

# SORSOGON STATE COLLEGE





#### **Paguriran Island Lagoon**



WELCOME Butanding

> INTERACTION CENTER DONSOL, SORSOGON PHILIPPINES

#### Lola Sayong Surf Camp







### DEVELOPMENT, QUALITY CHARACTERISTICS AND CONSUMER TESTING OF PIE UTILIZING PILI PULP (Canarium ovatum), BANANA (Musa balbisiana) AND YOUNG COCONUT MEAT (Cocos nucifera L)

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# INTRODUCTION

Indigenous Raw Materials

**Product Development** 

**EXTENSION** 

LIVELIHOOD





Developing pie concerning on three abundant and nutritious products such as pili pulp, banana, and young coconut meat is a tremendous step in developing a Sorsogon based product since it also uses an authentic native packaging which is karagomoi, a product that is well known in Sorsogon province that is used in different handicrafts and now used as a food packaging material.



- Mendioron et.al reiterated that Pili is considered to be the most important nut-producing species indigenous to the country. It has a nationwide acceptance and has great potential to develop into a major industry (Philippine Fruit Network).
- Pili pulp and nuts are used in several culinary purposes such as in baked products, desserts, main dishes, pasta/noodles, sauces etc.
- Pili pulp is not just a delicious local product but also bringing several health benefits. This includes vitamin A, vitamin C, calcium, iron, vitamin B-6, magnesium, protein, and natural sugar.

PiLi (Canarium ovatum)



- Banana particularly saba (Musa balbisiana) is a well-known and abundant crop of the Philippines particularly in Bicol region.
- The Bureau of Plant and Industry, cited that along with the indigenous materials the banana parts could be utilized even its peel; this gave enough emphasis on the usefulness of this product since even its peel could be made into a delicious patty.
- It can also be produced into banana flour for future consumption. Saba contains vitamin a, vitamin c, calcium, iron, protein, and dietary fiber.

#### Banana (Musa balbisiana)

Young coconut meat contains several vitamins and minerals like; dietary fiber, protein, calcium, natural sugar, manganese, and potassium. Fresh coconut meat is much lower in fat and much higher in calcium than mature coconut meat. It has less fiber and more sugar but overall it is much healthier.

Young Coconut (Cocos nucifera L.)

# OBJECTIVES

This study focuses on the development, quality characteristics and consumer testing of pili pulp, banana and young coconut meat Pie. Specifically, this study aims to

1.Develop pie filling utilizing pili pulp, banana and young coconut meat.

2.Determine the quality characteristics of pie particularly its pH, total soluble solids, moisture content, and Shelf life.

3.Determine its level of acceptability through consumer testing.

4.Compute for the nutrition Information of the developed product.

# **Materials and Methods**

Along with the processes, the study was conducted inside the Sorsogon State College Food Service Laboratory, Sorsogon City Campus.

The procedures conducted for the development of pie was divided into five sequential parts;

# Figure 1



1. Selecting good quality pili



2. Washing



3. Simmering



4. Submerging





6. Mashing



7. Weighing

# Figure 2. Production of mashed banana





2. Washing



3. Boiling



4. Peeling



5. Mashing



6. Weighing

### Figure3. Production of Young Coconut Meat



1. Select fresh young coconut meat



3. Grating



2. Washing



3. Weighing

### Figure 4. Production of Pie Crust



1. Measuring ingredients



2. Combining flour, baking powder



3. Whisk



4. Adding butter and water gradually



5. Cutting in



6. Dividing the dough into two equal parts



7. Flatten



8. Molding 1 part of the dough into the pie plate

### Figure 5. Production of Pie Filling and Lattice



1. Measuring all ingredients



2. Combining Pili Pulp, Banana and young coconut meat



3. Adding condensed and evaporated milk



4. Adding combined young coconut water & cornstarch



5. Pouring into the pie plate



6. Applying the lattice design



7. Baking



8. Packed







#### Results and Discussions Grams and percentage of the Three Treatments Pili, Banana, Buko Pie

Ingredients	Treatment 1	Treatment 2	Treatment 3
	(%)	(%)	(%)
Mashed Pili pulp	25	35	30
Mashed Banana	30	25	25
Grated young coconut meat	25	20	25
Condensed milk	10	10	10
Evaporated milk	5	5	5
Cornstarch	5	5	5
Yield	2 pies (8x8)	2 pies(8x8)	2 pies (8x8)

# Table 3 Quality Characteristics of Pie

рН	5.35
Total soluble solids	17° Brix
Moisture content	24.40%

# Shelf Life

One of the major purposes of conducting shelf life analysis is to maintain food quality, improve profitability, as well as for consumer safety (mocon.com).

Validating product shelf-life is obtaining and documenting any evidence that proves that the shelf life of a food is accurate and that the food will maintain its safety and/or quality until the end of that shelf-life (Food Safety Authority of Ireland).

Shelf life analysis was done by (20 panelist) Students, FSm faculty and other SSc faculty members).

#### Table 4 Shelf Life Analysis

















9 Gustohononun (Like Extremely)	
8 Gustohunon (Like very much)	
7 Gusto (Like moderately)	
/ Casto (cc.t)/	
6 Medyo gusto lang (Like slightly)	
El sin musta lain man haba (Naithan like nan dialika)	
5 Lain gusto, lain man nado (Neither like nor dislike)	
4 Medyo habo (dislike slightly)	
3 Habo (Dislike moderately)	
2 Habuonun (Dislike verv much)	
1 Habuonunon (Dislike extremely)	
Komento/Suhestyon:	

# **Consumer Testing**

Consumer testing allows to get feedback on a food product's quality and acceptability to consumers. This feedback was used to decide whether a product needs further development. Ultimately, if a product is not acceptable to consumers, it will not be viable.

Consumer testing includes looking at physical attributes of a food, such as texture or consistency, and sensory attributes, such as flavor and aroma (Biotechnology Learning Hub).

225 panelist (SSC students, residents of San Ramon Bacon and Bulabog, Sorsogon city).

#### Table 5 Consumer Testing Result



#### TABLE 6 Palatability and Acceptability of Pie



### TABLE 7: NUTRITION INFORMATION

Pili Pulp	Banana		
Nutrition Facts	Nutrition Facts		
Serving Size (120g) Amount Per Serving	Serving Size (120g) Amount Per Serving		
Calories from Fat 0 Calories 192.00 % Daily	Calories 146.40 % Daily		
Values*	Values*		
Total Fat 18.00g 27.69	Total Fat 0		
Saturated Fat 2.52g	Saturated Fat 0		
Cholesterol 0	Cholesterol 0		
Sodium 8.40mg 0.35	Sodium 0		
Total Carbohydrate 10.80g 3.60	Total Carbohydrate 38.40g 12.80		
Dietary Fiber 8.40g 33.60	Dietary Fiber 4.80g 19.20		
Sugars 0.80 g	Sugars 0		
Protein 2.40g 4.80	Protein 2.40g 4.80		
Vitamin A 2% ,Vitamin C 19%,VitaminB-6 18%	Vitamin A 10% Vitamin C 56% Vitamin B-6 0		
Calcium 1% Iron 4% Magnesium 8%	Calcium 1% Iron 6% Magnesium 0		
*Percent Daily Values are based on a 2000 calorie diet. Your daily values may be higher or lower depending on your			

calorie needs.

### Table 8 : NUTRITION INFORMATION

Young Coconut Meat	Pie (Pili pulp, Banana, Young coconut)
Nutrition Facts	Nutrition Facts
Serving Size (120g)	Serving Size (805.2g)
Amount Per Serving	Amount Fer Serving
Calories 70	Calories 874
% Daily Values*	% Daily Values*
Total Fat 1.50 2.31	Total Fat 35.1g 54.00
Saturated Fat 1.50g	Saturated Fat
Cholesterol 0	Cholesterol 58.2 mg 19.40
Sodium 0	Sodium 224.4 mg 9.35
Total Carbohydrate 14.00g4.67	Total Carbohydrate 134g44.67
Dietary Fiber 1.00g 4.00	Dietary Fiber 14.2g 56.80
Sugars 7.50g	Sugars 73.14g
Protein 1.00g 2.00	Protein 19.6g 39.20
Vitamin A 0% Vitamin C 0% Vitamin B-6 0	Vitamin A 22%Vitamin C 82%Vitamin B-6 27%Vitamin B-12 5%Vitamin C 82%Vitamin B-6 27%
Calcium 9% Iron 6% Magnesium 0	Calcium 60% Iron 11% Magnesium 19%

\*Percent Daily Values are based on a 2000 calorie diet. Your daily values may be, higher or lower depending on your calorie needs.

# CONCLUSION

- The following conclusions were made based on the findings of this study, this includes;
- 1. That the pie fillings was developed through the use of mashed pili pulp, mashed banana and grated young coconut meat,

2. The shelf life of the product is 3 days in room temperature and 2 weeks if kept refrigerated,

3. Third treatment represents the highest overall acceptability as evaluated by the panelist through consumer testing,

4. the computed nutrition information of the most acceptable product shows that they are nutritious and karagomoi is feasible to be used as a packaging material.

# RECOMMENDATIONS

To further improve the production of Pie the following are recommended:

1. The production of pie be extended to the community to be used as a source of livelihood.

2. Look for partner agencies that are patronizing locally produced products as "Pasalubong",

3. Strengthen the physicochemical analysis of pie by conducting another test through Food and Nutrition Research Institute (FNRI) and

4. Enhancement and quality production of pie should be considered to the adapted barangay of San Ramon Bacon and Bulabog













































