

Research Article

Formulation and Sensory Evaluation of Salak Pudding

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Abstract: *Salak pudding is an innovation of a dessert that is made using blended salak fruit. The objective of this study was to formulate a new pudding recipe using underutilised tropical salak fruit. The main ingredients used were salak fruit, agar-agar powder and milk. Three variations of salak pudding were prepared using different types of milk: condensed milk, fresh milk and coconut milk. Ingredients were mixed and the puddings were chilled in the refrigerator until further analysis. Sensory evaluation of the salak puddings was performed using the 9-point Hedonic scale to evaluate the sensory attributes such as appearance, texture, flavour, sweetness and overall acceptability using thirty untrained panellists. Results showed that salak pudding formulated using condensed milk was the most preferred with the highest mean score obtained for all the sensory attributes tested. This variation of pudding was sweeter, creamier and has bright yellow colour in comparison to the other two variations. Salak pudding is a good source of dietary fibre, vitamins, and minerals, suitable for consumption by people of all age groups and has potential commercialisation and marketability values.*

Keywords: *salak pudding; salak fruit; dessert; sensory evaluation*



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1. INTRODUCTION

Salak, with a scientific name of *Salacca zalacca*, is a fruit native to south Sumatra and southwest Java. It is a member of the Arecaceae family and widely grown in Bali, Lombok, Timor, Malaysia, Maluku, and Sulawesi (Gallant, 2017). The fruit resembles fig with distinct tip and also known as snake fruit due to its reddish-brown scaly skin (Harrison, 2021). The nutritional profile of this fruit is comparable to other fruits like mango, kiwi and apple due to its richness in nutrients, antioxidants, phenolics, vitamins and minerals (Gorinstein et al., 2009; Hlásná Čepková et al., 2021; Mazumdar et al., 2019;). Despite various health benefits and potential utilisation of this fruit in food industry, the fruit remain underutilised in Malaysia and globally. Nutritional salak based food and beverages with unique sensorial properties can be produced to increase the utilisation of this fruit. Therefore, this study aimed to formulate different variations of salak pudding as a dessert using different types of milk and sensory analysis was performed to evaluate the acceptability among consumers.

2. METHOD & MATERIALS

2.1 Materials

The ingredients of to formulate salak pudding were obtained from a local grocery shop in Dungun, Terengganu. Table 1 shows the percentage of ingredients used in the development of salak pudding.

Table 1. Percentage of ingredients for the formulation of different variations of salak pudding.

Ingredients	Condensed milk-based salak pudding (Control)	Fresh milk-based salak pudding	Coconut milk-based salak pudding
Salak fruit	19.9	19.9	19.9
Instant agar-agar powder	0.5	0.5	0.5
Sugar	8.0	8.0	8.0
Nata de coco (lychee flavour)	3.7	3.7	3.7
Water	64.7	64.7	64.7
Food colour	0.1	0.1	0.1
Condensed milk	3.0	-	-
Fresh milk	-	3.0	-
Coconut milk	-	-	3.0
	100	100	100

2.2 Method

Salak fruits were cut into chunks and boiled in water using a pot until the fruits were soft. The boiled fruits were then homogenised using a blender and filtered using a strainer. Ingredients as in Table 1 were weighed according to different formulations and the mixtures were stirred under mild heat until well mixed. The mixtures were poured in sample cups, nata de coco and cubed salak fruit flesh were added and refrigerated (4 °C) to form pudding. Sensory evaluation was conducted using Hedonic test using thirty untrained panelists consisting of students of Faculty of Hotel and Tourism Managemet, UiTM Dungun, Terengganu. Three coded samples and sensory evaluation form were presented to the panelists and they were requested to evaluate the samples based on their preference using a 9-point Hedonic scale ranging from 1-dislike extremely and 9-like extremely.

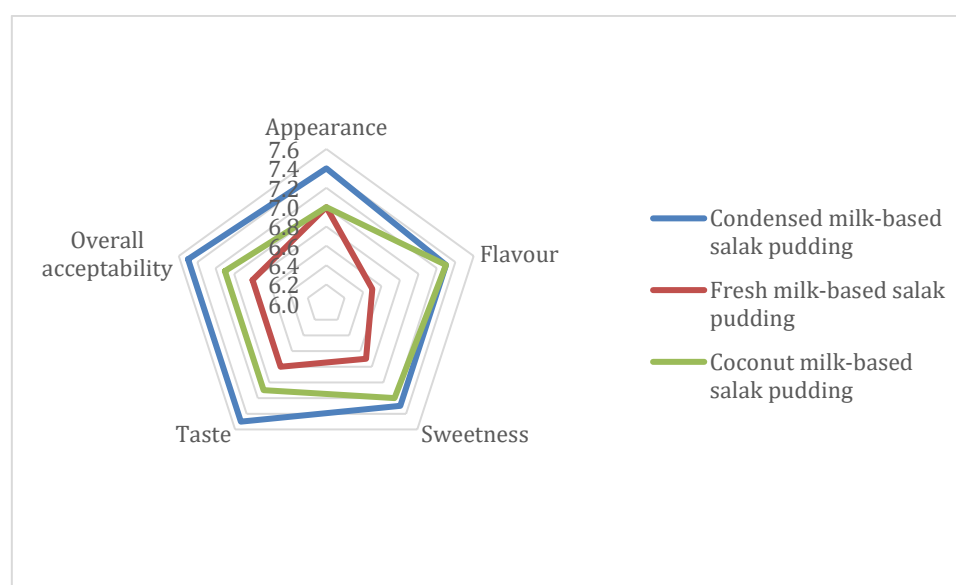
3. FINDINGS

3.1 Consumer acceptance of salak pudding

Sensory characteristics such appearance, flavour, sweetness, taste and overall acceptance were evaluated for all three variations of salak pudding. The range of consumer acceptance score of salak puddings were 6.5 to 7.5 as shown in Table 2. Condensed milk-based salak pudding was more preferred compared to the other two variations. The mean sensory scores obtained for this sample were the highest followed by fresh milk-based salak pudding and coconut milk-based salak pudding for all the attributes analysed (Figure 1).

Table 2. Sensory scores for different formulations of salak pudding.

	Appearance	Flavour	Sweetness	Taste	Overall acceptance
Condensed milk-based salak pudding (Control)	7.4	7.3	7.3	7.5	7.5
Fresh milk-based salak pudding	7.0	6.5	6.7	6.8	6.8
Coconut milk-based salak pudding	7.0	7.3	7.2	7.1	7.1

**Figure 1.** Comparison of consumer acceptance of different formulations of salak pudding

4. DISCUSSION

Salak pudding formulated with different types of milks resulted in different sensory characteristics. Condensed milk-based salak pudding had a firm texture, milky sweet taste and bright yellow colour. Meanwhile, fresh milk-based salak pudding was smoother and softer in texture with distinct yellow colour. The use of coconut milk resulted in creamier and less sweet salak pudding. Condensed milk based-salak pudding was the most preferred by the consumers most probably due to the sweetness and rich milk taste of condensed milk that blended well with the natural taste of salak puree. The bland taste of fresh milk could be the reason for the least acceptability of the salak pudding. The presence of lauric acid as saturated fat in coconut milk that resulted in a different taste could possibly be the reason for lower sensory scores for coconut milk-based salak pudding. The effect of other ingredients in the formulation should be investigated to offer consumers with more variety of nutritious salak pudding.

5. CONCLUSION

In conclusion, salak pudding is one of the unique desserts that have a combination of sweet and sour taste in one bite. This product innovation proves that salak fruits not only can be enjoyed in the form of fruit, but also as a healthy dessert. Salak pudding formulated using condensed milk has good market potential and is suitable for all age groups.

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