

Consumers' perceptions and preferences for traditional cake production technology in Malaysia

(Persepsi dan kecenderungan pengguna terhadap teknologi pengeluaran kuih tradisional di Malaysia)

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Keywords: consumers' perception, preference, traditional cake production technology

Abstract

This study was carried out to investigate the consumers' perceptions and preferences for traditional cake production in Malaysia based on the different production technologies i.e. traditional and modern. A survey questionnaire was distributed to 1,208 respondents based on purposive sampling strategy in six zones across Malaysia. The study revealed that the majority of respondents preferred both traditional cake production technologies (49%), followed by traditional method (47.8%) and modern method (3.1%). The respondents' knowledge on traditional cake technology indicated that formulation technology recorded the highest (40.8%), followed by shelf-life technology (15.2%), and quality assurance technology (12.7%). The taste and aroma of cakes (96%) were the main factors influencing consumer purchase decisions in the traditionally produced cakes, followed by the quality of cakes (95.4%) and less colouring used (92.6%). The findings of this study are useful for the technology developers to identify consumers' preferences in the traditional cake production by developing technologies that help boost the profitability, quality and productivity of a product and beneficial to the industry players, research institutions and policy makers.

Introduction

Traditional cake industry

Traditional cakes are local cakes produced for generations and commonly consumed as snacks rather than as main courses whose dietary patterns are more of a social need and less or less functioning of health (Delroy 1985). Traditional cakes are commonly categorised into two; (1) sweet cakes; and (2) spicy cakes. The cakes are normally produced by various methods, including boiling, frying and steam (Zaidah and Rashilah 2001).

According to Agrofood Statistics 2015, the number of traditional cake producers

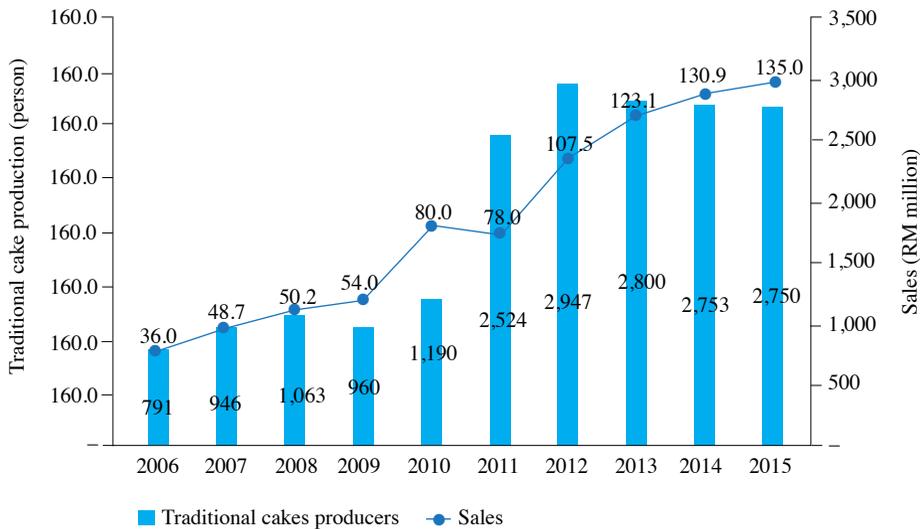
increased by threefold within 10 years to 2,750 in 2015 from 791 entrepreneurs in 2006. Similarly, the sale value of traditional cake almost quadrupled from RM36 million in 2006 to RM135 million in 2015. (*Figure 1*)

Due to the growing demand for the traditional cake, the traditional cake industry will be more focused in line with the implementation of the National Agro-food Policy (NAP) 2011 – 2020, which emphasises on local food production, focusing on increasing the efficiency, productivity and competitiveness of the local food production industry along the value

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Source: Agrofood Statistics (2015)

Figure 1. Traditional cakes producers (unit) and sales (RM million) 2006 – 2015

chain. NAP (2011 – 2020) also outlines some of the country’s strategic goals viz. emphasis on highly geared, industry-driven research and innovation activities.

According to Azrain (2010), innovations that meet market and consumer’s expectations have a high probability of success (Azrain 2010). Therefore, the consumers’ knowledge and preferences are central in determining the success of a product (Linneman et al. 2006). Therefore, this study is crucial to understand the consumers’ perceptions and preferences for traditional cake production technology in Malaysia. The findings of this study are useful for technologists in identifying consumers’ preferences and tastes as well as developing new technologies that can improve the profitability, quality and productivity of a local food product.

In general, this study revealed that the majority of the consumers preferred traditionally produced cakes over those produced by using modern technologies. They also suggested that the taste and aroma of the cake were the main factors influencing their purchase decision. However, traditional cakes produced by using modern technology help the cake

producers improve their productivity while meeting the growing demand for the traditional cakes across Malaysia.

The rest of the paper is structured as follows. Section 2 discusses literature review on innovations in the food industry and traditional cake production technology in Malaysia. Next, section 3 explains methodology which includes design and instruments, and data analysis. This paper goes on by presenting results and discussions in section 4. Section 5 concludes this paper.

Literature review

Innovations in traditional foods

Innovation is defined as the development of a new product, making changes in existing products or using new techniques in the production methods (Rainey 2006). Innovative products are viewed from the internal (knowledge, capacity, resources and technology) and external aspects (user requirements) (Rainey 2006).

Innovations in traditional foods are usually related to product innovations, such as packaging, changes in product composition, product size or form, and new ways of using the products (Gellynck and

Kuhne 2008). However, process innovation for traditional food is not much done due to the authentic identity of the traditional food itself (Gellynck and Kuhne 2008). Guerrero et al. (2009) found that, for each type of traditional foods, the consumers' acceptance towards innovations in traditional foods are significantly different across cultures and countries. In France and Poland, for example, the consumers are not keen in nutritional innovations in traditional foods, but the innovations well accepted in Spain (Guardia et al. 2006). According to Cerjak et al. and Rudawska (2014), traditional food products were tied to specific localities, regions or countries and normally related to the strong memories of childhood. Steptoe et al. (1995) also revealed that the natural content in traditional foods is positively correlated with attitude and consumption of traditional foods. Therefore, understanding the information from the population, it is imperative (Verbeke 2005).

The above deliberation clearly necessitates consumer studies in understanding the consumers' behavior and preferences as innovations in the traditional foods are highly challenging (Amilien et al. 2005; Gellynck and Kuhne 2008; Jordana 2000). In Malaysia, Seng and Ping (2016) asserted that there is a need for a more detailed study in determining the factors that influence consumer's purchase decision on the innovation of a product. In addition, Dalilah (2012) found a positive relationship between social attitudes and behaviours, and the purchase and characteristics of innovative traditional food products.

Traditional cake production technology in Malaysia

According to Nik Rahimah (2017), there are five technologies involved in the traditional cake production (traditional and modern) *viz.* formulation technology, shelf-life technology, quality assurance or quality technology, packing and labeling technologies, and storage technologies (Table 1).

Methodology

Design and instrument

This study used primary and secondary data. The primary data were obtained by distributing a structured questionnaire to 1,208 respondents based on purposive sampling at selected traditional cake and pastry outlets. The purposive sampling had been applied in this study for the selected respondents who are eating traditional cakes at the selected cake and pastry outlet in the North and East Zone in Malaysia. The 1,208 respondents consist of respondents in each zone, which are Southern (15.81% respondents), Northern (21.94% respondents), Central, Eastern (22% respondents), Sabah (12.33%) and Sarawak (15.48%). The questionnaire consisted of two main sections, e.g. respondent's profile, perceptions and the importance of traditional cake technology. Secondary data were extracted from Agrofood Statistics 2015 to obtain information on the number of traditional cake producers and traditional cakes sale value in Malaysia.

Data analysis

This study used descriptive statistics to understand the characteristics of the samples and inferential statistics, e.g. chi-square analysis, one-way Analysis of Variance (ANOVA), and T-Test. Data analysis was performed by using the IBM-SPSS ver. 23.

Results and discussions

Respondent's profile

Table 2 shows the respondent's profile. Most respondents aged between 20 and 30 years old. Besides, there were 58.5% of females, followed by men (41.5%). Most of them were Malay, followed by Chinese and others. The highest number of respondents came from those who completed up to secondary education, followed by those who attended the University. The respondents were mostly married. The highest number of respondents came from those earning less than RM1,500 – RM2,000 per month.

Table 1. Traditional and modern technologies used in cake production

Technology	Traditional	Modern
Formulation technology (cooking method)	Gas/wood/charcoal	Oven/fryer
Shelf-life technology	Natural preservatives, synthetic preservatives and frozen techniques.	
Quality assurance technology	Disability, damage, uniformity, size etc.	
Packaging and labelling technology	Banana leaf/ <i>palas</i> /pandan/rubber/paper, etc.	Plastic, polystyrene, plastic container, box etc.
Storage technology	Closed containers, and others	Polystyrene, fridge, freezer, etc.

Source: Nik Rahimah (2017)

Table 2. Respondent's profile (N = 1,208)

Demography	Frequency	Percentage (%)
Age	20 – 30 years	44.9
	31 – 40 years	11.6
	41 – 50 years	30.9
	>51 years	20.6
Gender	Female	58.5
	Male	41.5
Race	Malay	87.1
	Chinese	4.6
	India	0.7
	Others	7.5
Level of education	Primary	2.3
	Secondary	53.6
	University	35.8
	Others	8.3
Marital status	Married	60.9
	Single	38.9
	Others	0.2
Income	<RM1,500 – RM2000	34.4
	RM1,500 – RM2000	22.7
	RM2,001 – RM3,000	17.4
	RM3001 – RM4000	10.0
	>RM5,001	17.4

Source: Survey (2017)

Consumers' perceptions towards traditional cake production technology in Malaysia

The respondents were asked regarding their perceptions towards traditional cake production technology in Malaysia. 74% of respondents said that the traditional cake producers still adopt traditional technology in their cake production. However, 94.2% stated that the use of modern technology in the cake production helps increase the

quantity of traditional cakes relative to that produced traditionally. In addition, 86.2% of respondents said that modern technology contributes to improved brand popularity. Besides, 78.2% stated that the better the technology used in the cake production, the better the quality of the cakes produced.

Figure 2 shows consumers' preferences for traditional cake production cake technology in Malaysia. Based on the figure,

this study revealed that almost half of the respondents prefer for both technologies in the traditional cake production i.e. traditional and modern technologies. However, 47% of respondents indicated preferences for traditional technology in the traditional cake production while 2% prefer modern technology.

Table 3 shows the consumers' preferences for traditional cake production technology by zones in Malaysia. The study found that the Eastern Zone recorded the highest percentage of respondents (54.8%) who preferred traditionally produced cakes, followed by those living in the Central Zone (52.0%). The respondents from the Southern Zone (41.3%) recorded the least preference for the traditionally produced cakes. However, most respondents from the Southern Zone (51.7%) preferred the traditional cakes produced by both traditional and modern technologies. Nevertheless, there were low preferences indicated by the respondents from all zones for modern traditional cake production. Inferential statistics also show that there was a relationship ($X^2 = 73.591^a$, $df = 22$, $p < 0.005$) between consumers' preferences for traditional cake production by zones in Malaysia (Table 4). However, the degree

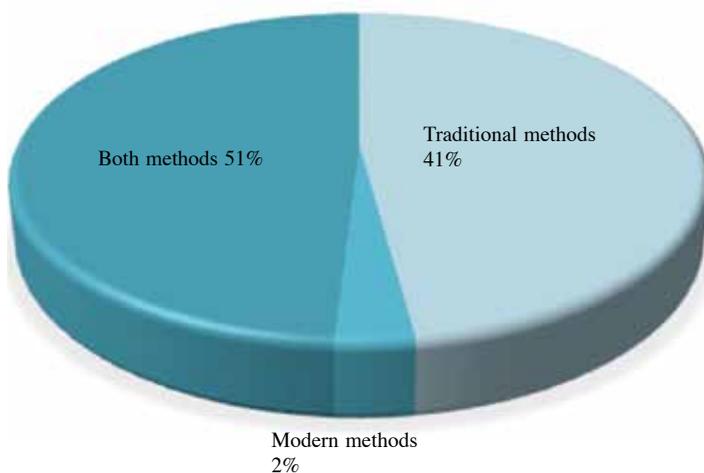
of the relationship was low (ranging at .15 until .20) which was recorded at 0.247 using Cramer's V according to Cohen (1988).

Consumers' knowledge of traditional cake production technology

Among all the five technologies, formulation technology, which is a traditional cooking method, is the most well-known technology by consumers, at 40.8%, followed by shelf-life technology, and quality assurance technology (12.7%).

As a result of the findings as shown in Figure 3, the consumers' knowledge of traditional cake production technology was once again carried out an made at the end of this study using ANOVA analysis. The results of the analysis found that there were significant differences with the values of F ($df = 2, 1205, p < .05$) as in Table 5.

The findings from the ANOVA analysis above were tested again with the t-test to determine whether there was a difference between traditional cooking methods and modern cooking methods among consumers. The results showed that there were significant mean differences between traditional and modern cooking methods as in Table 6.



Source: Survey (2017)

Figure 2. Consumers' preferences for traditional cake production technology in Malaysia

Table 3. Consumers' preferences for traditional cake production technology by zones in Malaysia

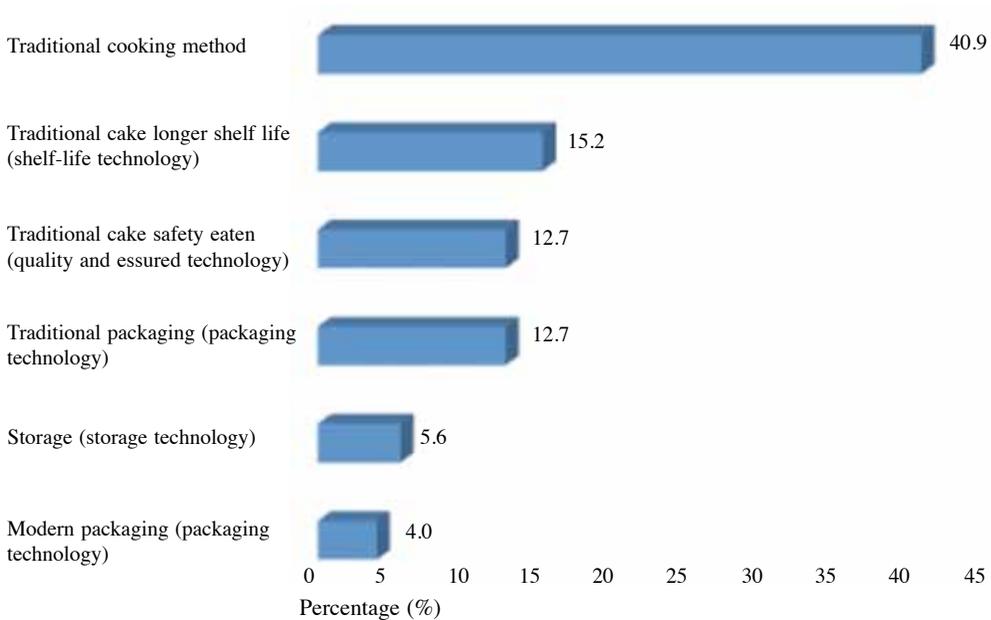
Zone	Traditional method (%)	Modern method (%)	Both methods (%)
Northern	48.7	4.5	46.8
Southern	41.3	1.6	57.1
Eastern	54.8	1.9	43.3
Central	52.0	6	42
Sabah	44.3	2	53.7
Sarawak	42.8	3.2	54

Source: Survey (2017)

Table 4. Chi-square analysis for consumers' preferences for traditional cake production technology by zones in Malaysia

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	73.591 ^a	22	.000
Likelihood Ratio	74.287	22	.000
Linear-by-Linear Association	.105	1	.746
N of Valid Cases	1208		

a. 12 cells (33.3%) have expected count less than 5. The minimum expected count is 1.14.



Source: Survey (2017)

Figure 3. Consumers' knowledge of traditional cake production technology

Factors affecting consumers' purchase decisions on the traditional cake production technologies

In the traditionally produced cake production, there were more than 96% of consumers who indicated that the taste and aroma of the cake influenced their purchase decision (Figure 4), followed by cake quality (95.4%) and less dye used in the cake production (92.6%). On the other hand, the majority of consumers purchased

the traditional cake produced by using modern technology due to certification and labeling (93%), followed by different tastes and colors (92.4%), and cake brand (91.8%) (Figure 5).

Discussions

Based on the findings, we found that the respondents mostly preferred the combination of traditional cake technologies i.e. traditional and modern in Malaysia. The

Table 5. Significant differences between the three technology user groups and consumer knowledge of traditional cookie production technology

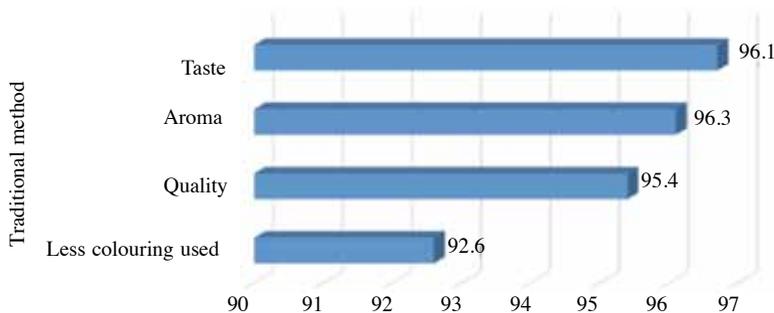
Traditional cakes technology	Value
Traditional cooking method (formulation technology)	F (df = 2, 1205, p <.05)
Modern method (formulation technology)	
Formulation of traditional cakes (formulation technology)	
Traditional cakes longer shelf life (shelf-life technology)	
Modern packaging (packaging and labelling technology)	
Storage (storage technology)	

Source: Survey (2017)

Table 6. Significant mean difference between traditional and modern cooking methods

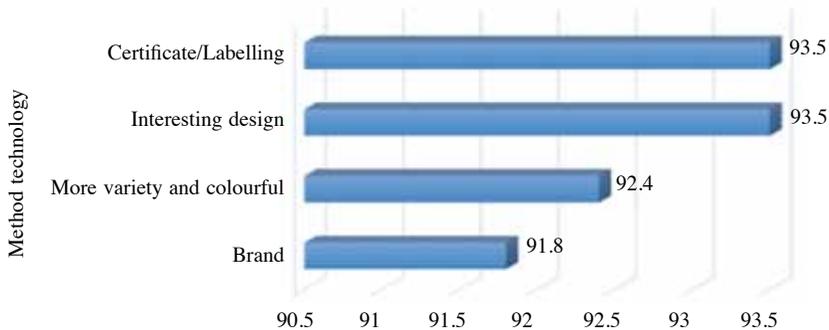
	One sample t-test					
	Test value = 0					
	t	df	Sig. (2-tailed)	Min different	95% Confidence level	
					Lower	Upper
Traditional cooking method	64.143	1207	.000	.773	.75	.80
Modern cooking method	20.235	1207	.000	.253	.23	.28

Source: Survey (2017)



Source: Survey (2017)

Figure 4. Factors influencing consumers to purchase traditional cakes produced by using traditional technology



Source: Survey (2017)

Figure 5. Factors influencing consumers to purchase traditional cakes produced by using modern technology

respondents in the East and Central Zones preferred to purchase the traditional cakes produced by using traditional technology to retain the original taste compared to the production using modern technology. Therefore, it is important to preserve the traditional characteristic of the food as a prerequisite for innovation. This finding is consistent with Kuhne et al. (2010) that the traditional cake does not change much in their recipes, choice of raw materials or production process except for the shelf life packaging technology.

However, our findings suggest that the modern technology increases the quantity of traditional cakes produced in relation to the traditional technology. Ronteltap et al. (2007) explained that acceptance of a technology is mostly driven by the perception of the potential benefits.

Conclusions

This study was conducted to assess the consumers' perceptions and preferences for traditional cake production technology by distributing structured questionnaire involving 1,208 respondents in six different zones across Malaysia. Therefore, this study concluded that the majority of the respondents in Malaysia preferred the combination of both modern and traditional technologies in producing the cakes due to the maintaining original taste of cake.

These findings reflect an opportunity for the traditional cake producers in Malaysia to innovate in combinations of both modern and traditional technologies towards producing cakes in order to understand the consumers' preferences for the traditional cake production technology.

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Abstrak

Kajian ini telah dijalankan bagi menilai persepsi dan pilihan pengguna terhadap pengeluaran kek tradisional di Malaysia berdasarkan teknologi pengeluaran tradisional dan moden. Tinjauan kaji selidik melibatkan 1,208 orang responden dengan menggunakan pensampelan tertuju di enam zon di seluruh Malaysia. Kajian ini mendapati majoriti responden memilih kedua-dua kaedah pengeluaran kek tradisional (49%) diikuti kaedah tradisional (47.8%) dan kaedah moden (3.1%). Pengetahuan responden berhubung teknologi pengeluaran kek tradisional pula mencatatkan peratusan tertinggi bagi teknologi formulasi (40.8%), diikuti teknologi jangka hayat (15.2%) dan teknologi jaminan kualiti (12.7%). Rasa dan aroma kek tradisional (96%) merupakan faktor utama yang mempengaruhi keputusan pembelian responden terhadap kek tradisional yang menggunakan kaedah tradisional selain daripada kualiti kek (95.4%) dan kurang penggunaan warna (92.6%) dalam pengeluaran kek tradisional. Dapatan kajian ini amat berguna kepada penjana teknologi bagi mengenal pasti pilihan pengguna dalam pengeluaran kek tradisional dengan membangunkan teknologi yang dapat meningkatkan kebolehtuntutan, kualiti dan daya pengeluaran sesuatu produk serta berfaedah kepada pemain industri, institusi penyelidikan dan penggubal dasar.