Sensorial analyse of *Longissimus thoracis et lumborum* muscle of Celta pig affected by the finishing diet

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Objectives: It is well known that food can influence the sensory quality of pork meat. Therefore, the goal of this work was to evaluate different sensory attributes of *Longissimus thoracis et lumborum* muscle obtained from Celta pigs fed chestnuts in their finishing diet, comparing them with the parameters displayed in the same muscle from Celta pigs fed commercial feed.

Materials and Methods: In this work, 18 *Longissimus thoracis et lumboru*m muscles from the right half carcass of 12-month-old Celta pigs were analysed. 9 of the muscles belonged to pigs fed chestnuts during the three months prior to slaughter, while the remaining 9 samples belonged to pigs raised with commercial feed. The loins previously extracted from the carcass (after refrigeration 24 h at 4 ± 1ºC) were vacuum packed and frozen for two weeks until analysis. To facilitate the homogeneous treatment of the samples, 2 cm thick fillets were cut of each loin, which were cooked wrapped in aluminium foil at 200 ºC in a convection oven, until reaching 70 ± 2ºC in the thermal centre. The sensory analysis tests were carried out following the UNE-EN ISO 8589:2010 standard in two different sessions, following an experimental design completed by balanced blocks. Thus, to perform the study a quantitative descriptive analysis (QDA) was conducted with a trained panel composed of 10 panellists according to the UNE-EN ISO 8586:2014 regulation. The attributes evaluated were: “red colour” and “marbling” in raw samples and “general odour”, “fat odour”, “flavour”, “tenderness”, “juiciness”, and “sweet”, “salty”, “metallic”, and “bitter” taste in cooked fillets. Members of the panel evaluated these attributes employing a structured scale, where 0 represented “absence/ lowest attribute intensity” (left side) and 10 was “highest attribute intensity” (right side). The results obtained were analysed with 2-way Mixed Model ANOVA, with feed and panellists as independent variables.

Results and Discussion: The inclusion of chestnut in the finishing diet of the Celta pig has significant influence ($P < 0.05$) on all the sensory attributes evaluated except for "fat odour" and "salty" and "bitter" taste. Regarding the visual appearance of the fresh fil- lets, the supply of chestnuts stood out for providing samples with a red colour intensity of the lean and moderate marbling, values that were significantly ($P < 0.001$) higher than those shown by commercial feed pork samples. Identically, texture attributes in cooked meat ("tenderness" and "juiciness") displayed significantly ($P < 0.01$) higher intensity in the case of chestnut fed pig samples as did "odour" ($P < 0.05$) and "flavour" ($P < 0.001$) parameters, so it is expected that the meat of pigs fed chestnuts has a better texture and a more particular odour/ flavour. Finally, it should be noted that the utilization of chestnuts increased the intensity of the "sweet" taste, which is consistent with what has been reported by other authors who have seen that certain natural foods in- crease this sensorial attribute (Cittadini et al., 2022; Pugliese et al., 2013).

Conclusions: These results indicated that, in general, the inclusion of chestnuts in the finishing diet of Celta pigs influenced the sen- sory attributes of *Longissimus thoracis et lumborum* muscle, producing meats with greater red coloration and marbling intensity (ultimately, better appearance), and with better texture and more intense aroma and flavour. Therefore, the use of chestnuts in the finishing diet could provide a better sensory quality of the Celta pig meat.

References:

Cittadini, A., Sarriés, M. V., Domínguez, R., Pateiro, M., & Lorenzo, J. M. (2022). Effect of breed and finishing diet on chemical composition and quality parameters of meat from Burguete and Jaca Navarra foals. *Animals*, 12(5), 568.

International Organization for Standardization (ISO). (2014). UNE-EN ISO 8589:2010/ A1:2014. Sensory analysis - General guid- ance for the design of test rooms.

International Organization for Standardization (ISO). (2014). UNE-EN ISO 8586:2014. Sensory analysis - General guidelines for the selection, training and monitoring of selected assessors and expert sensory assessors.

Pugliese, C., Sirtori, F., Acciaioli, A., Bozzi, R., Campodoni, G., & Franci, O. (2013). Quality of fresh and seasoned fat of Cinta Sen- ese pigs as affected by fattening with chestnut. *Meat Science*, 93(1), 92-97.

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