

# Evaluation of Rootcrops-Lubeg Blend as Fillers for Empanaditas

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**Abstract:** The primary objective of this study is to evaluate lubeg jam- rootcrops blend as fillers in the production of empanaditas. Thirty panelists evaluated the products in terms of taste, appearance and aroma. Results revealed that a ratio of 50%-50% obtained the highest sensory evaluation rating for lubeg jam-sweet potato blend and lubeg jam- taro blend while the ratio of 25%-75 and 75%-25% obtained the highest sensory evaluation rating for lubeg jam-ube and lubeg jam-tugui respectively.

**Keywords:** Empanaditas, Rootcrops, Lubeg, Jam Sensory Evaluation.

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## 1. INTRODUCTION

Empanadas and empanaditas are locally made delicacies popular in the Ilocos Region [1]. It is a stuffed bread usually with meat, vegetables and fruits. Ilocos Empanadas are orange coated stuffed with sprouted mungo, unripe papaya, egg, and *longanisa*- a native sausage [2, 3]. It is a Spanish influenced delicacy believed to be originated from Spanish Speaking countries such as Portugal, Spain and others [4].

In the Philippines, there are a lot of variations made to empanadas and empanaditas to suit to Filipino palate. Kawaling pinoy specializes in beef empanadas [5] while Panlasang Pinoy goes for Chicken empanadas [6] and Pork Empanadas [7].

The variety of filling is maybe associated with the availability of the ingredients[8]. It can take a variety of taste depending on the ingredients used- sweet, salty-sour, salty, sweet-sour and others [9,10].

Fruit preserves such as jam and jellies are used in various means- as bread filler, confectionaries in baking industries, filler for doughnuts, ice cream flavorings and empanadas[11,12]. The study also made use of available rootcrops [13] to blend with Lubeg Jam as fillers in the production of empanaditas. These include sweet potato [14] taro[15], ube and tugui.

The production of lubeg products will significantly benefit the people from Apayao and Cagayan provinces. Lubeg has been utilized for the production of jam, jelly, wine and fruit concentrates [16] It will bring additional income to farmers and smallholder processors. The production of lubeg products will bring about employment opportunity to people in the locality thereby contributory not only in the area but to the national economy. The project was funded by the Department of Agriculture- Bureau of Agricultural Research ( DA-BAR).

Lubeg just like any other berries in the Myrtaceae family contains a lot of antioxidants which includes leucoanthocyanin, Cyanidin, vitamin C, Flavonoids, and tannins. [17] These antioxidants is believed to have curative effect against cardiovascular disease, reduce high blood pressure and even cancer.

### OBJECTIVES:

This study was conducted to develop empanaditas using lubeg- rootcrops blend as fillers.

Specifically, it is intended to:

1. Establish the proper proportion of rootcrops- lubeg blend as fillers for the production of rootcrops-lubeg empanaditas.
2. Evaluate the lubeg-pineapple blends in terms of taste, aroma, appearance and market acceptability.

## 2. METHODOLOGY

### Materials:

Gas range was used in cooking. Bottle was used in packing the cooked lubeg jam and jelly. Wooden ladle was used in stripping the jam and jelly during the process of cooking. Frying pan was used in cooking products. Measuring cup was used in measuring the lubeg and rootcrops and sugar into very treatment preparation. Jelly was used for filling the bread.

### Preparation of Rootbeg fillers:

Cook rootcrops( ube, sweet potato, taro and tugui) by boiling . Peel using knife or hand. Mash using mortar and pestle. Mix with lubeg jam in desired proportions.

### Preparation of Empanaditas:

Crust

2 cups all purpose flour

2/3 cup butter

3-4 tablespoon cold water

Melted butter for brushing for brushing sugar for dusting.

### Procedure:

Pre heat oven to 350 °F. grease 2 baking sheets. Set aside. Place all ingredients in a bowl. Mixed thoroughly . Cook over low fire, stirring occasionally, until thick. Cool.

Sift into a bowl. Cut in butter until pea- sized particles . dough to 1/8- inch thick. Cut into circles using a 3 inch round cookie cutter. Put a little of the filling at the center of each circle of dough. Fold in half then seal edges with fingers or the lines of a fork. Transfer to baking sheets and bake for about 20 minutes or until brown. Brush baked empanaditas with some butter then roll in sugar.

It can be fried or deep fried.

### Treatment Preparation:

The researchers made use of the following as treatment preparations. These are:

Treatment 0- 100% Lubeg Jam

Treatment 1- 50% Lubeg jam ( LJ): 50% Rootcrops

Treatment 2- 75% LJ : 25% Rootcrops

Treatment 3- 25% LJ : 75% rootcrops

### Respondents of the Study:

The participating respondents of this study constituted a panel of evaluators, who judged the products in terms of color taste. The panel of evaluators was randomly selected from faculty members and students of the Apayao State College and some community people. The respondents were grouped into three to present the replications.

### Data Gathering:

There was 10 faculty, 10 community people and 10 student panelist who were asked to evaluate the product which comprised of some of the students of Apayao State College. Each of the panelist asked to rate the sample products in term of taste , aroma and color. The five point scale is used to evaluate the products.

Scale	Limits of description	Verbal interpretation
5	4.20- 5.00	Like Very much/ Very much accepted
4	3.40-4.19	Like Much/ much accepted
3	2.60- 3.39	Like/ accepted
2	1.80-2.59	Moderately like/ moderately accepted
1	1.00-1.79	Not like/ not accepted

### 3. RESULTS AND DISCUSSION

#### Evaluations of Lubeg- Rootcrops blend as Fillers for Empanaditas:

Lubeg jam and rootcrops blend were evaluated as fillers in the production of empanaditas.

In terms of taste, Lubeg- Sweet potato blend in a 50%-50% ratio gave the highest rating of 4.6 followed by 75%LJ-25% SP. When taro is blended with lubeg jam, the best combination is 50%-50% and 75%-25% ratio. Moreover, empanaditas filled with 25%Lubeg Jam-75% ube gave the highest rating in terms of taste, followed by 75%-25% and 50%-50% ratio. Likewise, empanaditas with a filler of 75%LJ-25% tugui was rated the highest.

Treatment 1 ( 50%-50% LJ:SP) has the highest rating in terms of appearance followed by 75%-25% ratio. The proper combination of Sweet potato and lubeg in a 50%-50% combination gave the highest rating in appearance. The violet color of sweet potato ( peke negro variety) mixed with the red color of the lubeg jam enhanced the appearance of the blended filler. When Lubeg jam is mixed with Taro, Treatment 1 gave the highest rating next to the control. The red color of lubeg jam gave an appetizing color to the panel of judges. Similarly, Treatment 0 has the highest mean rating in appearance when Lubeg is blended with ube (*Pale violet variety*). Seventy five percent ( 75% )lubeg jam mixed with twenty five percent (25%) tugui gave the highest rating in terms of appearance.

Seventy five percent ( 75%) Lubeg jam mixed with 25% sweet potato gave the highest mean rating in terms of aroma. Lubeg jam when blended with taro, a combination of 50% up to 75% Lubeg Jam gave the highest rating. When combined with ube, treatment 3 has the highest mean rating of 3.5. Seventy five percent ( 75%) lubeg jam mixed with 25% tugui has the highest mean rating in terms of aroma.

Results of the sensory evaluation further revealed that when lubeg jam is blended with sweet potato, treatment 1 (50%-50% LJ: SP) has the highest overall rating. This is being followed by treatment 2, treatment 3 and the control. This indicates that lubeg jam can be best used as fillers in the production of empanaditas when mixed with sweet potato. Similarly , treatment 1 ( 50%-50% LJ: T) has the highest overall mean rating when lubeg jam is mixed with taro. On the other hand, a ratio of 25%LJ- 75% ube gave the highest overall mean rating. This is being followed by treatment 2 and treatment 1. Further, when lubeg jam is blended with tugui, a combination of 75%-25% LJ:Tu gave the highest overall mean rating. In summary, it can be said that lubeg jam can be best combine with rootcrops in different proportions when used as fillers for empanaditas.

**Table 1. Evaluation of lubeg Jam-Rootcrops blend as fillers for Empanaditas.**

Treatment	Mean Rating			Overall Mean
	Taste	Appearance	Aroma	
<b>Lubeg Jam-Sweet Potato (SP) Peke negro variety ( violet)</b>				
Treatment 0- 100% Lubeg Jam	4	3.4	3.2	3.53
Treatment 1- 50% LJ: 50% SP	<b>4.6</b>	<b>4.4</b>	3.3	<b>4.10</b>
Treatment 2- 75% LJ : 25% SP	4.3	4.2	<b>3.5</b>	4.00
Treatment 3- 25% LJ : 75% SP	4	3.5	3.4	3.63
<b>Lubeg Jam (LJ)-Taro ( T)</b>				
Treatment 0- 100% Lubeg Jam	4	<b>4.2</b>	3.3	3.83
Treatment 1- 50% LJ: 50% T	<b>4.2</b>	4.1	<b>3.4</b>	<b>3.90</b>
Treatment 2- 75% LJ : 25% T	<b>4.2</b>	4	<b>3.4</b>	3.87
Treatment 3- 25% LJ : 75% T	4	4	3	3.67

<b>Lubeg Jam- Ube ( U)</b>				
Treatment 0- 100% Lubeg Jam	4	<b>4.2</b>	3	3.73
Treatment 1- 50% LJ: 50% U	4.1	4	3.2	3.77
Treatment 2- 75% LJ : 25% U	4.1	4.1	3.3	3.83
Treatment 3- 25% LJ : 75% U	<b>4.4</b>	4	<b>3.5</b>	<b>3.97</b>
<b>Lubeg- Tugui ( Tu)</b>				
Treatment 0- 100% Lubeg Jam	3.2	3.4	<b>3.4</b>	3.33
Treatment 1- 50% LJ: 50% Tu	3.8	3.5	3.2	3.50
Treatment 2- 75% LJ : 25% Tu	<b>3.9</b>	<b>3.6</b>	<b>3.4</b>	<b>3.63</b>
Treatment 3- 25% LJ : 75% Tu	3.8	3.5	3.2	3.50

### Economic Analysis:

The economic analysis for the best treatment for each rootbeg empanaditas is presented below ( for every 50 pieces)

<b>Variables</b>	Lubeg-SP	Lubeg-Taro	Lubeg-Ube	Lubeg-Tugui
<b>Revenue ( sales)</b>				
Sales @ 5 pesos/pc	250	250	250	250
<b>Production cost</b>				
Rootcrops	25	20	40	30
Lubeg Jam	25	25	25	25
Flour	30	30	30	30
Butter	25	25	25	25
Sugar	45	50	50	50
Fuel	10	10	10	10
Labor	25	25	25	25
Sub Total	185	185	205	195
<b>Net</b>	<b>65</b>	<b>65</b>	<b>45</b>	<b>55</b>

Both Sweet potato and taro when combined with lubeg jam gave the highest return followed by tugui and ube. A 65 pesos net return is achieved for every 50 pieces of sweet potato-lubeg jam or Taro-Lubeg jam empanaditas while 55 pesos return for Tugui and 45 pesos for ube- lubeg jam empanaditas.

## 4. CONCLUSION

Four rootcrops were used to blend with lubeg jam in the preparation of fillers for empanaditas. A ratio of 50%-50% obtained the highest sensory evaluation rating for lubeg jam-sweet potato blend and lubeg jam- taro blend while the ratio of 25%-75 and 75%-25% obtained the highest sensory evaluation rating for lubeg jam-ube and lubeg jam-tugui respectively.

## 5. RECOMMENDATION

In the light of the findings and conclusion, the following are forwarded as recommendations.

1. Sweet Potato and taro blended with lubeg jam in a 50%-50% or 1:1 ratio can be best used as fillers for empanaditas.
2. The best ratio for lubeg jam- ube blend empanadita filler is 25%-75% while 75%-25% for Lubeg jam-Tugui blend.

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**International Journal of Novel Research in Life Sciences**

Vol. 3, Issue 6, pp: (61-65), Month: November - December 2016, Available at: [www.noveltyjournals.com](http://www.noveltyjournals.com)

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