such as eating more meat and less vegetables. Furthermore, increasing number of food chains and establishments and rising

numbers of working mothers specially in urban areas, compel them to depend on eating " outside" not considering the nutritive value of what they eat.

Children generally are not fond of eating vegetables more specially when they are not properly trained to do it. However, they like much of the junk foods, pastries and delicacies bought in stores. Vegetables like squash, ampalaya and sometimes carrots are not known and familiar to them. Due to this, more of them even from rich families suffer from malnourishment. Even vegetable are offered in the meak, they prefer to eat the meat. Housewives now found it difficult to incorporate these health foods in the meal, how will they prepare it in such a way that will be liked and eaten by the children.

The researcher worked on this problem to provide housewives and the whole community with a technique to incorporate vegetables in a food preparation which will be liked by everyone. New recipes of Leche Flan were developed in this research incorporating ingredients such as carrots, ampalaya and squash which are very nutritious but less eaten. The said vegetables are successfully made into leche flans or desserts which are very nutritious.

To test the products, the new leche flans were subjected into a test of acceptability in sensory qualities and the marketability were also determined.

OBJECTIVES

This study aims to find out the acceptability of carrots, squash and ampalaya as ingredients in making leche flans, it specifically answered the following:

l. What is the degree of acceptability of the new recipe of leche flan with respect color, flavor, texture and appearance?

2. What is the marketability of the new recipes of leche flan?

3. Is there a significant difference in the acceptability of the new recipes of Leche Flan as evaluated by the three (3) groups of respondents with respect to the indicators of sensory qualities?

4. Is there a significant difference in the marketability of the new recipes of Leche Flan?

REVIEW OR RELATED LITERATURE

Carrots are more popular in this country. Like most biennials, carrots store reserves in the main top rot during the first summer, in the cortex, not in expanded regions of vascular tissues. One seldom see flowers on harvested carrots, but on the second year, one would see a display of lacy white flowers showing that carrots are nothing more and commons as Queen's lace. Carrots are now eaten not only when cooked but as a raw vegetables. (Economic Botany : Plants in our World)

A biennial flowering plant, Daucus Carota is found in grassy planes in temperate regions in Europe to India. The stem grows to height of l2-40 inches (30-l00 cm) and bears a head of small white flowers. (Webster's Family Encyclopedia, Vol. 2)

Carrot is a known vegertable root, used everywhere in culinary purpose. The herb is low. The root is red-yellow fleshy succulent and grows to a reasonable size, depending on the soil. (Plants and Health)

For medical use, carrot is depravity of the blood. It is beneficial for the kidney and the urinary tract. In the treatment of the eye diseases, carrot is the one of the best beverages. A carrot juice is recommended for skin problems, eczema, psoriasis and others. Carrot increases the red corpuscles in the blood. It is also recommended for duodenal ulcers, mixed spinach or root juice. The carrot is cultivated for its fleshy roots. It succeeds best at high elevation particularly in Baguio. The species is a native Europe, North America and Asia which was introduced into Philippines. The carrot is valued vegetable and eaten raw or cooked into cubes, it is mixed with pickles or cooked with stews and other dishes. It is a good source of calcium, iron and phosphorus. (Medicinal Plants of the Philippines).

Carrot root, daucus carota is an outstanding source Vitamin A present as its precursor, carotene. Not all carotene is absorbing the amount it defends on the fitness of mingling of vegetables.

Carrot like other intensely yellow vegetables contain a lot of carotene which the body converts into Vitamin A. Carotene is also present in high concentration in dark green leafy vegetables in which green colors of chlorophyll. (500 facts on Food and Nutrition)

According to Kit, Dancer Carota Var Sative or Carrot, is a vegetable rich in Vitamins. It is usually grown in places having clod climate. It is usually grown on sandy soil. The food use of carrot has been stimulated by their recognition as an excellent source of carotene, pro-vitamin A. It also serves as human food.

According to Louis, Wild Carrot or Queen Anne's Lace, Carrot is a weed. There are many varieties probably all developed from the Wild Carrots which is native Europe and Asia. The slow-fermenting seeds are planted in early springs, directed where they are to grow. If the roots are left on the ground a much-branched flowering stalk is produced in the second year.

For medical use, it is beneficial for the kidney and urinary treat, treatment of eye disease. Carrot is one of the best beverages. Because of its attractive color, carrot can be made as a food garnishing, can also be included in salads and extract it, to produce carrot juice which is rich in vitamin A. By drinking this, it can help people who are suffering from high blood. (Sas)

Squash any of several varieties are cultivated for food for man or livestock. Squashes range in size from a few inches to more than a foot (30 cm) in length. Some squashes have white skin, while others have skin of various of colors, commonly yellow, tan r green. Some squashes grow on ropelike vines, while others grow on small bushy plants. Squash plants have yellow male and female flowers that are borne singly in the axils of the leaves. Pollination is usually done by insects chiefly bees. The fleshy ovary, even before fertilization, somewhat resembles the subsequent mature fruit.

Squashers are believed to have originated in South America, probably in Peru or Chile. Some varieties of squash were in common use among the Indians at the time of the colonization of North America. Squashes are now grown in most part of the world. In the United States they are grown in home and market gardens, particularly in New England, New Jersey and Florida. (FEU Magazine, Vol.XII)

Leche flan is the Philippines custard and is made of eggyolk or whole egg evaporated milk, refined sugar and a flavouring agent such as dayap rind extract or vanilla. The mixture is poured over a caramelized pan and cooked in water both in an oven or steamer. A good leche flan has a fine texture smoothly coagulate, firm but tender is golden yellow, pleasantly sweet, flavorful and not porous nor curdled.(Guzman)

Food and nutrition research institute stated that canton with squash is a nutritious noodle prepared from a blend f wheat flour, squash puree, salt, egg and noodle improver. It is golden yellow

and contain 53 cal, 3g protein, and 2mg B-carotene per I00g. A 50g serving of the noodles will provide I6%, or 20% and 24% of RDA for energy, protein and vitamin A, respectively of 4 t 6 year-old children.

INGREDIENTS USED

Table I. The Ingredients used in Preparing Carrot Leche Flan

QUANTITY	UNIT	DESCRIPTION
4	Pc	Fresh Carrot
I	Can	Condensed Milk
I	Can	Evaporated Milk
6	Pcs	Whole Eggs
I/4	Kl	Brown Sugar

Table 2. The Ingredients used in Preparing Squash Leche Flan

QUANTITY	UNIT	DESCRIPTION
I/4	Kl	Squash, Fresh
I	Can	Condensed Milk
I	Can	Evaporated Milk
6	Pcs	Whole Eggs
I/4	Kl	Brown Sugar

Table 3. The Ingredients used in Preparing Ampalaya Leche Flan

QUANTITY	UNIT	DESCRIPTION
I	Small Size	Ampalaya
I	Can	Condensed Milk
I	Can	Evaporated Milk
6	Pcs	Whole Eggs
I/4	Kl	Brown Sugar

The table shows the proportion of ingredients to be used in the production of leche flan made from carrot, squash and ampalaya. This would yield approximately 3 to 4 pcs. of leche flan.

PROCEDURE

1. Prepare all the materials and utensils needed in preparing new recipes of leche flan.
2. Peel the skin of the carrot and squash. Wash carrot, squash and ampalaya.
3. Separate eggyolk from eggwhite then put the eggyolk in a bowl, add evaporated milk and condensed milk.
4. Mix thoroughly the combined ingredients.
5. Blend the mix ingredients by using blender together with the fresh vegetable.
6. Strain the mix ingredients to remove the lump particles. Set aside.
7. Caramelize 2T of brown sugar in a molder or llanera.
8. Put the egg mixture to the molder.
9. Cover with plastic or aluminum foil.
10. Steam for I5 to 30 mins. or until done.

RESULT and DISCUSSION

The discussion below was the ratings obtained from the different respondents about the evaluation of different leche flan (carts, squash and ampalaya) that served as the basis in formulating the findings, conclusions and recommendations.

Table I. computed weighted mean in the acceptability of the new recipes of leche flanwith the respect to the sensory qualities as evaluated by the experts.

RECIPE	COLOR			FLAVOR			TEXTURE			APPEARANCE		
	WX	VI	R	WX	VI	R	WX	VI	R	WX	VI	R
A. Carrot	7.8	LVM	I	7.9	LVM	I	7.8	LVM	I	8.I	LE	I
B. Squash	7.I	LM	2	7.2	LVM	2	7.4	LVM	2	7.6	LVM	2
C. Ampalaya	6.4	LM	3	7	LM	3	6.8	LM	3	7.3	LVM	3

As seen in the table, evaluations of experts on the carrot leche flan reveals that the computed weighted mean is 7.8, 7.9, 7.8 and 8.I for color, flavor, texture and appearance respectively verbally interpreted as like very much and like extremely which all ranked first among all the recipes. This means that the carrot leche flan got the best evaluation among the experts in all of the indicators.

Second in rank is the squash leche flan, it obtained weighted means of 7.I, 7.2, 7.4, and 7.6 respectively for color, flavor, texture and appearance which are verbally interpreted as liked moderately and like very much.

Considering the ampalaya leche flan, the computed weighted means are 6.4 for color, 7.0 for flavor, 6.8 for texture and 7.3 for appearance verbally interpreted as liked moderately and liked very much which all ranked last. This means that among the three recipes, ampalaya got the least acceptability. At any rate, ratings on the acceptability of the ampalaya is so good.

Table 2. computed weighted mean on the acceptability of the new recipes f leche flan with respect to sensory qualities as evaluated by housewives.

RECIPE	COLOR			FLAVOR			TEXTURE			APPEARANCE		
	WX	VI	R	WX	VI	R	WX	VI	R	WX	VI	R
A. Carrot	8.0	LVM	2	8.0	LVM	2	7.5	LVM	2	8.05	LE	2
B. Squash	7.35	LVM	3	6.75	LM	3	7.05	LM	3	7.35	LVM	3
C. Ampalaya	8.3	LE	I	8.I5	LE	I	8.05	LE	I	8.3	LE	I

As revealed in the table, ampalaya leche flan got the highest evaluation from the housewives as shown by the computed weighted means of 8.3, 8.I5, 8.05 and 8.3 for color, flavor, texture and appearance respectively with verbal interpretation of liked extremely which got first in rank among the three recipes in all of the sensory quality indicators. This means that the housewives like ampalaya leche flan the most among all the recipes.

On the same manner, carrot leche flan ranks second in all aspect of sensory qualities with weighted means of 8.0 for color, 8.0 for flavor, 7.5 for texture and 8.05 for appearance with verbal interpretations of liked very much and like extremely.

For squash leche flan, it is revealed that the computed means are 7.35, 6.75, 7.05 and 7.35 for color, flavor, texture and appearance respectively which all ranked last and verbally interpreted as like extremely. This means that despite that squash leche flan is the least liked by the housewives, it still got a good evaluation from them.

Table 3. The computed weighted mean on the acceptability of the acceptability of new recipes of leche flan as evaluated by the students with the respect to sensory quality.

RECIPE	COLOR			FLAVOR			TEXTURE			APPEARANCE		
	WX	VI	R	WX	VI	R	WX	VI	R	WX	VI	R
A. Carrot	8.2	LE	I	8.5	LE	2	7.5	LVM	2	8.05	LE	2
B. Squash	7.65	LVM	2	6.85	LM	3	7.05	LM	3	7.35	LVM	3
C. Ampalaya	7.45	LVM	3	8.6	LE	I	8.05	LVM	I	8.3	LM	I

As viewed from the table, the computed weighted means for the carrot leche flan is 8.2 which ranks first in color with a verbal interpretation of liked extremely 8.5, which ranks second for flavor and verbally interpreted as liked extremely, 7.7 and 8.I5 which both rank first for texture and appearance respectively and with verbal interpretations of liked very much and like extremely. This means that carrot leche flan is rated best by the students except for this flavor.

With regards to the evaluations of the students on the squash leche flan, the computed weighted means are 7.65, 6.85, 7.05 for color, flavor, texture and appearance respectively with vebal interpretations of like very much and like much. The squash leche flan is evaluated as the least when it comes to the flavor and texture.

For the ampalaya leche flan, the obtained weighted means are 7.45, 8.6, 7.5 and 7.0 for color, flavor, texture and appearance by the students but considered as the best flavor.

Th8is means that ampalaya which is generally disliked by young persons of its bitter taste can be successfully utilized as ingredients of leche flan which is highly acceptable in its flavor. Therefore, it can be a good technique as an opportunity for ampalaya to be eaten by the younger groups.

Table 4. Computed table on the acceptability of the new recipes of leche flan with respect to the sensory qualities.

RECIPE	COLOR			FLAVOR			TEXTURE			APPEARANCE		
	Ave. WX	R	VI	Ave. WX	R	VI	Ave. WX	R	VI	Ave. WX	R	VI
A. Carrot	8.0	I	LVM	8.I	I	LE	7.67	I	LVM	8.I	I	LE
B. Squash	7.37	3	LVM	6.93	3	LM	7.I7	3	LVM	7.55	2	LVM
C. Ampalaya	7.8	2	LVM	7.92	2	LVM	7.45	2	LVM	7.53	3	LVM

The table reveals that with respect to color, carrot ranks first with an average weighted mean of 8.0 interpreted as like very much. For flavor, carrot again ranks first as well as texture and appearance with average weighted means of 8.l, 7.67 and 8.l respectively with verbal interpretations of liked y much and liked very much and liked extremely.

This means that generally, carrot is rated the best leche flan while squash leche flan is the least acceptable. At any rate, all the recipes of leche flan got good ratings in the acceptability.

Table 5. Computed Mean on the Marketability of the New Recipes of Leche Flan

RECIPE	NUMBER OF DAYS SOLD											
	lst	2nd	3rd	4th	5th	6th	7th	8th	9th	I0th	X	R
A.Carrot Leche Flan	5	I2	I7	20	I8	I5	25	I0	5	2	I2.9	2
B.Squash Leche Flan	3	7	I0	6	7	5	3	2	0	0	4.3	3
C.Ampalaya Leche Flan	5	I7	20	23	I9	I0	I6	20	7	3	I4.0	I

As presented in the table, the different leche flans were sold for ten (I0) consecutive days. Each column presents the number of sold products for each day. At the end of the table is the mean of the data and the corresponding rank.

Data reveals that Ampalaya Leche Flan got the highest mean of l4.0 which ranks first, followed by Carrot Leche Flan with a means of l2.9 which ranks second while last in rank is squash leche flan with a mean of 4.3.

This means that, ampalaya leche flan got the highest number of sold products and is therefore the most marketable while the squash leche flan is the least.

Table 6. Computed F-ratio on the Difference in the Acceptability of the New Recipes of Leche Flan as Evaluated by three groups of evaluators with respect to appearance.

Source of Variation	Ss	df	ms	F-ratio Comp	F-ratio Tab	Ho	VI
Between (R)	0.09	2	0.045	0.03	3.55	A	NS
Within (A) Groups	27.2	I 8	I.5l				
Total	27.29						

P<0.05

The table reveals that the computed F-ratio of 0.03 does not exceed the tabular F-ratio of 3.55 using the degree of freedom 2 in the numerator and l8 in thee denominator at 0.05 level of significance. Thus, the null hypothesis is accepted meaning, there is no significant difference on the evaluations of the three groups of evaluators, with respect to the appearance of the new recipes of leche flan such as carrots, squash and ampalaya.

This further means that the groups of evaluators have the same evaluations of the leche flan recipes. This implies that they have rated the acceptability in appearance is the same.

Table 7. Computed F-ration on the Difference in the Acceptability of the Recipes of Leche Flan as Evaluated by the Three Groups of Evaluators with Respect to flavour.

Source of Variation	Ss	D f	ms	F-ratio Comp	F-ratio Tab	Ho	VI
Between (R)	I.02	2	0.5l	0.59	3.55	A	NS
Within (F) Groups	I555	I8	I.86				
Total	I657						

P<0.05

As revealed in the table, the computed F-ratio of 0.59 failed to exceed the tabular F-ratio of 3.55 finding gives meaning that the null hypothesis is accepted which means that there is no significant difference on the evaluations of the three groups of evaluator as long as flavour of the three recipes such as carrots, squash and ampalaya leche flan is concerned.

Table 8. Computed F-ratio on the Difference in the Acceptability of the New Recipes of Leche Flan as Evaluated by the Three Groups of Evaluators with respect to color.

Source of Variation	Ss	D f	ms	F-ratio Comp	F-ratio Tab	Ho	VI
Between (R)	I.3I	2	0.l6	0.007	3.55	A	NS
Within (C) Groups	4l0.5	I 8	22.8l				
Total	4l0.8l						

P<0.05

As revealed on the table, the computed F-ratio of 0.007 does not exceed the tabular F-ratio of 3.55 using the degree of freedom 2 in the numerator and l8 in the denominator at 0.05 level of significance. The null hypothesis is accepted which means that there is no significant difference on the evaluation of the three groups of evaluators with respect to color of the new recipes of leche flan as to carrots, squash and ampalaya. This means that their evaluations on the color of the product is the same.

Table 9. Computed F-ratio on the Difference in the Acceptability of the New Recipes of Leche Flan as evaluated by the three groups of evaluators. With respect to texture.

Source of Variation	Ss	df	ms	F-ratio Comp	F-ratio Tab	Ho	VI
Between (R)	4.l2	2	2.06	0.8l	3.55	A	NS
Within (T) Groups	22.55	I8	I.25				
Total	26.67						

P<0.05

The Table shows that the computed F-ratio of 0.8l does not exceed the tabular F-ratio of 3.55 using the degree 2 in the numerator and l8 in the denominator at 0.05 level significance. Thus, the null hypothesis is accepted, meaning that there is no significant difference on the evaluations of the three groups of evaluators with respect to the texture of the new recipes.

This further means that the evaluations of the three groups of evaluators on the texture of the leche flans is the same. They have rated leche flans acceptable with no much difference in rating when it comes to texture.

Table I0. Computed F-ratio on the Marketability of the New Recipes of Leche Flan

Source of Variation	Ss	df	ms	F-ratio Comp	F-ratio Tab	Ho	VI
Between	564.2	2	282.l	7.25	3.35	R	S
Within Groups	I05l	2 7	38.9 3				
Total	I6l5.2						

P<.05

Since marketability is considered an important aspect in this study, the researcher considered making it more meaningful by presenting its difference on the three products carrot leche flan, squash leche flan and ampalaya leche flan.

As depicted in the presented table, the computed F-ratio of 7.25 exceeds the tabular F-ratio of 3.35 using the degree of freedom 2 in the numerator and 27 in the denominator and 0.05 level of significance on the said condition, the null hypothesis is rejected thus proving and giving meaning that there exist significant difference on the marketability of the three new recipes of leche flan such as carrots, squash and ampalaya leche flan.

This further means that one is marketable over the products, significantly, referring to table 9 ampalaya leche flan got the highest number of sold products which means it's the most marketable. This implies that the recipes will have higher choice of being sold in the market.

CONCLUSIONS

The following conclusions were drawn from the findings:

l. The three new recipes of leche flan are all acceptable in all the indicators of sensory qualities regardless of the type of consumers.

2. The three new recipes of leche flan have different chance of being sold in the market and become commercialized product.

RECOMMENDATION

Based on the findings and conclusions of the study the following are recommended:

I.Housewises, mothers or parents may utilize the three new recipes of leche flans which are nutritious for their local consumptions.

2. The community may utilize the products as small scale business to enchance their income.

3. The schools specially the higher educations may utilize the new products as an income-generating project, livelihood training for the community as extension project and may be considered as a short term course. Teachers in Home Economics and Food may include the new recipes of leche flans as part of their lessons.

4. Further research should be conducted utilizing other ingredients in making leche flans.

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