

SENSORY CHARACTERISATION OF IBERIAN DRY-CURED MEAT PRODUCTS: STATIC AND DYNAMIC SENSORY TECHNIQUES

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Abstract: The objective of the present study was to evaluate the flavour and texture perception by time-intensity technique (TI) and the appearance and odour by a quantitative descriptive analysis (QDA) of three different Iberian dry-cured meat products: dry-cured sausages (“salchichón”), dry-cured loins and dry-cured hams. TI parameters extracted from the TI-curves and related to temporal perception enabled the detection of clear differences in sensory temporal perception between the evaluated meat products. PCA was performed to evaluate the relationship among sensory techniques.

Keywords – dry-cured meat products, flavour, texture, time-intensity.

I. INTRODUCTION

Dry-cured meats from Iberian pigs are high quality products very appreciated by consumers [1] and of increasing interest amongst emerging markets. Sensory perception is a dynamic phenomenon that changes during the process of food consumption [2]. Dynamic sensory methods provide information about variations in perception intensity of flavour and texture attributes over time. The aim of the present study was to apply a dynamic sensory evaluation technique (TI) to evaluate the differences in the flavour and texture of three different meat products derived from Iberian pigs from a temporal perspective.

II. MATERIALS AND METHODS

Dry cured meat products were obtained from a local meat industry (n=6). Eleven panellists with previous experience in sensory evaluation participated in the study. QDA of dry-cured meat products was developed to evaluate appearance and odour attributes. After discussion the panel reached an agreement and selected for TI evaluations two flavour attributes (overall flavour and saltiness) and three texture attributes (hardness, juiciness and fibrousness). TI parameters were extracted using the FIZZ software (2.20 C version) and were I_{max} (maximum intensity), Dur_{PI} (duration of the maximum intensity), Area_{Tse} (area under the curve) and Tend (final time). A principal component analysis (PCA) was carried out with data obtained from sensory analysis, static and dynamic, and it was conducted using the software XLSTAT 2014 for Windows.

III. RESULTS AND DISCUSSION

PCA was carried using the sensory data obtained from QDA (appearance and odour attributes) and TI analysis (TI parameters of both flavour and texture attributes) of all evaluated dry-cured ham samples. The first two principal components accounted the 55% of the total variance (21.86% for the PC1 and 33.15% for the PC2). Dry-cured sausages were located in the right upper quadrant of the PCA and were associated with higher intensity perception of overall flavour (I_{max} and Dur_{PI}) and odour and higher intensity perception of juiciness (I_{max}, Area_{Tse} and Dur_{PI}). Dry-cured loins were located in the left quadrant of the PCA and were harder (I_{max}, Area and Dur_{PI}), more fibrous (I_{max}, Area_{Tse} and Tend) and presented a more intense red colour compared to the other dry-cured meat products. Finally dry-cured hams were located in the right below quadrant of the PCA and were perceived as saltier (I_{max}) and brighter.

IV. CONCLUSION

TI technique was revealed as a successful method to evaluate the dynamic flavour and texture perception of flavour in the studied dry-cured meat products. The studied products were clearly characterized by the studied sensory attributes.

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REFERENCES

- [1] Ventanas et al. (2005). Recent research in development in agricultural and food chemistry. Trivandrum, Kerala, India: Research Singpost, 27–53.
- [2] Cliff & Heymann (1993). Food Research International, 26: 375–385.