

Salt reduction has no negative effects on the sensorial acceptability of traditional dry-fermented sausages from Alentejo, Portugal

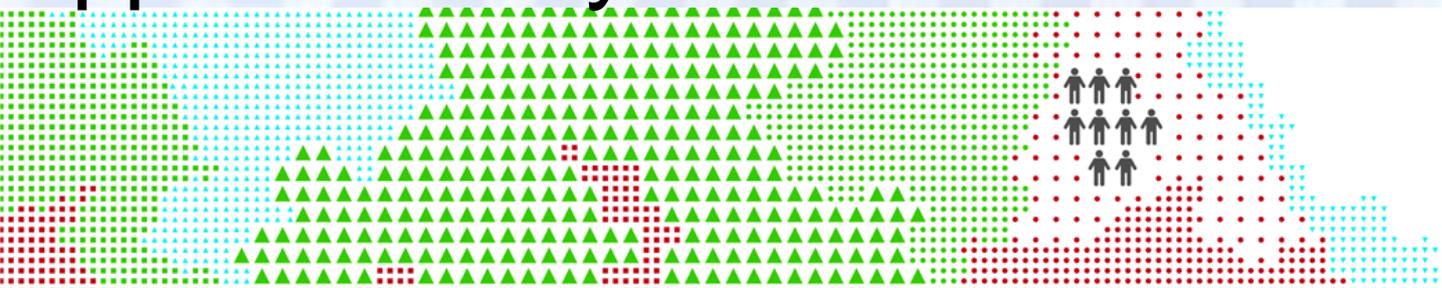
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- dry-fermented sausages important part of European meat industry, Mediterranean countries
- dry-fermented sausages 2011 production ~79 kt
- wide variety of Portuguese traditional dry-fermented sausages, small scale units
- spontaneous fermentation by native microbiota
- products of higher sensorial quality, highly appreciated by consumers



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-The growing demand for traditional food products is associated with health and nutritional concerns.



-The World Health Organisation (WHO) recommends daily values of less than 2g of sodium, corresponding to less than 5g NaCl.

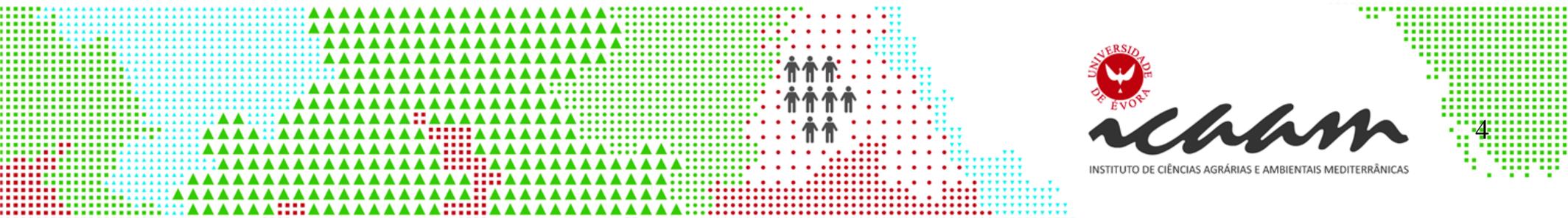


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AIM

-To evaluate the effect of genotype, salt content and calibre on the microbiological, physicochemical and textural parameters, as well as on sensory acceptability, of dry-fermented sausages.

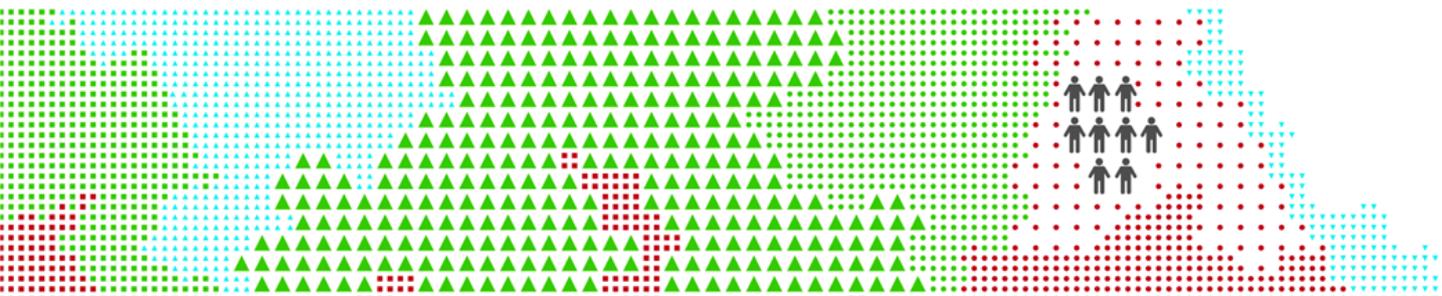


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Low-salt dry-fermented sausages:

- two pig genotypes (Alentejano/Iberian x Duroc)
- two NaCl concentrations (3%/5%)
- two casing calibres (small/large)

- 3 independent batches with replicates



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Dry-fermented sausages



“Chouriço preto”



“Paio preto”

- CP-horseshoe shape, diameter ~30 mm
- PP-cylindrical shape, length 20-30 cm, diameter 45-50 mm-natural casings-irregular calibre
- meat batter: pork meat, red pepper paste, dried blood powder and garlic paste
- ripening: 48 h smoking + 14/30 days curing

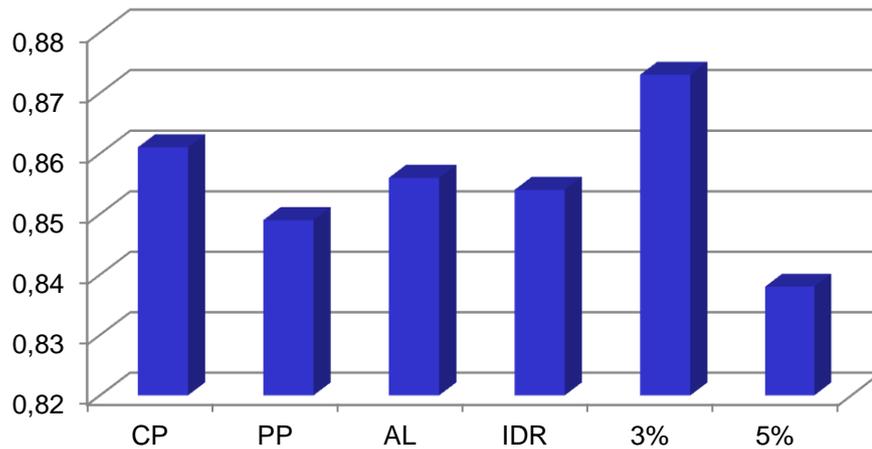


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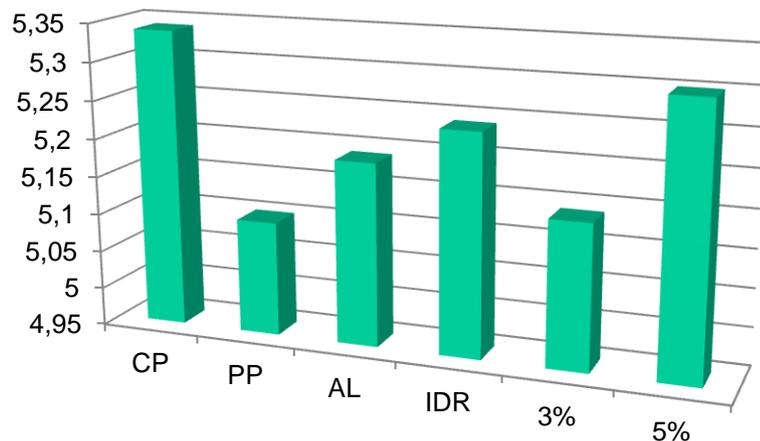
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pH & a_w

a_w

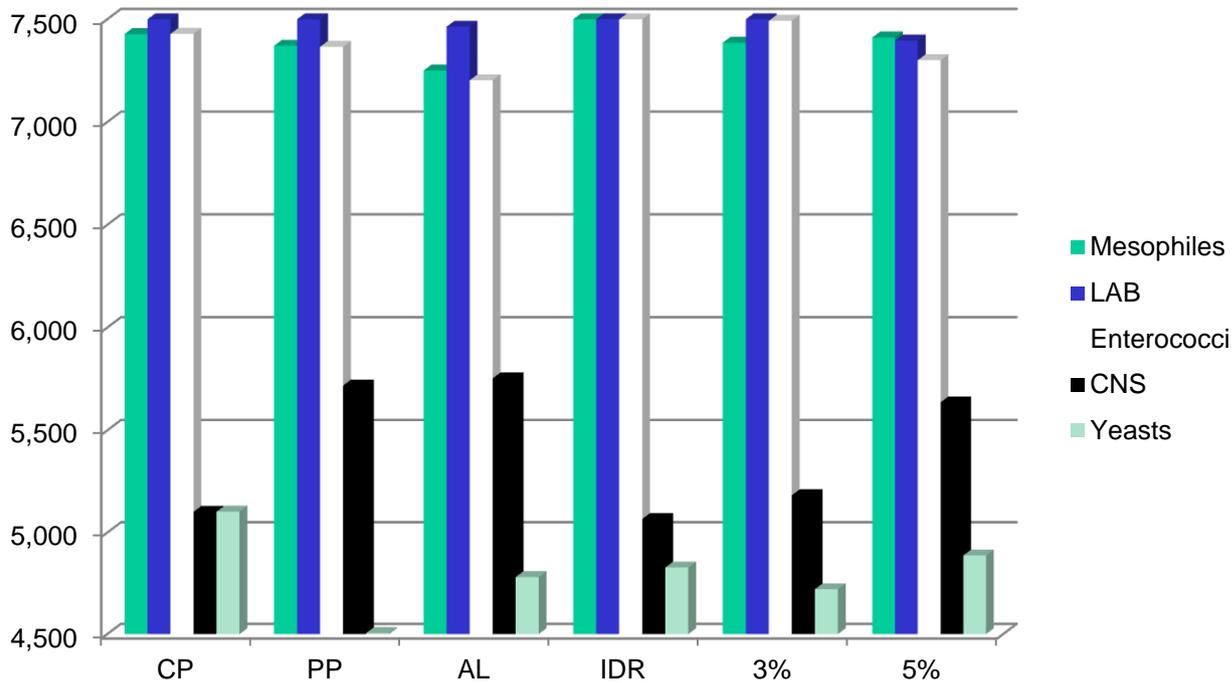


pH

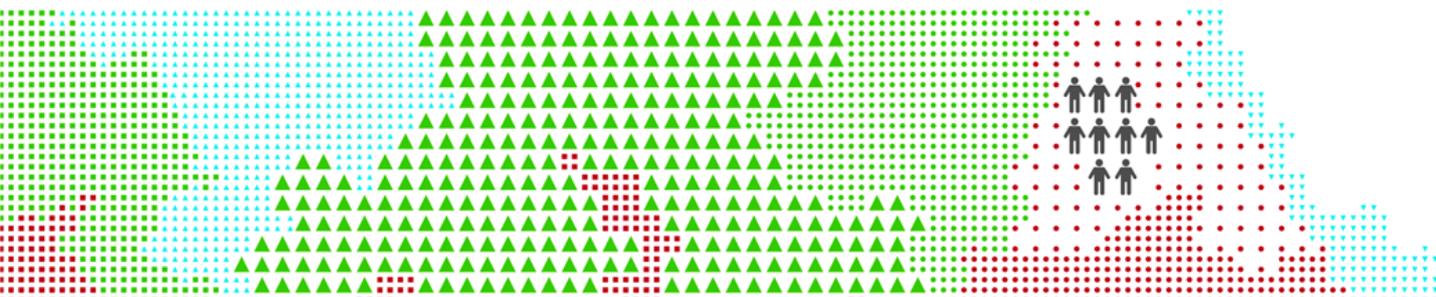


- a_w values obtained for all products are low enough (0.807-0.893) to ensure microbiological and biochemical stability.
- Concerning the two salt contents, pH increases with salt content, whereas a_w decreases ($p < 0.05$).

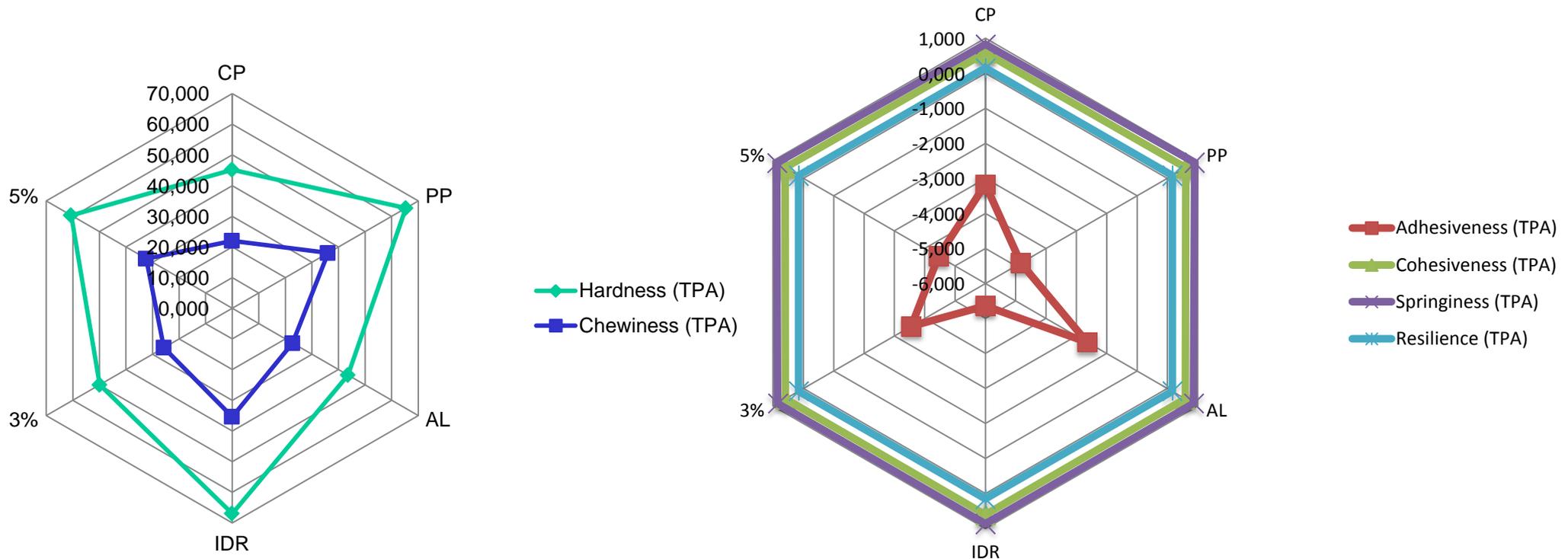
Microbiological analyses



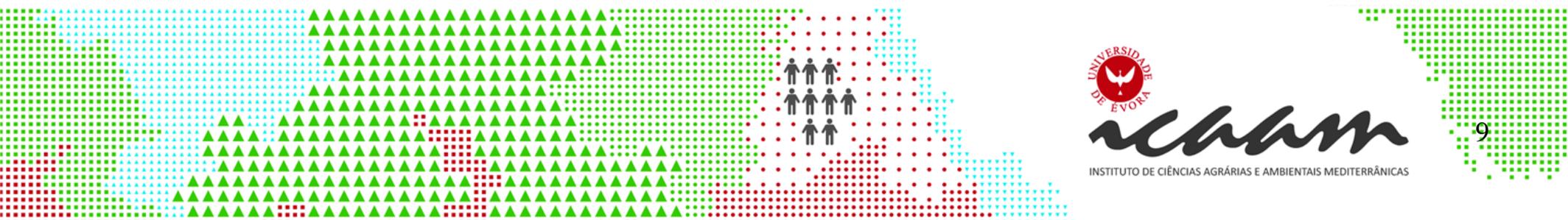
- LAB number decreases with the increase in NaCl ($p < 0.05$)
- CNS number higher in PP ($p < 0.05$)
- Yeasts count higher in CP



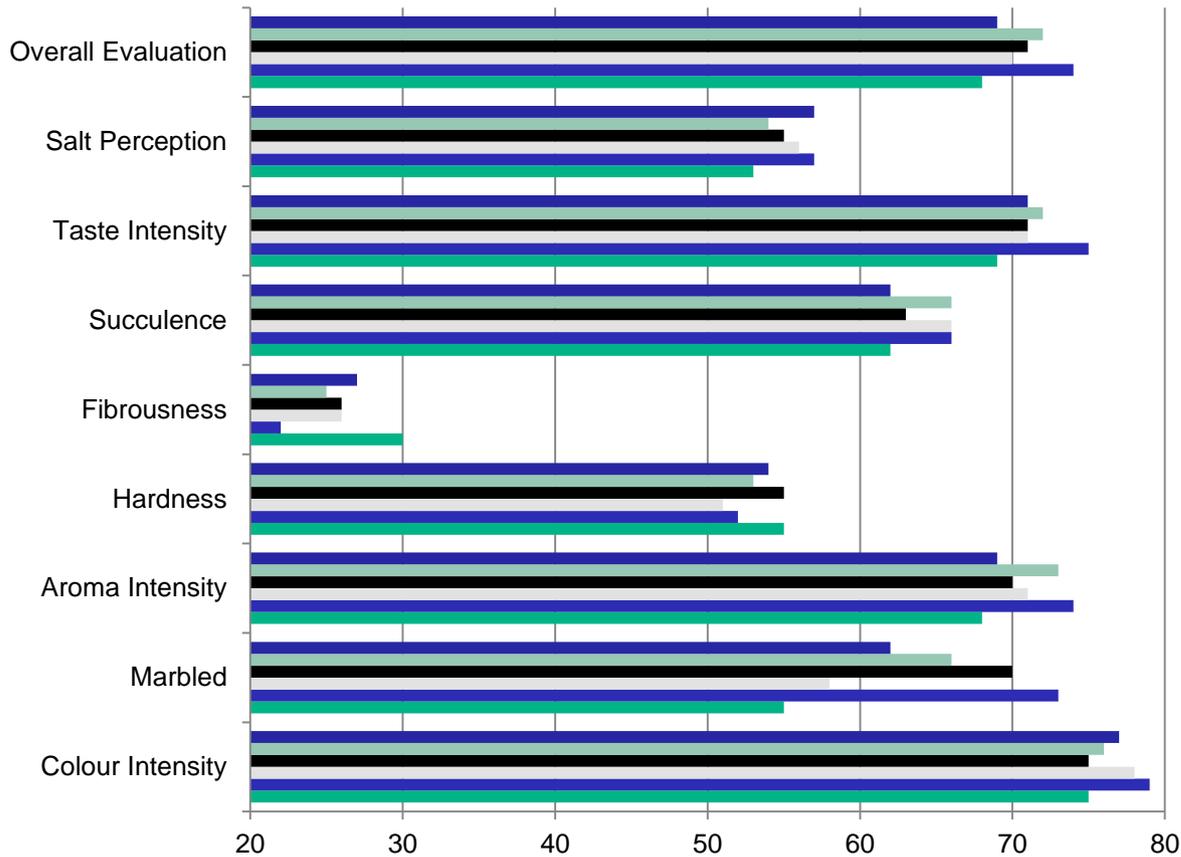
Texture Profile Analysis (TPA)



TPA revealed significant differences between the two salt contents regarding hardness and chewiness ($p < 0.05$), with the low salt content sausages being softer and easier to chew.

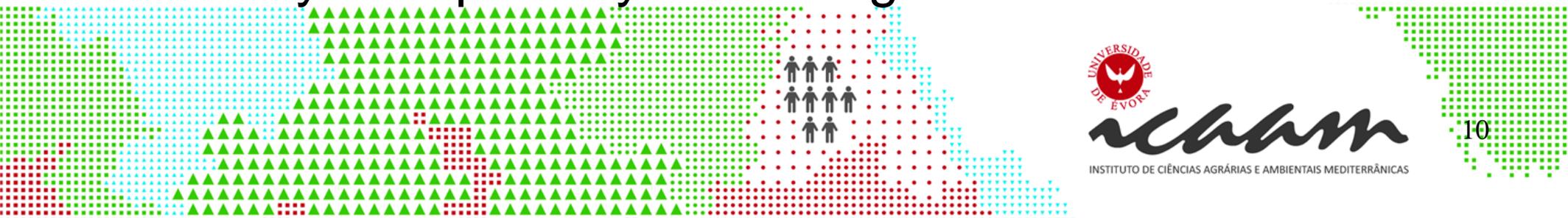


Sensorial Analysis



- The NaCl effect was sensed in the attributes aroma intensity and salt perception ($p < 0.05$). The aroma is more intense in the products with lower salt content.

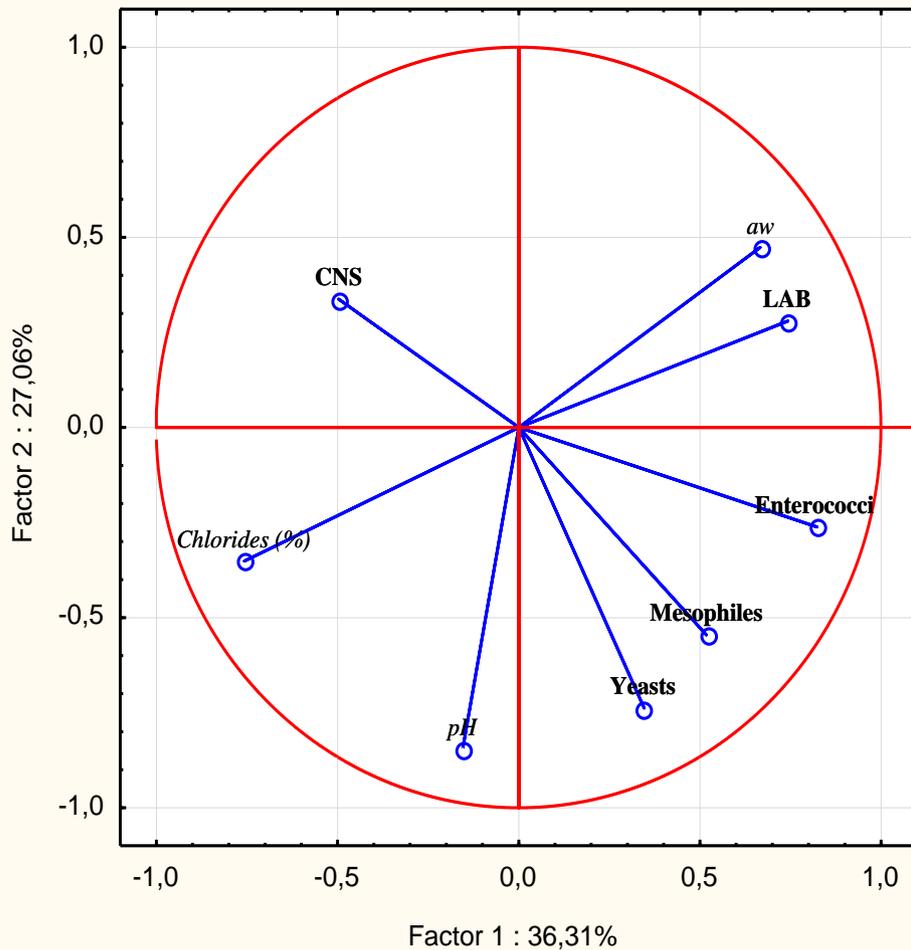
Salt content reduction does not have any negative effects on the sensory acceptability of sausages.



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PCA

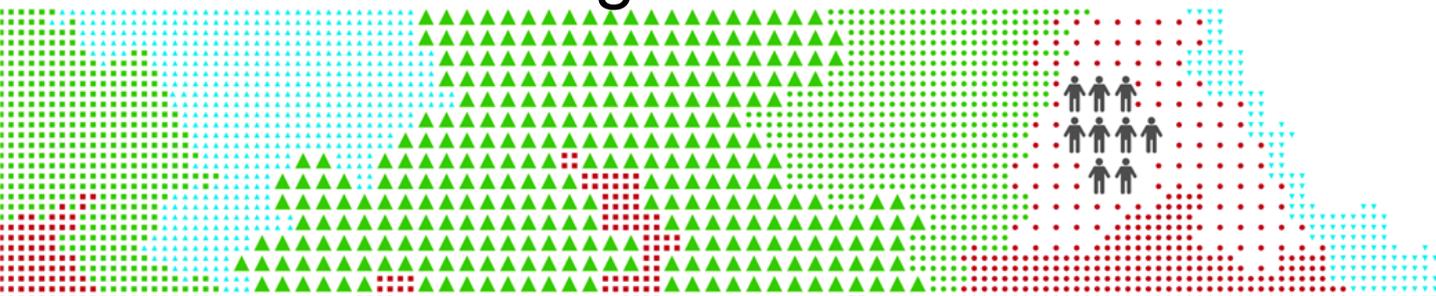
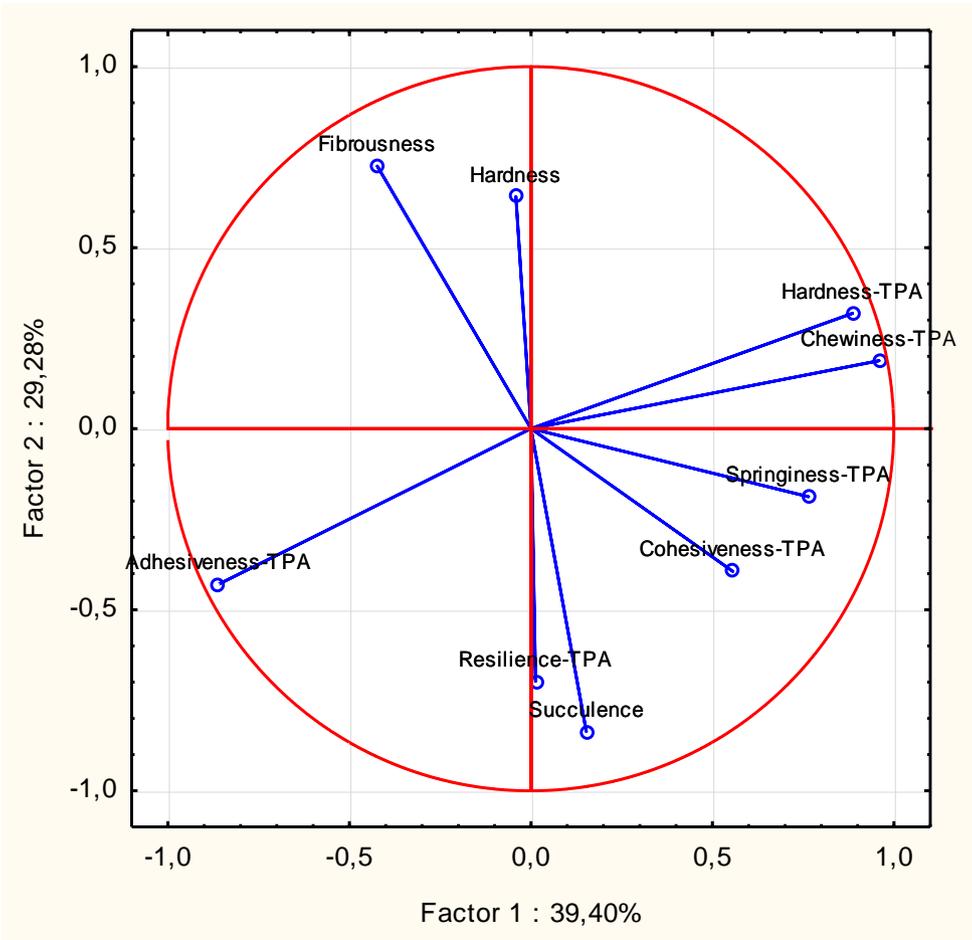
(microbiological/physicochemical parameters)



- ✓ ~63% total variance explained by 2 main factors
- ✓ PC1-association between a_w , LAB, mesophiles, enterococci and yeasts
- ✓ PC2 relates a_w to both LAB and CNS counts
- ✓ PCA revealed a very close relationship between a_w and LAB, both positioned on the same quadrant of the biplot

PCA (TPA/SA)

- ✓ ~69% variance explained by 2 main factors
- ✓ PCA revealed a very close relationship between hardness and chewiness and between hardness and fibrousness, variables located on the same quadrant of the biplot
- ✓ the panellists recognise as harder the more fibrous sausages



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CONCLUSIONS

- ❖ IDR meat does not mischaracterise a product traditionally made exclusively of AL pig meat.
- ❖ Aromas are more intensely sensed in products with lower salt content.
- ❖ Salt reduction does not negatively affect the quality and acceptability of sausages.

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- P 3 (Marta Laranjo)
- P 49 (Miguel Elias)



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- G. Pias



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THANK YOU !



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