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Beyond the static bite: Capturing multisensory dish experience through a kitchen journey approach

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BACKGROUND AND RESEARCH QUESTIONS

Traditional sensory evaluation provides detailed information on products in isolation but captures only a snapshot of the consumer experience. For ingredients used in cooking, important sensory cues may emerge during preparation, while some characteristics can get masked in the final dish. By evaluating sensory signals throughout key preparation, a kitchen-journey approach may provide a more holistic understanding of the eating experience and deepen insight into product usage from pack opening through dish preparation and consumption, bringing sensory assessment closer to consumer experience. This study compares journey-based sensory evaluation with traditional descriptive analysis in Pilav prepared with two margarines, Product 1 and Product 2, with the following research questions:

- What additional sensory insights are captured when evaluating a product throughout its preparation journey?
- How does incorporating sensory observations from the product journey influence the evaluation of the finished product compared with a static end-product assessment?

METHOD

A trained sensory panel evaluated two rice dishes using two approaches: (1) static evaluation through Descriptive Analysis (DA) of the final dish, and (2) kitchen-journey evaluation through consensus evaluation at key preparation stages and final

Static evaluation

- The 2 Pilav dishes were evaluated blind, in duplicate by a trained sensory panel.
- Panellists assessed attribute intensities using a quantitative scale (0-100).
- Product characteristics were assessed using a standardized sensory lexicon.
- Attribute intensities were evaluated under controlled sensory evaluation conditions.
- Static evaluation was conducted before the journey evaluation to ensure that the kitchen-journey did not bias the final dish consensus evaluation.

Kitchen-journey evaluation

The same trained sensory panel evaluated the kitchen-journey of the two Pilav dishes in a kitchen environment. The panel assessed aroma and appearance in consensus at eight key preparation stages:

- | | |
|--------------------------------|-----------------------------|
| • After opening pack margarine | • After rice and salt added |
| • During/after scooping | • After 5 min. sauteing |
| • Half time melted | • After 10 min. boiling |
| • Full time melted | • Final Pilav dish |

To enable comparison with static evaluation, results were quantified on a 0-100 scale using the same attributes

Comparative analysis

Static- and journey-evaluation outputs were compared qualitatively to assess:

- Directional differences to assess the impact of journey evaluation on interpretation of the finished product.
- Alignment between journey-based observations and final product descriptive profiles.

RESULTS

FINAL DISH: Static - vs. Journey evaluation

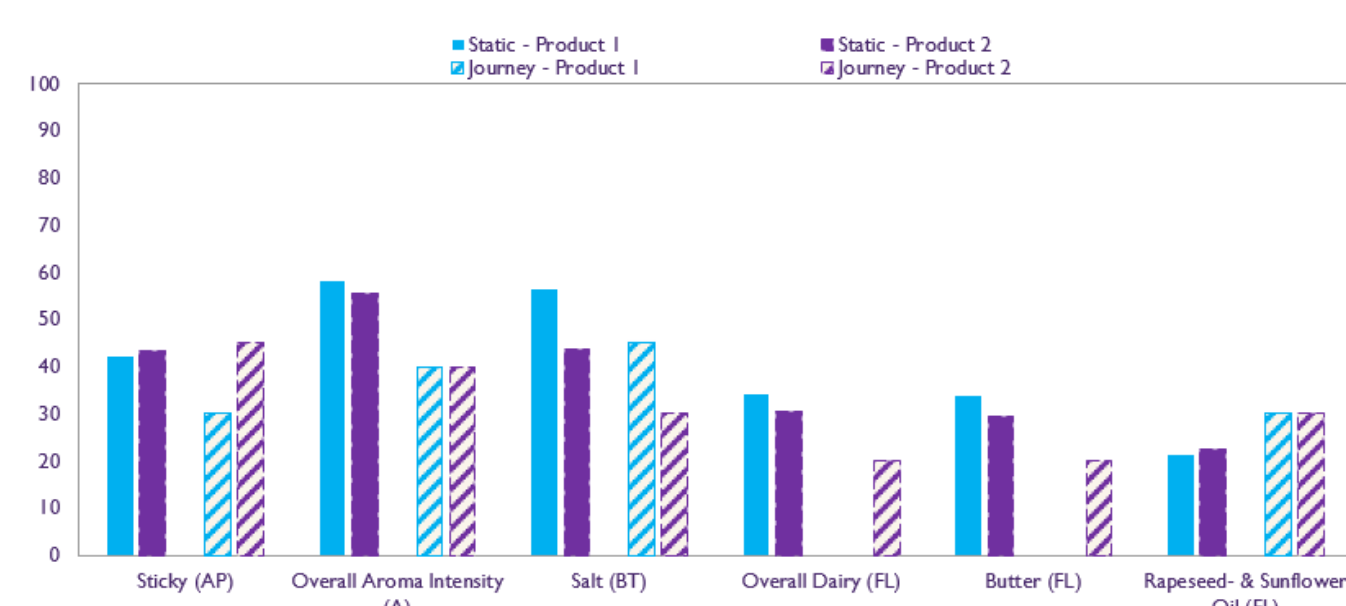


Fig 1. Comparison of static- vs journey-evaluation of final Pilav dish.

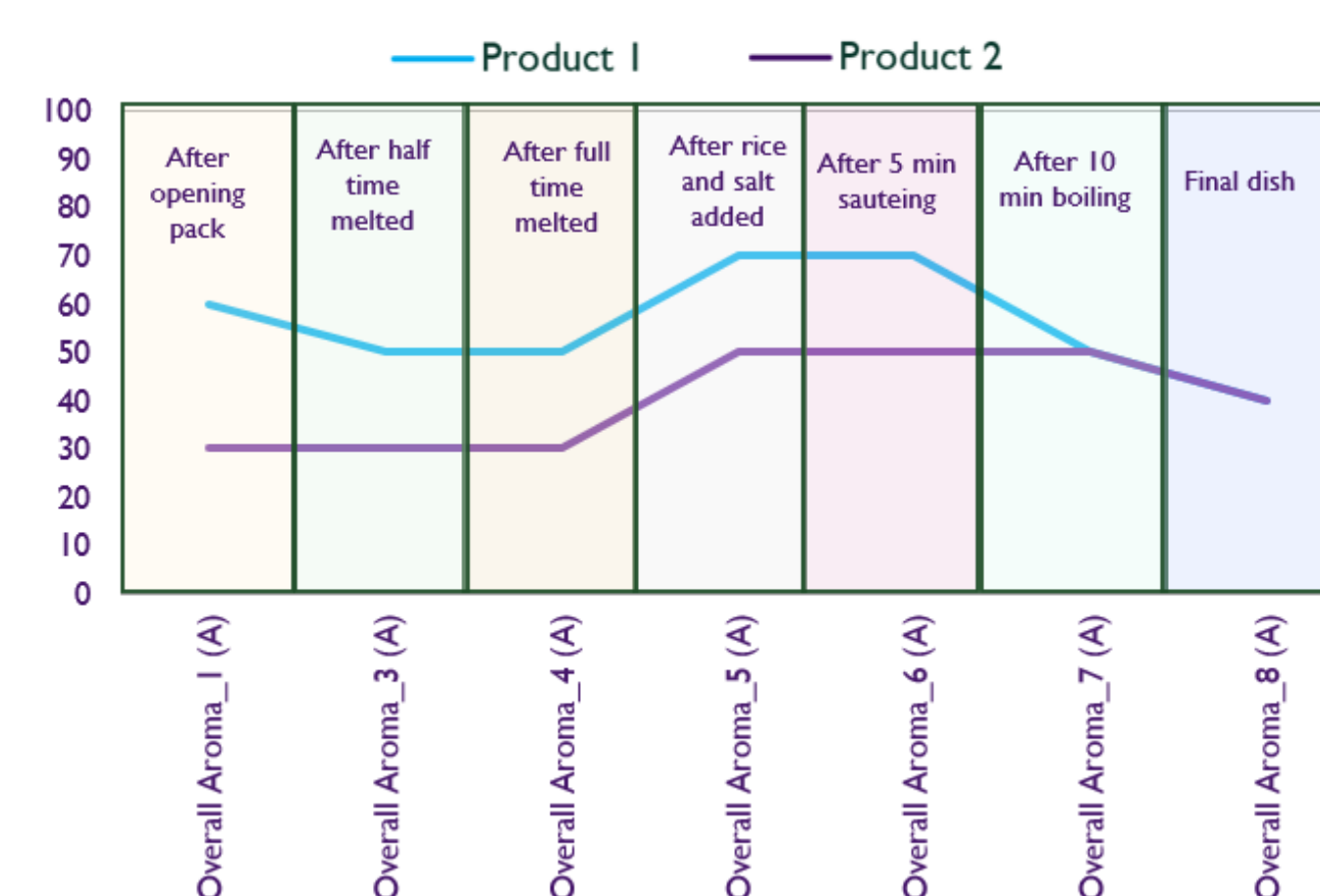
Overall, no clear or consistent alignment was found between the journey observations and the differences between static and journey-based evaluations. However, several attributes showed interesting patterns that may provide additional insights into the consumer experience, which are shown in Figure 1.

Impact of kitchen journey on final dish evaluation

- Salt taste was lower in the final journey evaluation for both products, suggesting that familiarity with the dish or observations during preparation, such as the addition of salt, influenced saltiness perception in the finished dish.
- For Product 1, overall dairy and butter flavor were identified in the static assessment but not in the final dish evaluation, while these attributes decreased for Product 2. As butter aroma faded during preparation and oil-related aromas remained more prominent, the cooking journey may have shifted attention away from dairy and butter notes.
- Aroma intensity was lower in the final than in the static evaluation, suggesting that exposure during cooking may have reduced perceived intensity. Nevertheless, aroma-related cues may still influence product perception, food choice, and the overall consumer experience, depending on aroma quality.
- In contrast, oil flavor was scored higher for both products in the journey assessment, suggesting that exposure to oil aroma increased perceived oil flavor.
- Sticky appearance was scored lower in the journey-based evaluation than in static evaluation for Product 1 only, indicating that sensory cues during cooking do not necessarily translate to the final eating experience.

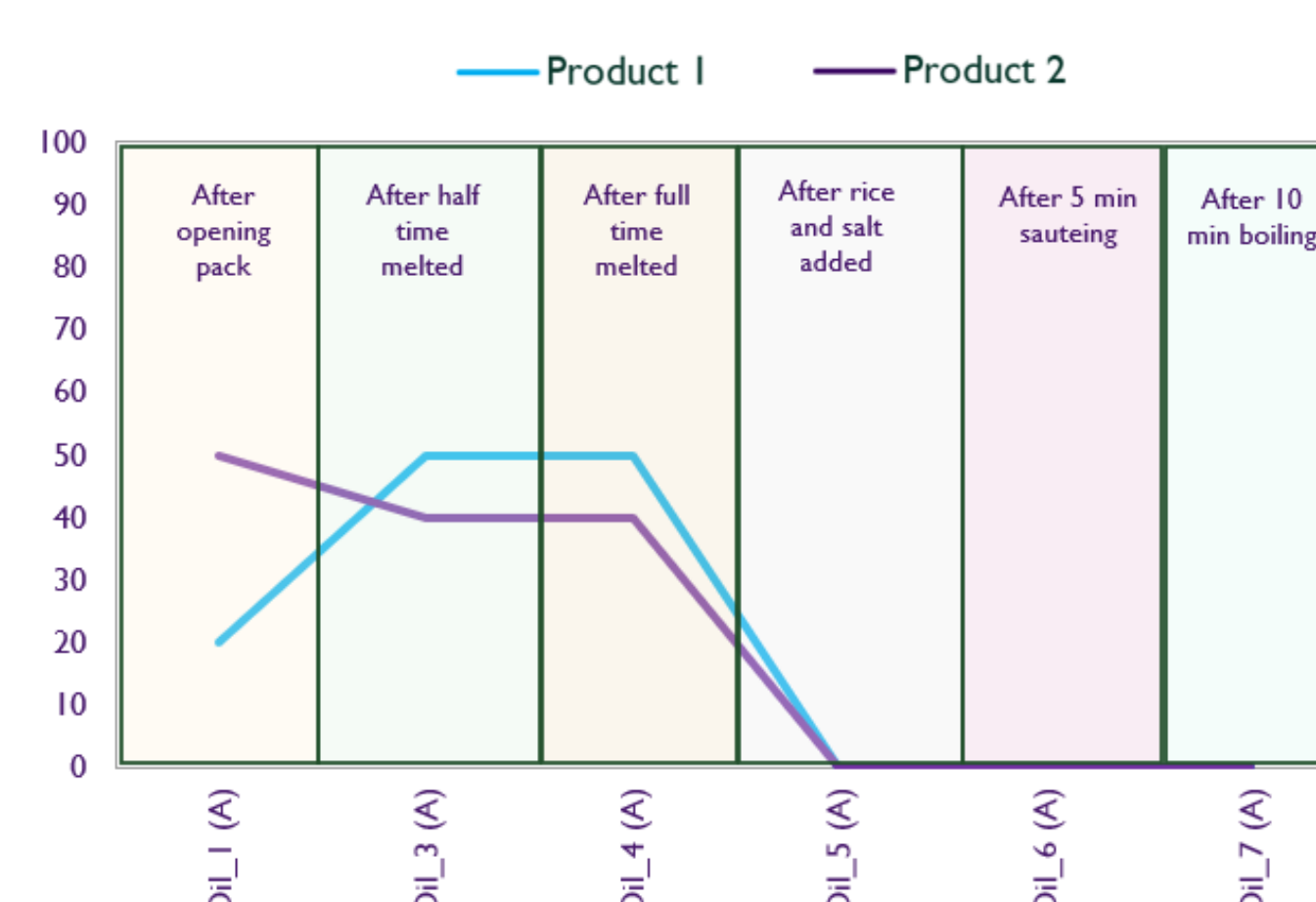
A selection of these findings is presented to illustrate the main outcomes, this does not represent the full set of study results.

AROMA JOURNEY: Overall aroma intensity & oil



- Despite no difference in final aroma intensity, Product 1 showed higher aroma intensity during preparation.
- This suggests that the boiling process has such a strong impact that the differences disappear in the final evaluation.

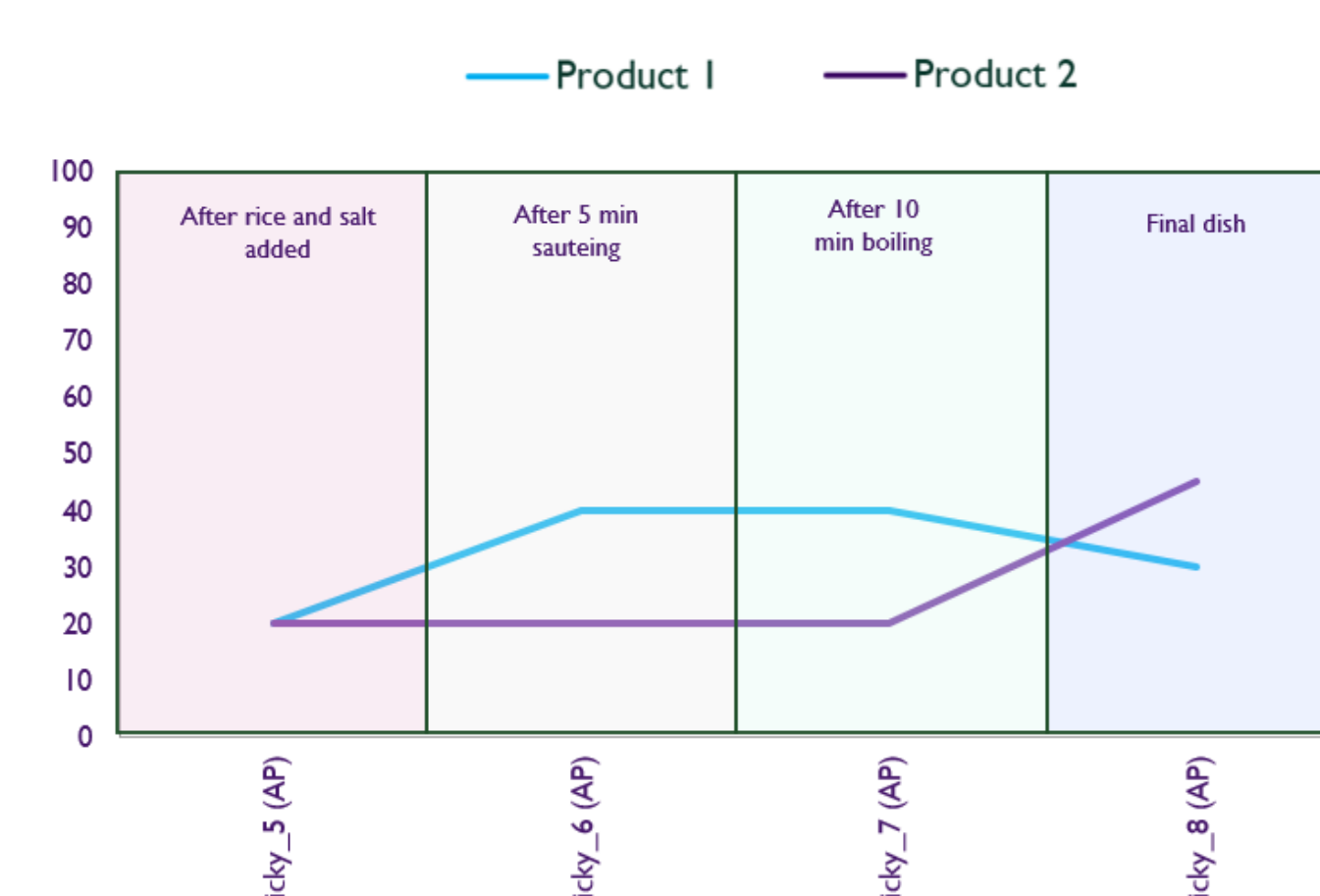
Fig 2. Journey of Overall Aroma Intensity over different time points during preparation.



- During preparation, oil aroma was initially stronger for Product 2 and later for Product 1, but these differences disappeared after additional ingredients were added.
- Exposure to oil aromas during cooking may nevertheless have increased awareness of these notes, contributing to the higher oil flavor scores.

Fig 3. Journey of Oil Aroma over different time points during preparation.

APPEARANCE JOURNEY: Sticky



- Although Product 1 appeared stickier during preparation, Product 2 was perceived as stickier in the final dish, suggesting that the boiling process affects the products differently.

Fig 4. Journey of Sticky over different time points during preparation.

CONCLUSION AND RECOMMENDATION

Evaluating two margarines throughout the kitchen-journey provided a more comprehensive understanding of product performance than assessment of the final Pilav dish alone. The journey approach captured differences in appearance and aroma at key preparation stages that were not reflected in the end-product evaluation, allowing for a better understanding of how products may influence consumer perception.

In general, differences between the products were more pronounced during

preparation than in the final dish. As cooking progressed and additional ingredients were incorporated, many sensory differences became less noticeable or disappeared altogether, masking distinctions that were evident earlier in the process. While requiring additional time and resources, the journey approach provides richer contextual insights and captures sensory experiences encountered during real-life preparation. This broader understanding of the consumer experience can uncover sensory opportunities and product differences that may be overlooked when only the final dish is evaluated.