INFLUENCE OF INNOVATIVE SALT REPLACERS ON THE SENSORIAL PROPERTIES OF EQUINE CECINA

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I. INTRODUCTION

Equine cecina is a typical Spanish dry-cured meat product, whose manufacturing requires the use of salt, an indispensable ingredient owing to its functions at technological and sensorial levels. Nevertheless, health recommendations aimed to reduce global salt intake. In this sense, the meat industry is incited to find innovative solutions to reduce the salt amounts in their products, though without altering their quality, especially their sensorial characteristics and consumer approval. Thus, the purpose of this study is to evaluate the influence of a total or partial NaCl replacement by a commercial salt mixture, Pansalt®, or by Kombu seaweed, respectively, on the sensory properties of dry-cured foal cecina.

II. MATERIALS AND METHODS

Forty-eight knuckles from Jaca Navarra foals were randomly divided into three batches and salted in a saturated brine: control (CON) – salted with NaCl (100% NaCl); Treatment 1 (T1) - salted employing Pansalt® (Oriola Finland Oy, Espoo, Finland) (57% NaCl, 28% KCl, 12% $MgSO_4$, 2% lysine hydrochloride, 1% SiO_2, and 0.0036% KI) and Treatment 2 (T2) – salted with 50% NaCl and 50% of *Laminaria ochroleuca* (Kombu) seaweed powder (Porto Muiños, S.L., Cerceda, Spain). All pieces were salted for 0.3 days/kg at 2-5 °C with relative humidity (RH) between 85-90%. Successively, samples were submitted to the manufacturing procedures described by other authors [1] with some modifications. The cecina manufacture was repeated following the same procedures in three different months. The sensory profile and the global acceptability of the samples were evaluated according to Cittadini et al. [2]. In particular, a trained-15 members sensory panel was employed to carry out a quantitative descriptive analysis, where the following parameters were evaluated: meat color, odor, hardness, juiciness, fibrousness, chewiness, saltiness, metallic flavor, and global flavor. Whereas, the acceptance was assessed by 45 consumers. One-way ANOVA was employed for statistical analysis.

III. RESULTS AND DISCUSSION

Statistical analysis showed that there were no significant ($P > 0.05$) differences among batches in any of the attributes considered, except for saltiness, where T2 groups obtained the lowest ($P < 0.001$) scores (6.54), followed by T1 (7.72) and CON samples (8.14). The salt reformulations seemed to reduce the salt contents and it was perceived also by the trained panel, particularly in T2 samples. Actually, T1 samples presented lower saltiness values than CON ones, though not significantly. This finding could be related to the presence of lysine, a flavor enhancer, in the formula of Pansalt®, which likely helped to maintain unaltered the salty taste of the cecinas [3]. Nevertheless, although the differences observed in saltiness, the global acceptance resulted ($P > 0.05$) unaffected by the salt

reformulation, and all groups reported similar values. Moreover, the three batches recorded values higher than 4 (the acceptability limit), so it is possible to affirm that they were “accepted” by consumers.

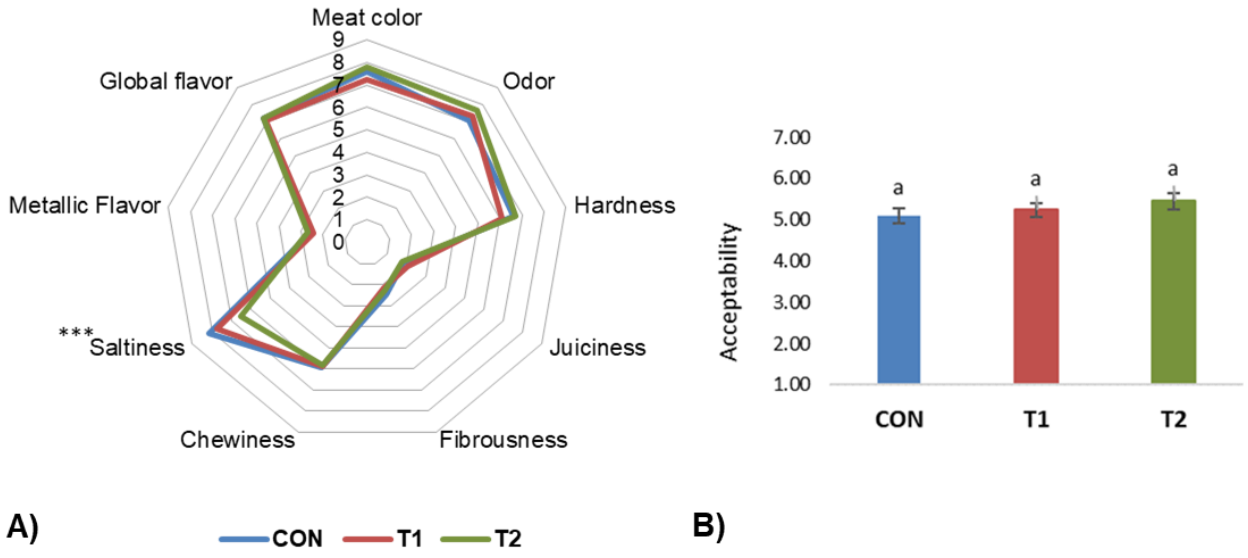

Figure 1. A) Means values of the sensory characteristics of dry-cured foal cecinas. *** ($P < 0.001$). B) Global acceptance of dry-cured cecinas. [a] Mean values with the same letter do not differ significantly ($P > 0.05$; Duncan test). Treatments: CON - 100% NaCl; T1 - 100% Pansalt®; T2 - 50% NaCl and 50% Kombu seaweed.

IV. CONCLUSION

The NaCl replacement did not influence the sensory profile and consumer acceptability of dry-cured foal cecinas, which resulted in all were positively accepted by panelists. Saltiness was the only attribute affected by T2 brine, though without any negative consequence on consumer approval. Hence, data suggested that both treatments could be successfully used for NaCl reduction from a sensorial standpoint.

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