

CHAPTER 12

PRESERVING FOOD HERITAGE BY INNOVATION: RAW 'KEROPOK LEKOR' TOWARDS PREMIX KEROPOK LEKOR FLOUR 3 IN 1 (PREMKELF)

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ABSTRACT

Preserving food heritage (FH) is crucial to ensuring that national identity remains privileged as a component of unity from previous generations to future generations. 'Keropok Lekor' (KL), from Terengganu, is one of the Malays' food heritages. It is ready-to-eat meals which originally made from sago flour, salt, and preservatives. There are few problems in preserving this FH such as longer production of fresh KL, may exposed towards germ, shorter shelf-life incapacitated consumers (travelers) obtaining it locally and abroad, and high preservatives that endangered health. Thus, PreMKeLF 3 in 1 was innovated from raw KL into powder form for greater convenience and longer shelf life (estimated:a year). It has added nutritional value with dry vegetables (spinach and chives) and accompanied by chili flake enhancing the taste. Recipe starts with boneless fish combined with tapioca and sago flour, then steamed, sliced, and dried (90°C). Presently, there are KL with cheese, mushroom and onion, however, none of them has developed into flour. PreMKeLF are the first of new variations in powder form with just few steps to prepare and light weight to carry and easily accessible. It can be an alternative of souvenirs or gift in introducing traditional food worldwide among various type of consumer. Kids can consume as nutritious fish nugget or sausage (no preservative added). This concurrently, inspires food manufacturer producing more healthier food, while retained FH. It also offering new job opportunities involving in the fishing and food industry. PreMKeLF can be commercialized worldwide towards sustaining the food industry's profit in future.

Key Words: *Keropok Lekor*, Preservation, Food Heritage

1. INTRODUCTION

Malaysian fish sausages are known as 'Keropok Lekor' (KL). KL originated from Terengganu. It is reputable as Terengganu's traditional snack and is part of the food heritage (FH) (Nur & Hatta 2015). Preserving food heritage (FH) is critical to ensuring that national identity remains privileged as a component of unity and relating from previous generations to future generations. Traditional cuisines reflect the people's culture, history, and way of life. As part of cultural history, food can be essential for a given group or community-dwelling in a specific region. Furthermore, food plays an essential function as a cultural identity in today's heterogeneous context, as it has done in the past (Almansouri et al., 2021).

KL is obtainable as ready-to-eat meals (RTE) or frozen foods and available in a multitude of sizes. It is originally made from sago flour, salt, and preservatives. Nevertheless, in preserving this FH, few difficulties occurring starting from long-duration production of fresh KL, may be exposed to germ-infested, the shorter shelf life that incapacitated consumers (travelers) to keep longer or bring abroad and high preservatives that endangered health. As time passes, KL may be forgotten by the next generation if less action is taken, which is in line with people's current desire for more convenient food products that are also healthy. Consequently, PreMKeLF 3 in 1 was developed to preserve FH in powder form for greater convenience and longer shelf life, to be a nutritious product without preservatives, increasing the nutritional value by incorporating selected vegetables (spinach and chives), which are then supplemented by chili flake to enhance the taste.

In this matter, due to historical food dishes being cooked in a food service facility, there are regulations for ensuring the food's safety and authenticity. KL is known to have a one-day shelf life when kept at room temperature (Nor-Khaizura et al., 2009). Thus, the reason for the new variation of KL production is needed to preserve this food heritage towards longer shelf-life products that can be obtained at anytime, anywhere, and for anyone.

Apart from that, these food preservative compounds provide significant benefits to humans, not only in terms of food preservation and palatability, cardiovascular disease, and aging. Thus, a wide variety of reactions might occur. Some of these reactions appear to be caused by allergies, whereas others appear to be caused by intolerance rather than allergies. Nonetheless, food additives can also boost the nutritional content of specific meals while also improving their taste, texture, consistency, and color (Abdulmumeen et al., 2012). However, it has side effects towards health that cause health problems as such, some persons who are sensitive to specific chemicals can develop allergies and illnesses like hyperactivity and Attention Deficit Disorder as a result of them (Abdulmumeen et al., 2012). Thus, more food products are advisable to be free from preservatives.

Currently, there are a few types of KL with cheese, mushroom, and onion, that can be served in multiple forms (e.g; steam, frozen, vacuum, crackers & fried) however, none of them have developed into flour. Hence, PreMKeLF is the first and new variation of powder form with just a few steps to prepare and is lightweight to carry everywhere.

Moreover, it is a more convenient and nutritious multipurpose flour for various types of consumers, nonetheless still retaining the taste and texture. It will provide new varieties of food for adults and can serve to kids as a nugget shape or sausage that can be a substitute for unhealthy products. Other than that, it will impact food manufacturers to make healthier nutritious food from traditional food.

This innovation can give benefits in terms of being safer and hygienic, which can increase the shelf life compared with the previous one. It is easy and convenient for everyone which is easy to carry and can be an alternative to souvenirs/gifts too in introducing traditional food worldwide. Other than that, it will impact food manufacturers to make more nutritious food from old food. This concurrently can preserve the food heritage by increasing the nutritional value of its ingredient. This newly innovated product has bright potential to be commercialized towards sustaining the food industry's profit in the future and able to enter the market worldwide. Implementing the "Old to Gold", created the value following the new trend along with preserving the traditional heritage of our country's food. Besides, for those that live abroad, they are able to acquire their heritage food whenever they want. Other than that, it increases the economy by offering new jobs involved in the food and fishing industry and commercialization worldwide, sustaining the food industry's profit in the future.

2. METHODOLOGY

2.1 Materials

The main ingredients for PreMKeLF are tapioca flour, sago flour, deboned fish, vegetables, sugar, and salt.

2.2 Procedures

a. Dried vegetables

The process begins by drying clean vegetables (spinach and chives) in a Combi oven (conventional oven) with the permissible temperature at 90°C. Precaution procedures are performed that entail the process of drying separately; for chives leaves is 4 hours 45 minutes, whereas spinach takes 3 hours.

b. Keropok lekor flour

Round clean scads fish (Ikan Selayang) was deboned, and the fillets are mixed. The pureed fish was combined with sago flour and seasoned with sugar and salt. The mixture was kneaded into a dough using a mixer. The dough was steamed for about 1 hour 30 minutes before being thinly sliced. Then, the thin slices of freshly cut steamed dough were dried in a Combi oven (conventional oven) for 5 hours. After the drying process, the slices were pulverized into a fine powder with a dry-type blender. Finally, the sago flour is combined with the powder to form PreMKeLF.

c. Sensory evaluation

Sensory evaluation was carried out by 60 panels. They had been served with 2 variations. The first variation is *keropok lekor* that is high in sago flour and the second is *keropok lekor* that is high in tapioca flour. The panels used a 7-point Likert scale and six attributes i.e., appearance, aroma, taste, texture (chewiness), overall compatibility, and overall acceptance to evaluate the 2 variations.

3. RESULT AND DISCUSSION

Table 1 Results of Sensory Evaluation: Variation 1

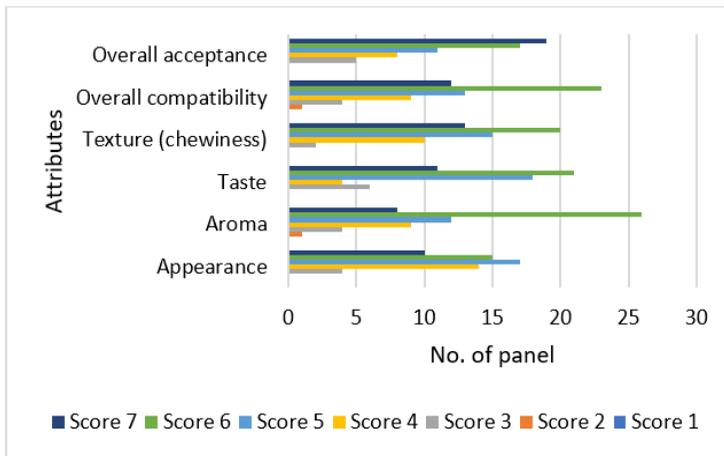
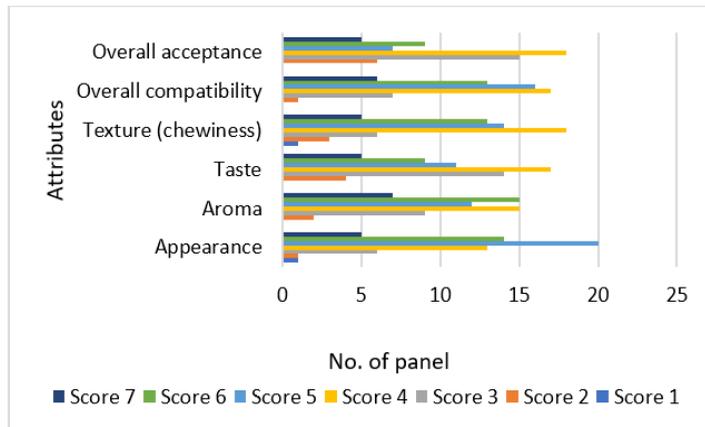


Table 2 Results of Sensory Evaluation: Variation 2



Results showed that 10 panels with a score of 7 are preferred V1 for the appearance of the *keropok lekor* compared to V2; 5 panels. Appearance is more to color attractiveness. Appearance for V1 had a darker color compared to V2 that had light color due to the different amount of flour used. Next, the aroma has 8 panels with a score of 7 for V1

compared to V2 which has 7 panels. Aroma is a distinct, usually pleasant odor. The scent differs due to the varied ingredients. V1 had a pleasant scent compared to V2 which was less aromatic.

Most of the panels gave a score of 7 (11 out of 60 panels) for the taste of V1 compared to V2 (5 out of 60 panels). The ingredients employed in the production of this product had an impact on the flavor. Other than that, the texture (chewiness) of V1 is preferable by 13 panels with a score of 7 compared to V2; 5 panels. V2 having a tougher texture makes it difficult to break apart while biting it. V2 has a chewy texture when it is hot/warm, but firm when cold. However, the chewiness of V1 remained regardless of whether it was hot or cold.

The overall compatibility shows that V1 is preferable by 12 panels compared to V2; 6 panels by scoring 7. The sago flour in V1 is low in starch makes the *keropok lekor* more compact than V2. Lastly, overall acceptance shows that score 7 for V1 given by 19 panels compared to V2 which has 5 panels. Therefore, *keropok lekor* with a higher amount of sago flour (V1) is preferable by the panels and was selected for product commercialization.

4. CONCLUSION AND RECOMMENDATION

In conclusion, this innovation has succeeded in developing Premix Keropok Lekor Flour (PreMKeLF) 3 in 1. This idea has the potential to improve shelf-life, convenience, as well as other positive factors. It is suitable for everybody and accessible at anytime and anywhere. Furthermore, by improving the nutritious worth of its ingredients (adding veggies), this innovation helps to maintain the culinary history. Likewise, a diverse mix of different sorts of vegetables can be created further that would entice more people to try them. In addition, instead of utilizing chili flakes, chili paste should be utilized to improve the product. When compared to chili flakes, chili paste has a stronger flavor and this may be accomplished by producing our own chili paste, which can be tailored to taste preferences.

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