

Can anti-listerial LAB strains, used as starter cultures, affect the sensory properties of a sausage-like smoked product?

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INTRODUCTION

Cured and smoked pork-based products have a high impact in Portuguese economy and southwest European countries. “Alheira” is a traditional fermented smoked sausage. The actual consumers interest on traditional food products as well as on natural ones, with no synthetic chemicals addition, are recognized as key market trends that play an important role in new product development (Vaz-Velho et al., 2013).

In recent years, application of lactic acid bacteria (LAB) in food preservation has gained a special focus due to the growth control of *Listeria monocytogenes* and other pathogenic microorganisms. But for its potential application it is necessary to understand the impact of LAB addition in sensory properties of these products (Jácome et al., 2013).

AIM

A consumer test in order to perceive acceptability as well as potential sensory attributes modifications was performed in 2 bacteriocinogenic LAB cultures added samples (one autochthonous *Lb. Sakei* ST153ch and other *Lb. BLC35* a mixture of *Lactobacillus curvatus*, *Staphylococcus xylosus* e *Pediococcus acidilactici*) and a control sample with no addition of LAB cultures (commercial product).

MATERIALS AND METHODS

Sample Preparation

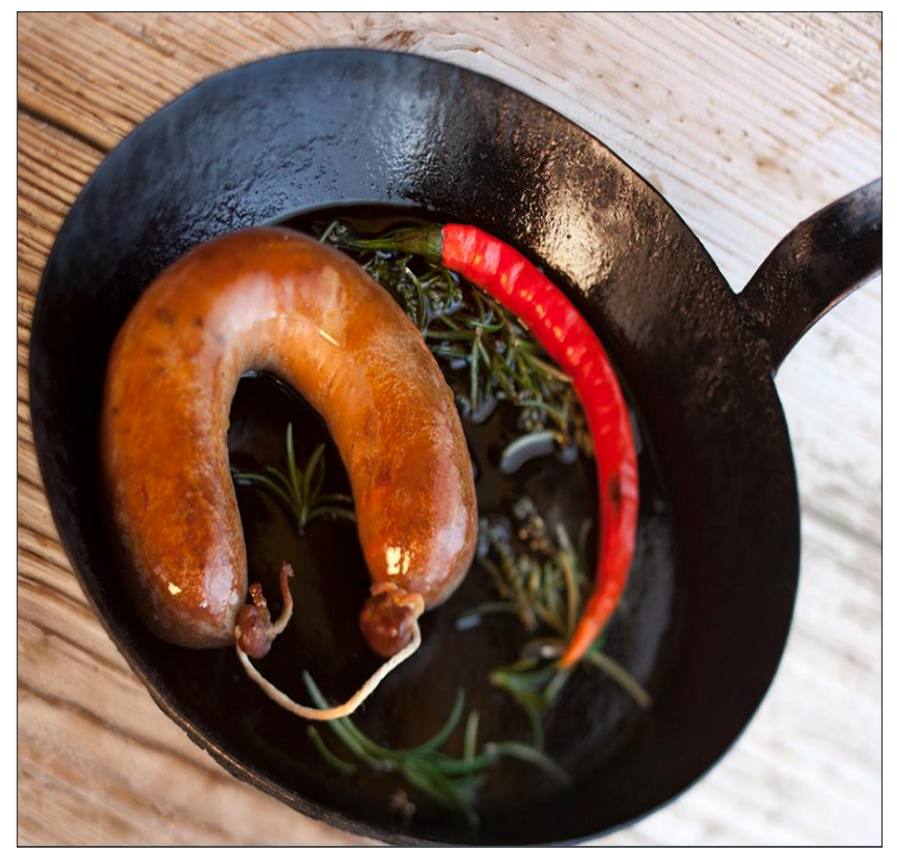
“Alheiras” from *Ponte de Lima*, Portugal north village, were produced at industrial scale. During the operation of mixing ingredients, 30 kg of product was divided in 3 samples. In each sample it was added 500 mL of ringer solution with the *Lb. Sakei* ST153ch, the *Lb. BLC35*, both with a final concentration of 10⁹ UFC/g, and other sample with no addition of LAB cultures.

Consumer Sensorial Analysis

The food matrix was a cured and smoked pork-based product, with identical formulation and productive process. A tasting sheet with five main attributes (global aspect, touch and cut texture, odour, chewing texture and flavour) in a 5-point scale (1-extreme alteration to 5-no alteration), with a limit of conformity defined. The three samples were randomly presented to a 60-element universe.

Statistical Analysis

An analysis of variance (one-way ANOVA) was carried out to assess the effects on sensory attributes, influenced by antimicrobial addition treatments on panel results, using STATISTICA 7 and Microsoft® Office Excel 2007 tools.



RESULTS AND DISCUSSION

- ✓ The universe of the study was younger with more male than female individuals (Fig. 1.) and with high education degree.
- ✓ No significant differences were observed by consumers in global aspect, touch and cut texture, odour and flavour (p>5%) for all samples;
- ✓ 88% of total universe was frequently “alheira” consumers;
- ✓ Chewing texture was the only attribute with significant differences detected (p = 1,9 %) The product with *Lb. sakei* ST153ch was better than commercial product in terms of flavour and chewing texture;
- ✓ All samples had, in average, superior valorization to conformity limit (Fig. 2.).

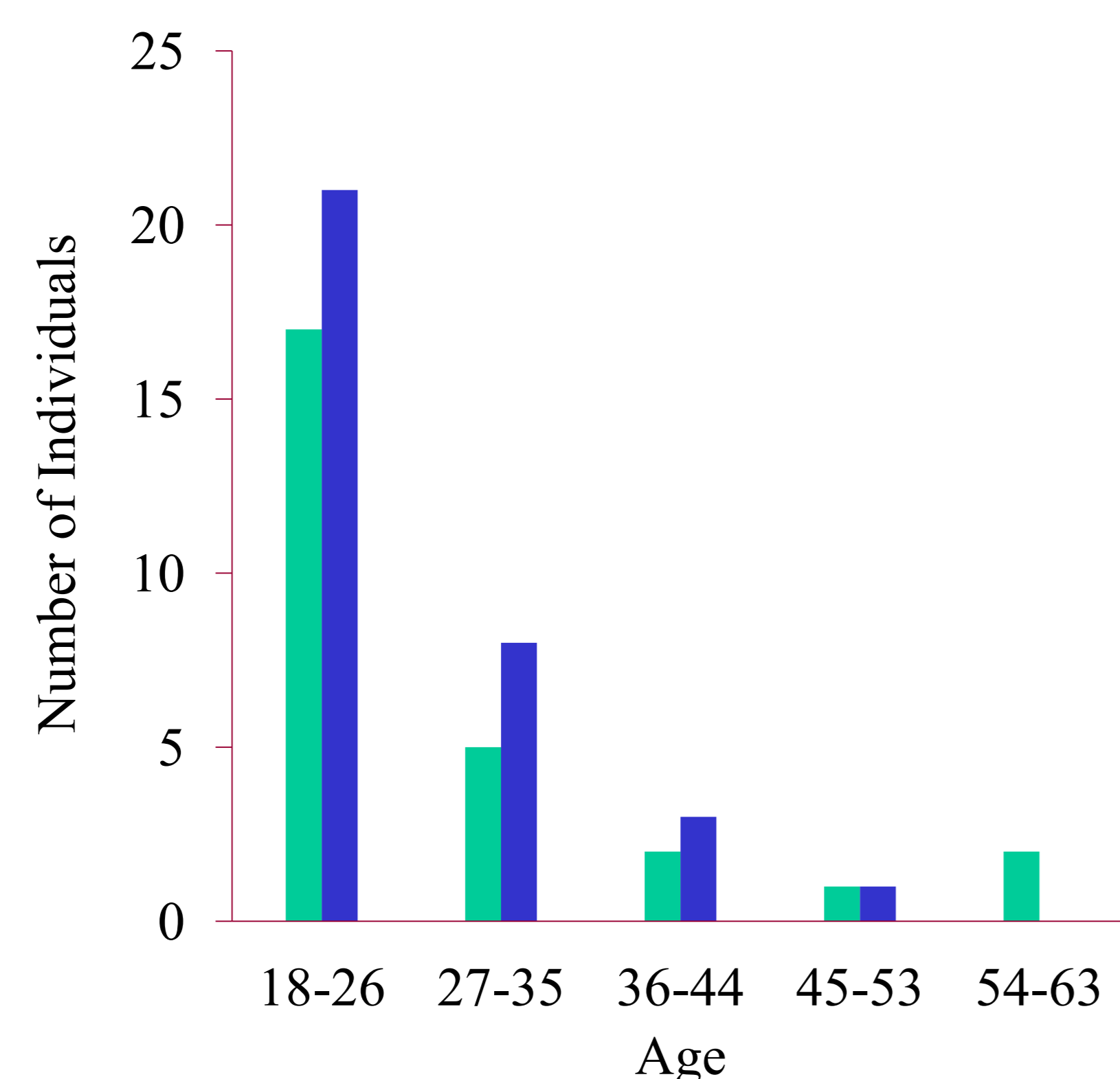


Fig. 1. The consumer universe (N) by gender and age scale

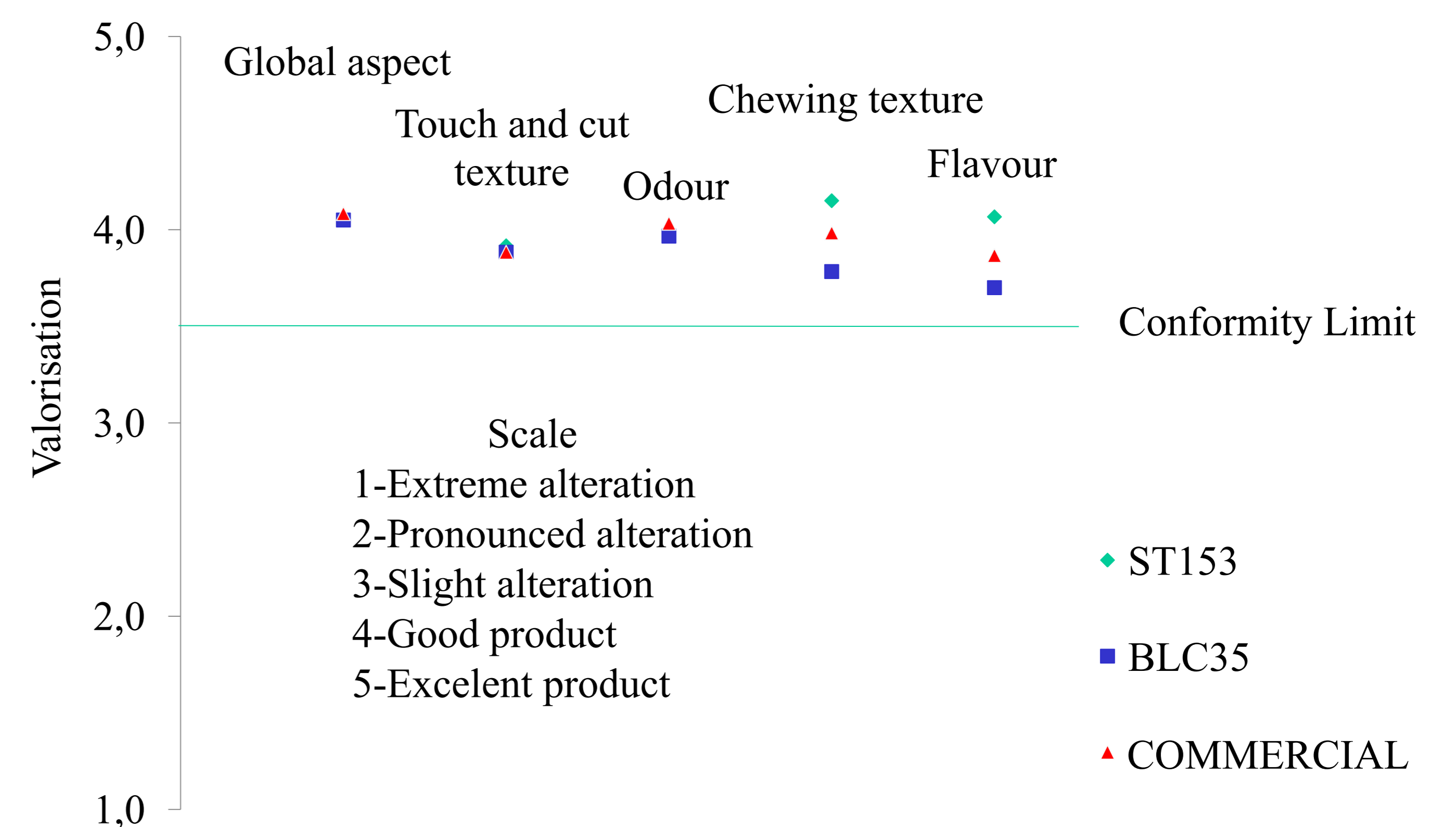


Fig. 2. The average of valorisation consumers of each attribute for the three formulations.

CONCLUSION

A statistical analysis to results allowed to detect significant differences only in the attribute chewing texture, being *Lb. Sakei* ST153ch condition the one highest classified. This study demonstrated that consumers did not detect significant differences in terms of flavour and global aspect between studied samples. Thus LAB addition in cured and smoked pork-based products may be a potential industrial alternative to synthetic preservatives because consumer’s acceptability for this type of products was not critically affected.

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