



Sensory evaluation of plant-based slices and identification of key sensory properties for heightened acceptance and liking

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INTRODUCTION

Adopting plant-based food products is a major consumer trend. However, acceptance can be hindered by several factors related to incongruences with utilitarian claims, extrinsic properties such as price, or intrinsic properties. Among the latter, **sensory properties constitute a significant issue, negatively affecting successful incorporation into regular diets.** This issue is particularly relevant for meat analogues, presenting sensory attributes that fail to meet consumers' expectations.

METHODS

SAMPLES

In this study, 6 samples of plant-based slices (four commercially available and two developed within the scope of this project) were used (Figure 1). The samples were received in “ready-to-eat” format and presented to consumers on plastic plates.

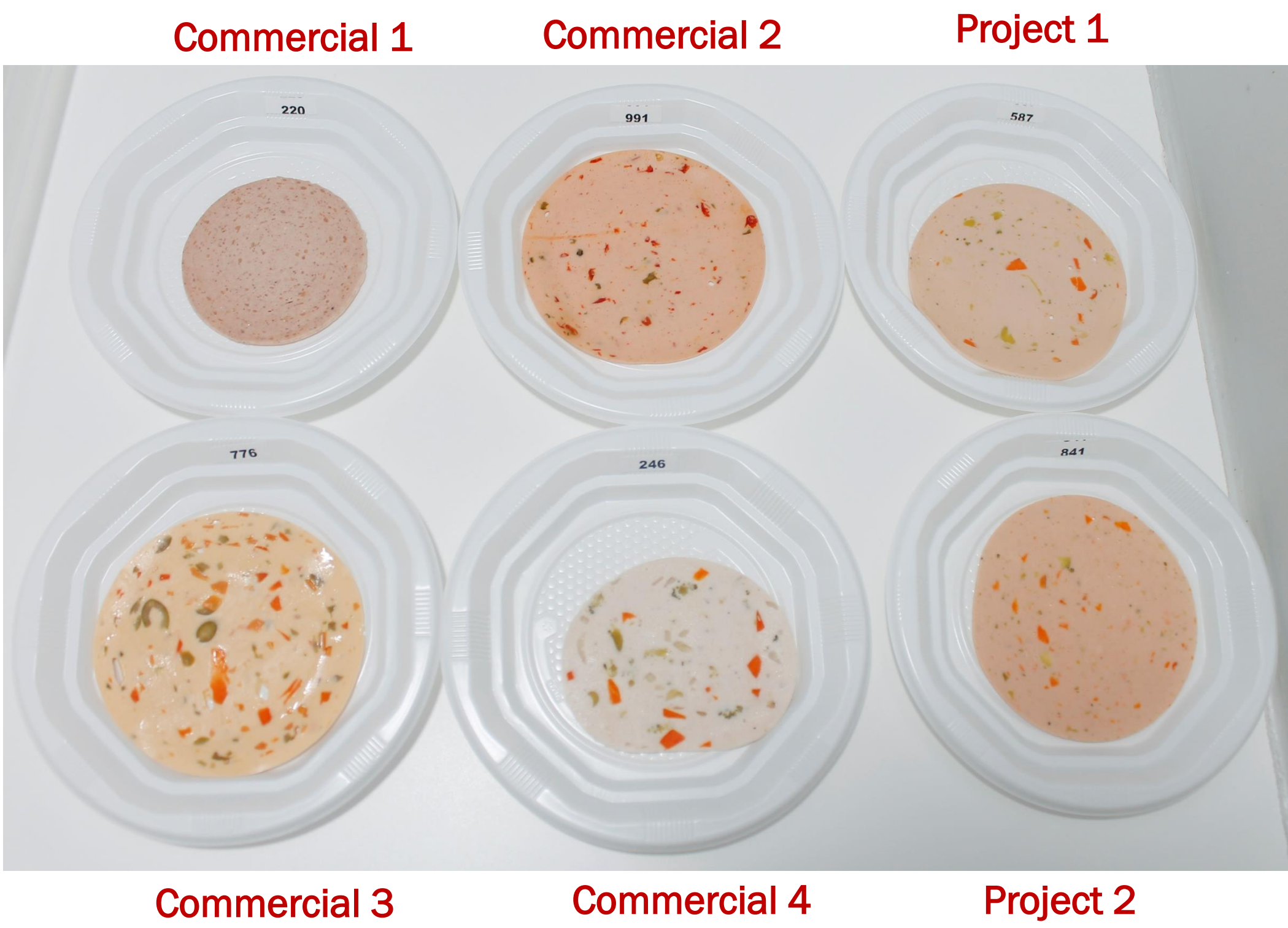


Figure 1: Plant-based slices used in this study.

SENSORY EVALUATION

A panel of 65 untrained consumers (average 38.0 years, 66% females; recruited from Sense Test's database) evaluated the 6 samples of plant-based slices in two sessions. In the first session, they monadically evaluated **overall liking on a 9-point hedonic scale.** In the second session, they performed Projective Mapping, complemented with Ultra Flash Profile on a digital system (screen with 1920×1080 pixels resolution, Figure 2)

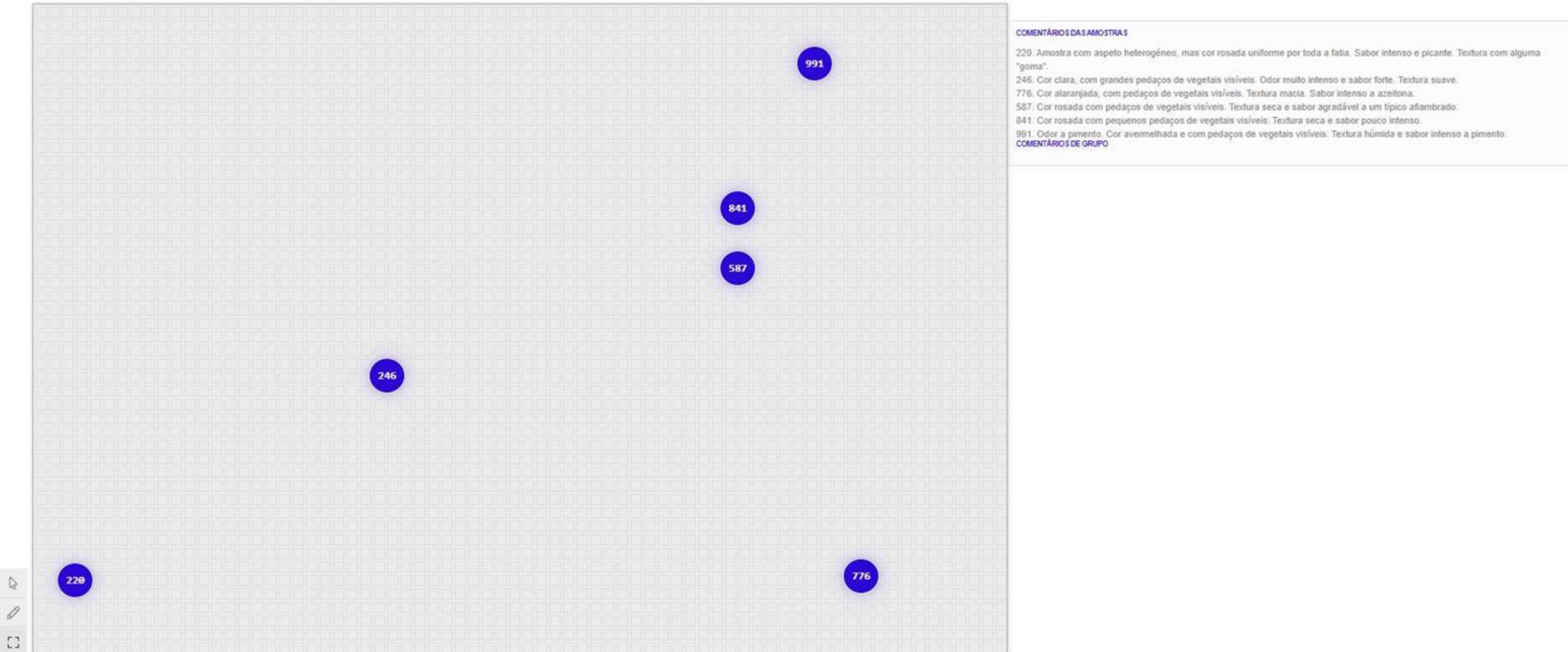


Figure 2: Example of a Projective Mapping with Ultra Flash Profile performed on Sense Test's digital system.

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RESULTS

OVERALL LIKING AND PROJECTIVE MAPPING

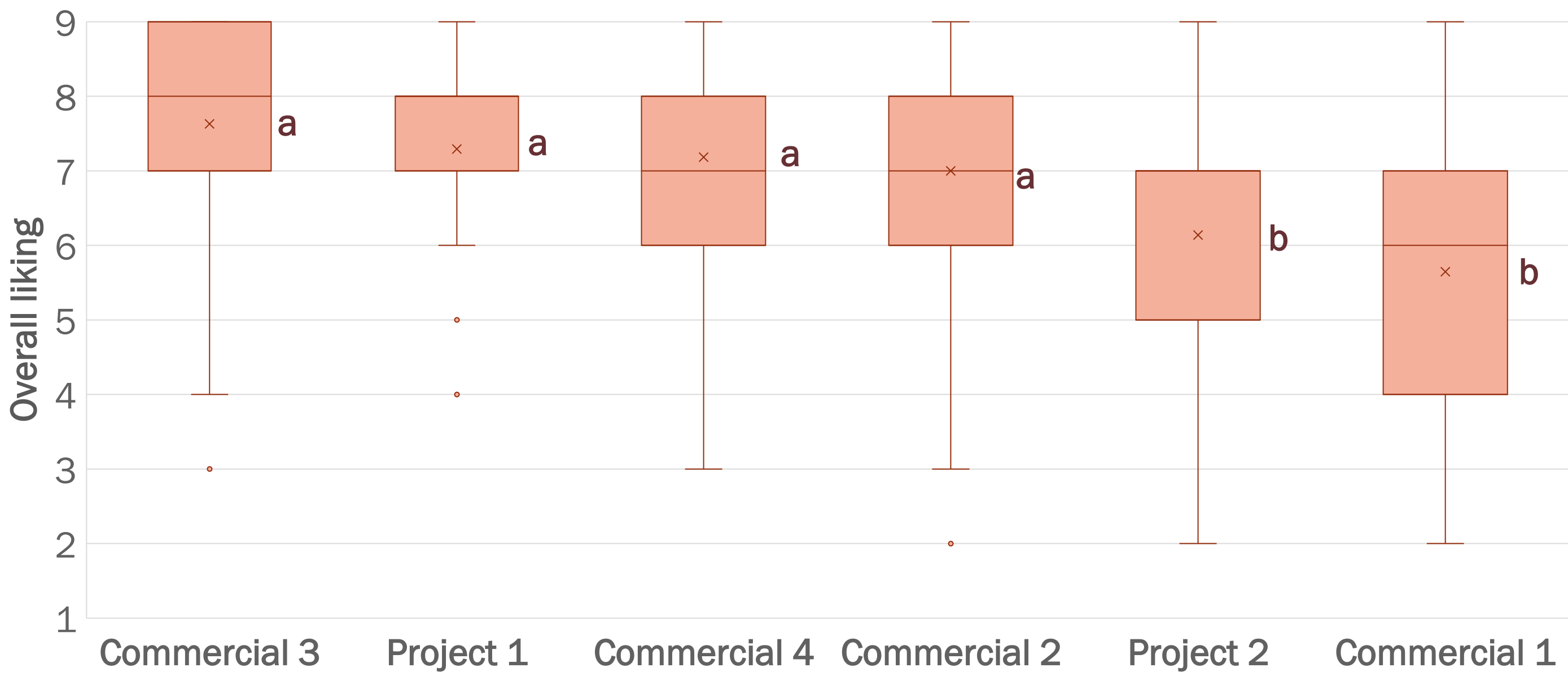


Figure 3: Overall liking distribution of the plant-based slices.

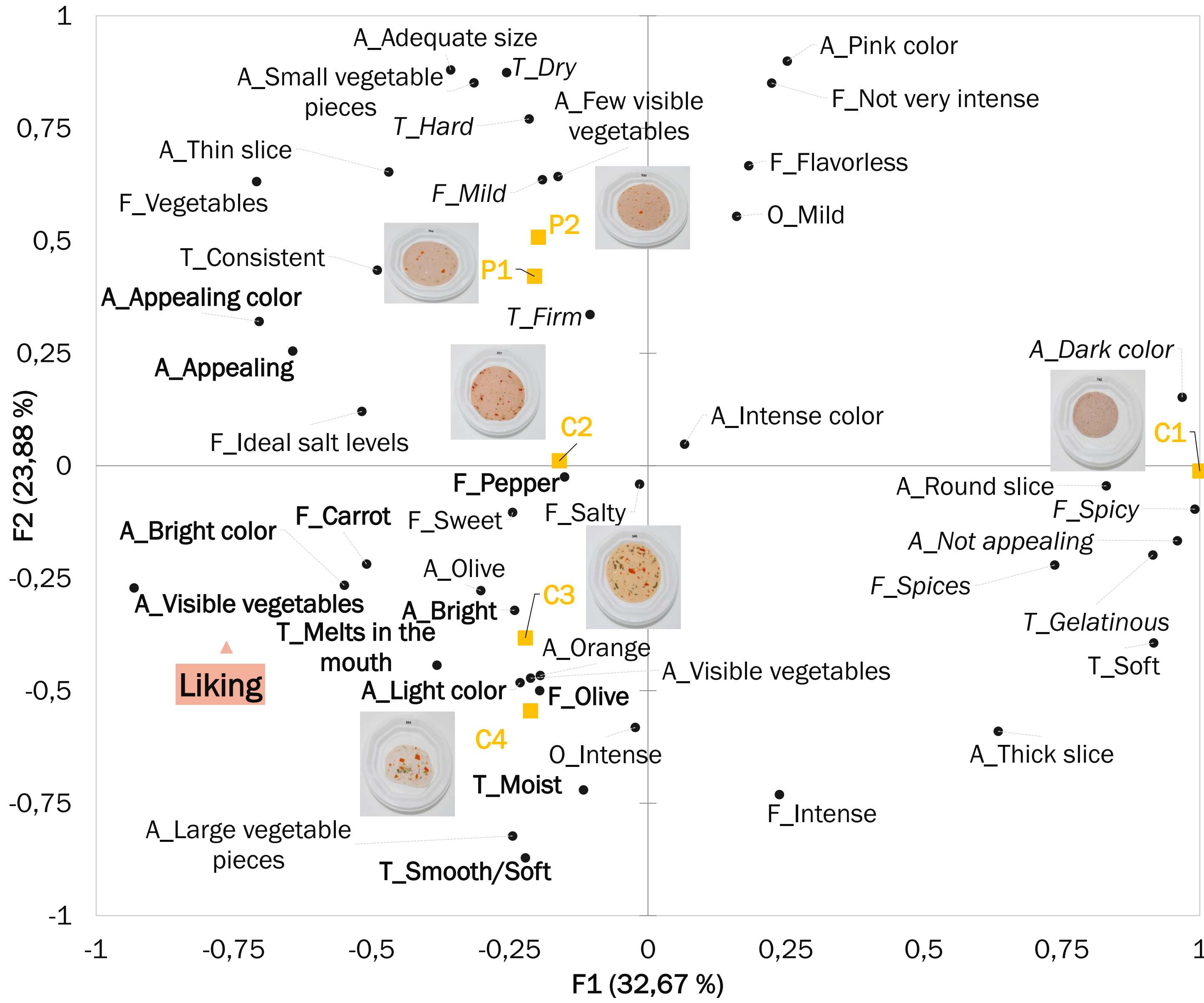


Figure 4: Multiple Factorial Analysis performed on the evaluation of the plant-based slices resulting from the Projective Mapping and Ultra Flash Profile. A – Appearance; O – Odor; T – Texture; F – Flavor. Attributes in **bold** are closely associated with samples of higher overall liking and attributes in *italic* are closely associated with samples of lower overall liking.

- The appearance was particularly important, with consumers valuing **bright colors** and the **presence of vegetables** and devaluing **dark colors**.
- Samples with higher overall liking were associated with a **moist and smooth texture**, while samples with lower liking scores were described as **dry/firm or gelatinous**.
- Regarding flavor, the most liked samples were associated with a vegetable taste (e.g., bell pepper, olive), while the least liked samples were described as having a mild taste or flavors of condiments/spices.

CONCLUSION

This study highlights that **plant-based meat analogues should not be designed to mimic the properties of the corresponding meat products.** Instead, they should emphasize their plant-based nature, highlighting the presence of vegetables through visible appearance and flavor.