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SENSORY PROFILE OF READY-TO-EAT ROASTED SUCKLING PIG

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I. INTRODUCTION

Suckling pig is known for being a traditional dish in Mediterranean countries, as Spain, Portugal or Italy, that is usually in cooked entire with a long preparation time and generally reserved for special or notable occasions [1]. The aim is to position this product in the market by bringing this type of dish closer to the consumer's everyday life. This is achieved by creating precooked dishes that, after preparation, are packaged using a series of processes that ensure the maintenance of their nutritional and sensory qualities [2]. The young age of the animal at slaughter, its maternal-milk-based diet and its preparation method may explain the characteristics of this dish. To extend the commercialisation of this product, standardisation is necessary. There is little literature about the sensory profile of this particular product, so the objective of the study is to characterize roasted suckling pig meat through sensory analysis (QDA).

II. MATERIALS AND METHODS

Samples were taken from the hindquarter of roasted suckling pig, precooked and vacuum-packed. Samples were heated in a oven (HBC33R550, Bosch, Germany, Munich) at 200ºC. The samples were cut in 2 x 2 cm cubes, including skin. The methodology for sensory analysis involved creating a sensory profile, starting with a literature review to preselect attributes that could be related to the characteristics of our sample. Subsequently, training sessions for the tasting panel were initiated to discuss the produced lexicon, their perceptions, and their contributions. Panellists rated the intensity of the attributes present in the samples using a quantitative-descriptive analysis (QDA) in an unstructured scale 10 cm.

III. RESULTS AND DISCUSSION

Table 1 presents the results from QDA of suckling picg roasted samples. The browning of the skin was rated at 9.0, the shine of the skin at 9.4, and the lean color at 6.4. These color attributes align with the expected appearance of products traditionally oven-cooked. The radiative heat induces Maillard reactions not only at the surface but also slightly beneath, enhancing the color development of the skin while maintaining a lighter tone in the lean interior due to the lower internal temperatures and reduced reaction extent [3].

The odour and flavour profile was marked by an intense meat odour, a characteristic accentuated by the absence of any added spices or condiments that could potentially mask the inherent aroma. The roasted odour also stood out. Furthermore, the product exhibited a notably high umami intensity, with a mean score of 7.0. Maillard reaction and thermally induced lipid oxidation are major pathways to generating flavour components [3].

In addition, subtle sensory notes of sweet odour (1.4), sweet taste (1.9), and dairy flavour (1.4) were identified. The presence of sweet and milky attributes is consistent with the young age of the animal and its milk-based diet. Similar sensory findings have been documented in the meat of other young animals such as calves and lambs (Rødbotten et al., [4]), reinforcing the link between maternal milk feeding and the development of specific flavour notes.

Regarding texture, the product was characterized by high juiciness (6.8), low hardness (3.6), and low chewiness (3.7). These attributes are consistent with the physiological characteristics of suckling pig meat. The low connective tissue content and immature collagen structures due to early slaughter age contribute to enhanced tenderness and juiciness compared to adult pigs. This is supported by previous findings indicating that the progressive accumulation and cross-linking of connective tissue over time negatively affect meat texture [5].

Crispiness was also a distinctive attribute of the product, typically linked to the thin skin layer of suckling pigs. However, considerable variability was observed among samples. The non-uniform nature of oven cooking occasionally led to samples with rubbery or less crispy skin, underscoring the technological challenge of achieving consistent roasting outcomes.

Table 1. Descriptive Statistics of QDA Scores for Roasted Suckling Pig Meat (Mean, Minimum, Maximum, and Standard Error).

	Atributes	Mean	Minimun	Máximun	SE
Appareance	Browning of the skin	9.0	7.3	10.0	0.077
	Shine of the skin	9.4	7.1	10.0	0.075
	Lean color	6.4	4.4	9.9	0.148
Odour	Meat odour	8.5	6.8	9.2	0.101
	Sweet odour	1.4	0.3	2.9	0.070
	Smoky odour	0.4	0.0	2.1	0.064
	Roasted odour	5.1	1.3	7.5	0.111
	Other odour	0.5	0.0	3.4	0.135
Flavour	Sweet taste	1.9	0.8	3.3	0.075
	Salty taste	3.7	2.0	5.4	0.104
	Sour taste	1.4	0.0	3.6	0.071
	Umami taste	7.0	5.4	8.5	0.079
	Dairy flavour	1.4	0.0	4.5	0.089
	Meat flavour	8.5	6.1	9.5	0.075
	Toasted flavour	5.9	4.0	8.0	0.092
Texture	Fibrousness	0.4	0.0	0.5	0.073
	Chewiness	3.7	2.0	5.7	0.111
	Juiciness	6.8	4.7	8.5	0.097
	Hardness	3.6	2.1	5.7	0.108
	Crispy skin	7.5	0.6	10.0	0.168
	Gumminess of the skin	1.7	0.0	6.0	0.123

IV. CONCLUSION

The roast suckling pig meat is characterised by a brown of the skin, shiny of the skin, light lean color, meat odour, roasted odour, umami taste, meat aroma, juiciness, and skin crispiness. It is recommended to exclude other odours and fibrousness for future studies, due to they are not relevant in this product. The use of QDA profile has proven to be a useful tool for detecting improvements in the cooking process as well as promoting the high-quality characteristics of this traditional product.

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