



DEVELOPMENT OF A MANGO RUM COULIS FOR A PUERTO RICAN-STYLE MANGO RUM CAKE

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Introduction

- People desire convenience foods such as desserts that can be easily microwaved and consumed.
- A microwavable Puerto Rican-style mango rum cake was developed based on popular trends of quick, convenient, and bearable caloric levels.

Objective

- **The objective of this research was to develop a mango rum coulis that could be drizzled over the mango rum cake.**
- The other main objective was to being a frozen, microwavable, Puerto Rican dessert that is authentic and affordable.

Materials and Methods

- Initially, a mango puree and pineapple juice was reduced and then spice rum was added at the end of the process. The reduction process resulted in an unacceptable acidity level and the alcohol was cooked off while maintaining the rum flavor.
- The next step was to mask the acidity by testing varying amounts of cane sugar, coconut sugar, or powdered sugar. The initial formulation prior to reduction consisted of 49.1% canned mango puree, 29% pineapple juice, 11.2% sugar variant, and 10.8% spice rum.
- The addition of sugar resulted in a gritty texture, a caramel flavor profile, and a sweeter overall flavor profile.
- Due to inconsistent results, a mango rum coulis (thin fruit puree used as a sauce) was developed that could be easily frozen and then thawed to drizzle on top of the mango rum cake (Table 1).
- A ratio of mango coulis to cake was determined.
- Processing steps (Figure 1) and nutrition facts were developed for commercial production of mango coulis.

Results

Table 1. Mango Coulis Formulation

Ingredients	Percent (%)
Mango, canned	60.7
Orange, juice	36.4
Rum Extract	5.0
Lemon, Juice	4.6
Xanthan Gum	0.3
Cinnamon	0.3
Clove	0.3
Total	100

Mango Rum Coulis

INGREDIENTS: Canned Mangos, Orange Juice, **Rum Extract**, Lemon Juice, **Xanthan Gum**, clove, Cinnamon

- Rum extract is the main source of rum flavor, allowing the product to be alcohol free.
- Clove and cinnamon accompany the extract to replicate a spiced rum flavor.
- Xanthan gum is used as a thickening agent to give coulis a proper viscosity and as a stabilizer to maintain quality through freezing and re-heat.
- Rum extract eliminated the alcohol content, intensified the rum flavor, and widened the market to all ages.
- The final mango rum coulis formation had a pH of 4.6.
- A 30 g portion of coulis on one serving of cake (193 g) provided an ample coulis-to-cake ratio.

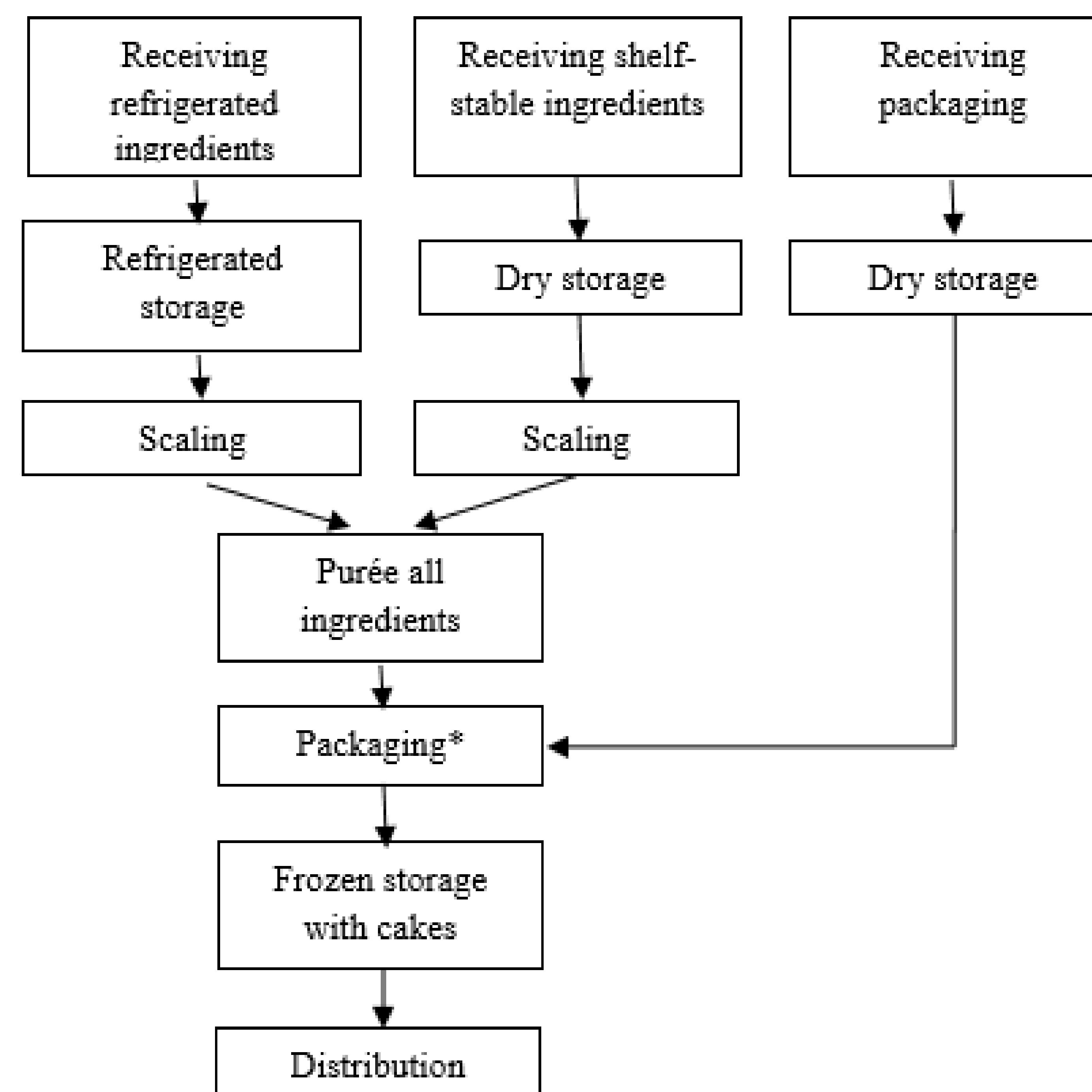


Figure 1. Processing Flow Diagram

Nutrition Facts	
1 serving per container	
Serving size	1 package (33g)
Amount per serving	
Calories	25
% Daily Value*	
Total Fat	0g 0%
Saturated Fat	0g 0%
Trans Fat	0g
Cholesterol	0mg 0%
Sodium	0mg 0%
Total Carbohydrate	5g 2%
Dietary Fiber	3g 4%
Total Sugars	3g
Includes 0g Added Sugars	0%
Protein	0g
Vitamin D	0mcg 0%
Calcium	0mg 0%
Iron	0mg 0%
Potassium	0mg 0%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Figure 1. Nutrition Facts Panel

Conclusions

- The final mango rum coulis formulation paired well to the mango rum cake that added freshness, an all-natural sweetener, and spiced rum flavor without the alcohol.

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