

Innovation Product: Diversifying the Usage of Waste Ingredient in Pizza Topping

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Abstract: Frozen pizza with treated banana skin rendang topping or known as Banana Skinz Pizza is an innovative pizza that makes it different compared to existing pizza in the market. The main purpose of this innovative product made is to diversify and enrich the usage of waste ingredient in rendang topping. The marketing and commercialization of this new frozen pizza could increase the value of local waste ingredient by adding to the topping. Banana Skinz Pizza is produced to fulfill the current demand as consumers can consume similar products like Rendang Ayam throughout the year in the simplest way by reheating pizza with traditionally treated homemade banana skinz rendang topping or consume as it is. This product can be marketed, is cost-effective, and is easy to prepare to make this product able to be produced in mass production. Simplifying the method of preparation and preserving the shelf life is another reason this product was developed. Treated methods and ingredients (food-grade preservatives) can enhance the taste and shelf life of the product. Before the pizza is produced, treated homemade rendang paste needs to be produced. The ingredients are weighed accurately before the mixing, cooking, and topping process. Then the topping is evenly spread on the homemade pizza dough and pre-baked for several minutes. This product is pre-baked and the topping was evenly spread on the dough before being sealed in a vacuum pack. Banana Skinz Pizza is convenient and easy to be prepared in many ways of cooking methods such as pan frying, grilling, steaming, or reheating using an oven in less than one minute. Finding on pair comparison test ($n = 30$) using 7 scales with 2 different samples (V1 & V2) comprising six attributes i.e. appearance, aroma, crispiness, mouth feel, flavor and overall acceptance indicates Banana Skinz Pizza with oil and rendang as a topping was the most preferable product with 16 panels compared to V2 (Banana Skinz Pizza with oil, coulis, and rendang) with 14 panels.

Keywords: waste ingredient; rendang; pizza topping



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1. INTRODUCTION

Banana skinz rendang pizza topping is inspired by a combination of Western and Asian cuisine. Historically, pizza is from Naples, Italy, and is defined as a flatbread with various toppings, and it was enjoyed by the poor and working classes for breakfast, lunch, and dinner (Helstocky, 2008). The basic ingredients in preparing pizza were tomatoes, mozzarella, and basil (Helstocky, 2008). While Rendang originated, the word *Merandang* or *Randang*, which means "slowly" as it takes a longer time to cook and it

comes from west Sumatra (Amelia, 2022). The basic ingredients of rendang consist of coconut milk, beef, or buffalo (Amelia, 2022).

Malaysian foods resulted from the assimilation and transformation of a broad racial mix and immigrants who came to Malaysia in the past (Naili et al., 2018). This assimilation has created a unique and flavorful food (Nail, et al., 2018). In another hand the assimilation and transformation are explained in food globalization and leading to create food neoculturism among global citizens where nowadays global citizens have accepted international foods such as pizza, for example in Malaysia there are sambal and rendang toppings for pizza sold by Pizza Hut Malaysia (Nail, et al., 2018). Food glocalization is vital so that people around the world could accept foods new to their taste buds (Nail, et al., 2018).

However, according to Muhammad (2013) preparing traditional food using a conventional approach is tedious and takes longer time to cook. Most of the traditional food has been altered related of ingredients, equipment used, and cooking methods to reduce the time of preparation and prolong the shelf life of the end products (Muhammad, 2013). Besides that, the rising number of urban population and dual income family has increased the demand for products and services, particularly products which is convenient, healthy, full diet, and affordable in price (Muhammad, 2013). More importantly, convenient food especially frozen food is made available in the hypermarket and supermarkets near the consumer. It replaces the traditional ways of cooking food with those that are hassle-free, fast, and convenient. The rapid trend in living style has changed consumer behavior, especially in their eating habits (Ismah, et al., 2012).

Malaysians nowadays prefer a distinct and modern flavor to suit their preferences. Waste ingredients, nowadays become a trend in producing food products as the limitation of raw materials and increasing in raw material prices in the market. This banana-skin rendang pizza maintains the traditional taste in a modern form. Banana skins were classified as product waste and were thrown away after consuming the fruit the banana. Having a proper treatment of this product waste, it enables to be used as the main ingredient of rendang paste. Banana skins are rich in phenolic compounds as they are a good source of antioxidants, which protect against heart disease and cancer (Someya, 2002). This complete full diet product is easy to prepare and expected to able to fulfill customer demand and need. It is proven as the consideration of all convenience aspects are highlighted such as time spent, physical energy, and mental effort saving related to food preparation and consumption (Someya, 2002).

As aforesaid mentioned the purpose of this product is to diversify the usage of waste ingredients into rendang topping and commercialize an innovative product known as banana skinz rendang pizza. Besides that, simplifying the method of preparing toppings and pizza based by producing convenient and frozen products is also highlighted in this innovative product.

2. MATERIAL & METHODOLOGY

2.1 Materials

Banana skins were gathered from local suppliers. Other community ingredients were obtained from oriental kitchen, faculty of hotel and tourism management, Universiti Teknologi Mara Terengganu Branch, Dungun Campus. Table 1 displays the ingredients and proportions required for banana skinz pizza topping in percentage formulation.

Table 1. Formulation of Banana Skinz Pizza Topping

Ingredients	Percentage (%)
Banana skin	30.97
Sticks cinnamon	0.02
Cloves	0.02
Star anise	0.02
Cardamon pods	0.02
Lemongrass	1.47
Thick coconut milk	7.08
Tamarind pulp	3.42
Kaffir lime leaves	0.11
Kerisik	3.33
Shallots	
Galangal	4.42
Cloves garlic	0.94
Ginger	0.44
Dried chilies	1.03
Buah Keras	0.91
Onion	0.50
Turmeric	4.77
Strong Flour	1.71
Yeast	22.12
Shortenings	0.66
Water	2.21
TOTAL	13.71
	100

Variation:

Variation 1- Direct baked with oil and rendang

Variation 2- Direct baked with oil, tomatoes purees, and rendang

2.2 Methodology

The process for making banana skinz pizza topping has been illustrated in figure 1.



a) Treat banana skins with brine water, soaked overnight.



b. Prepare the dough pizza using a hard dough recipe. Knead until the dough becomes elastic and ferment for 45 minutes.



c. Making a rendang; prepare all the ingredients needed. Blend all ingredients, later sauté star anise, cinnamon, and cardamom until smell fragrance and mix with other remaining ingredients. Boil and simmer for 30 minutes.



d. Punch the dough to release carbon dioxide. Roll the dough and cut using a round cutter approximately 0.3 cm in thickness. Then, prick the dough using a fork and place the topping and mozzarella cheese on the surface of the flattened dough. Prebaked at 180 degrees Celsius. Once the meatballs were cooled, sealed in a vacuum pack, and kept in the freezer at -18 to -20°C to preserve the shelf life.

Figure 1. Process of making banana skinz pizza topping

2.3 Scorecard

A scorecard was developed based on a pair comparison test as an instrument to assess the most and least consumer preferences involving 2 different variations; Variation 1- direct baked with oil and rendang and Variation 2- direct baked with oil, tomato purees, and rendang. Thirty panels from diverse study backgrounds were recruited for the sensory evaluation, and the samples used a three-digit sample code to avoid bias. The panels were briefed on the purpose of the survey, and after tasting each product sample, they were given the scorecard to fill the preferences with six product attributes, including appearance, aroma, crispiness, mouthfeels, flavors, and overall acceptability.

3. FINDINGS

The sensory evaluation was made using the pair comparison test on banana Skinz pizza topping with two different variations; variation 1 is directly baked with oil and rendang and variation 2 is directly baked with oil, tomato coulis, and rendang. Six attributes were tested for each variation including appearance, aroma, crispiness, mouthfeels, flavors, and overall acceptability. Figure 2 shows overall

acceptability, most panels preferred variation 1 banana skinz pizza with oil and rendang as a topping with 16 panels compared to variation 2, banana skinz pizza with oil, coulis, and rendang topping with 14 panels. This is proven why panel preferred the variation 1 compared to variation 2 because of the original taste and distinctive flavor and aroma of the rendang (Fadly, 2020) compared to variation 2, a combination of taste and smell sourly from the tomato coulis.

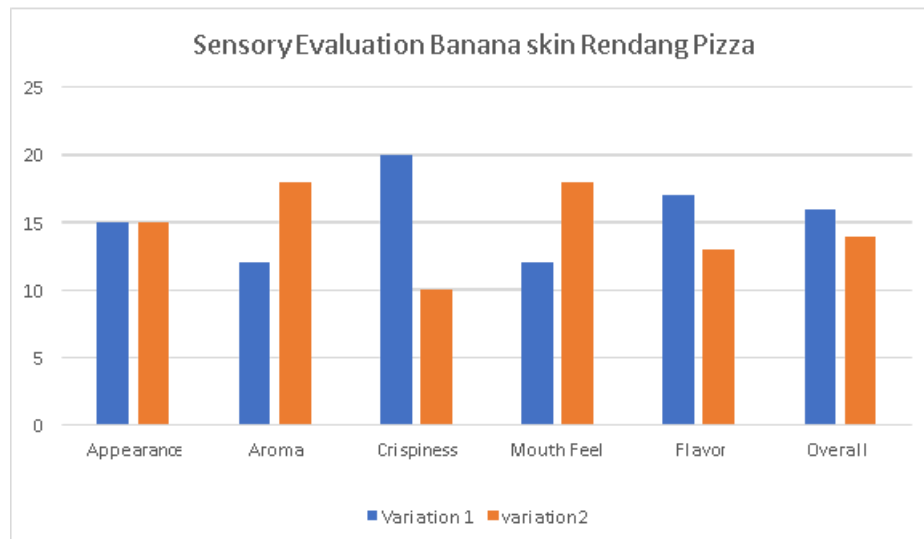


Figure 2. Result of sensory evaluation

3.1 Product Characteristic



Figure 3. Packaging of banana skinz pizza topping

The product produced was ready-to-eat food. It is pre-cooked food and can be reheated using a microwave oven for less than 1 minute or consumed as it is. The vacuum pack method was chosen for product packaging. The method of removing air from a pack before sealable to prevent the growth of bacteria and microbes and later prolong product shelf life (Gorris & Peppelenbos, 1992).

4. DISCUSSION

It was observed that the appearance, crunchiness, taste, and overall acceptability of the banana skinz rendang pizza with olive oil and rendang was preferred by the panelists. The use of banana waste such as banana skinz can minimize the cost of waste disposal and raw materials. In addition, Banana Skin Rendang Pizza can provide a great source of protein to people with insufficient protein intake. Since little attempt has been taken to develop banana skin waste in Malaysia, it is necessary to formulate and produce food items such as banana skinz pizza from unused banana peel/ skins waste.

5. CONCLUSION

A proper methodology and treated ingredients are used to enable product waste like banana skins to be added in *rendang* paste formulation. An innovative local product (*rendang*) with waste ingredients to be diversified, marketed, and commercialized as topping in pizza making make it different and unique compared to existing products in the market. The cost-effective and simplifying methods of preparation make the rendang taste better and able to prolong the shelf life. Further studies can be carried out to study physicochemical properties and proximate analysis. Through these further studies, it can compare the actual nutrient value of banana skinz rendang pizza with the other pizza topping products in the market.

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