

Lactose-free Canelé Recipe Development and the Acceptance of Lactose-free Dessert Among HongKongers

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Background

In Hong Kong, the **lactose-free diet is unpopular**, and there are **limited options** in the market. There isn't much information about using lactose-free milk (LFM) in pastry baking, especially how the different kinds of milk affect the final product. The researcher is curious about the **differences between conventional milk and lactose-free milk in cooking** and how the outcomes will turn out. The researcher hopes this research will allow people with lactose intolerant to have broader product options.



Research Objectives

1. To **evaluate** the differences in flavour, texture & physical structure between canelé made by different types of milk
2. To conduct sensory tasting to **assess** the products in **appearance, colour, smell, flavour, texture & aftertaste**
3. To **give insights** to industrial practitioners to explore the **lactose-free dessert market**

Methodology

Quantitative Analysis

- Sensory evaluation on 4 canelé samples & questionnaire about lactose-free diet habits with 43 replies
- Descriptive analysis
- Regression
- One-way analysis of variance (ANOVA)

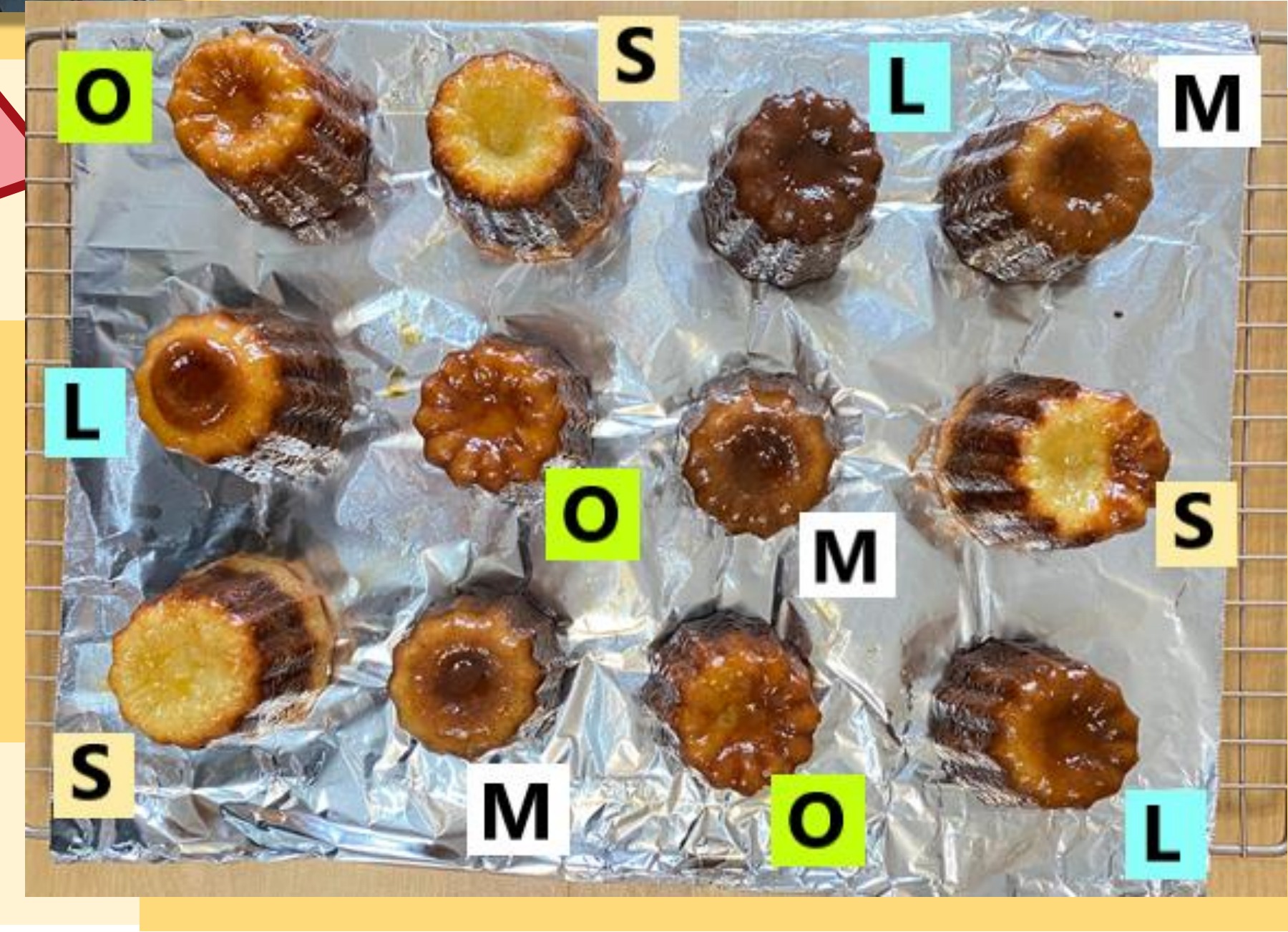
Qualitative Analysis



Recipe testing using the same

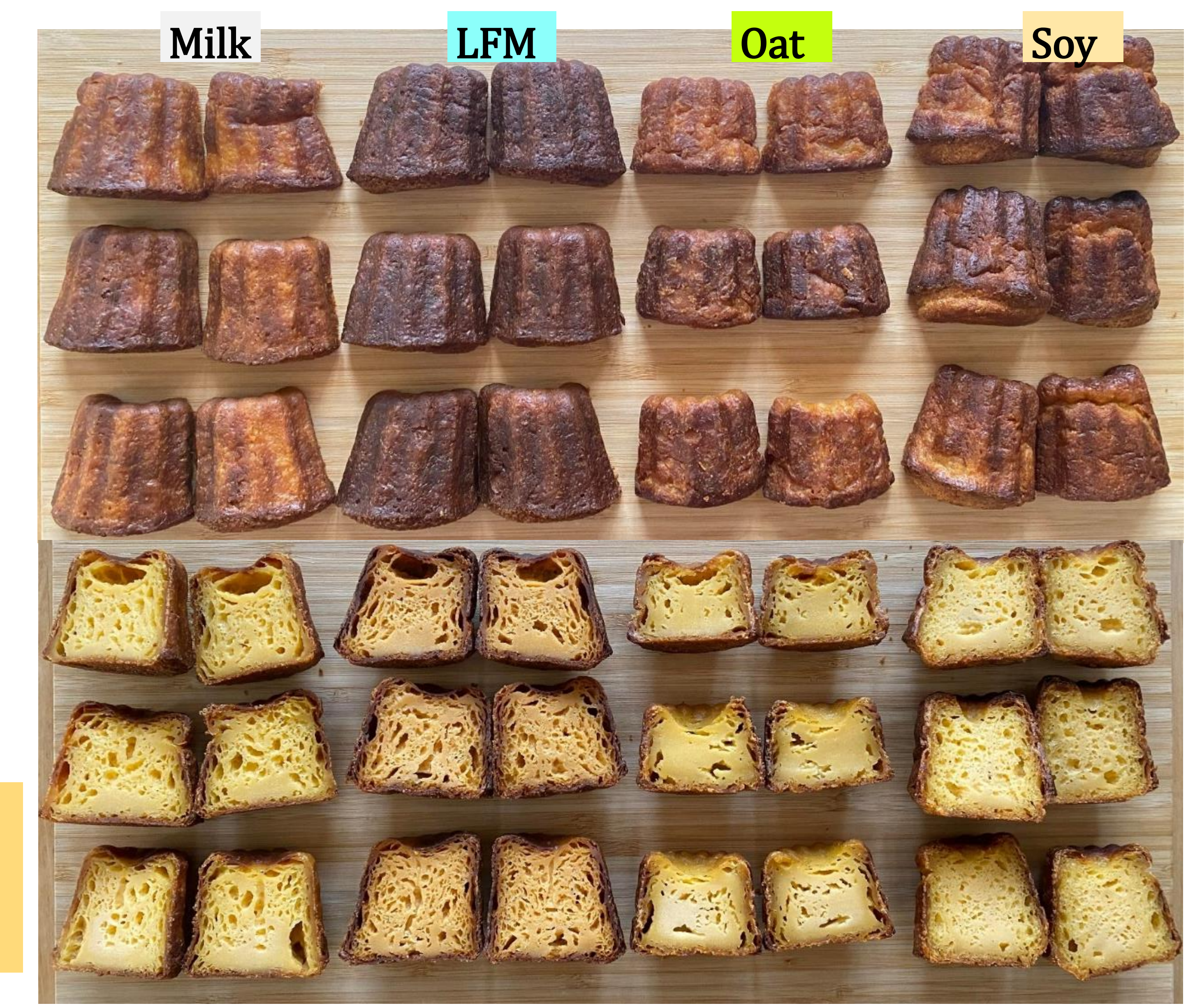
- recipe (with different milk)
- baking temperature & time

Image analysis on appearance, colour, texture, flavour, height, weight & air-bubble size



Findings

LFM has the **best physical structure**, which is similar to regular milk except for the colour, whereas **oat milk** has the **best flavour** and is the **most popular** among responders. Public awareness of lactose-free diets is lower than expected. However, lactose-free canelé has a **high level of acceptance**.



Conclusion

- It is **possible & acceptable** to make canelés with lactose-free milk instead of regular milk.
- ✓ Try replacing different ingredients in recipe
 - ✓ Consider the nutritional and physical composition
 - LFM: dessert with flavour (chocolate, tea) to cover the colour
 - Oat: high-density desserts (pound cake & banana bread)
 - Soy: simple flavour layer desserts (mousse cakes & ice cream)