

USE OF ALTERNATIVE CURING SALTS IN THE CURED HAM PRODUCTION PROCESS. EFFECT ON THE GENERATION OF BIOACTIVE PEPTIDES.

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INTRODUCTION

The curing process of ham not only affects its sensory characteristics but also influences the bioactive peptide profile of the final product. Bioactive peptides generated during curing have shown potential health benefits. This study explores how different types of curing salts affect the concentration and bioactivity of peptides produced in boneless dry-cured white ham, using six different salt formulations.

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METHODOLOGY

Six batches of boneless dry-cured white ham were cured with a different type of salt and nitrifying agent (NA):

-SIV1: NA n°3 (+60%) with reduced salt (RS) (Salt n°5).

-SIV2: NA n°3 (x2 dose) with RS (Salt n°5).

-SIV3: NA n°3 (x2 dose) with regular salt (Salt n°1).

-SIV4: NA n°2 (reduced nitrates) with RS (Salt n°5).

-SIV5: NA n°4 (traditional nitrification but reduced in salt) with RS of special granulometry (Salt n°4).

-SIV6: NA N°4 (traditional nitrification but reduced in salt) with regular salt (Salt n°1).

Peptide identification was carried out by tandem mass spectrometry (MS) from the non-protein nitrogen fraction. Quantification values were normalized, focusing on the total peptide spectral matches (PSM) for all peptides in the sample.

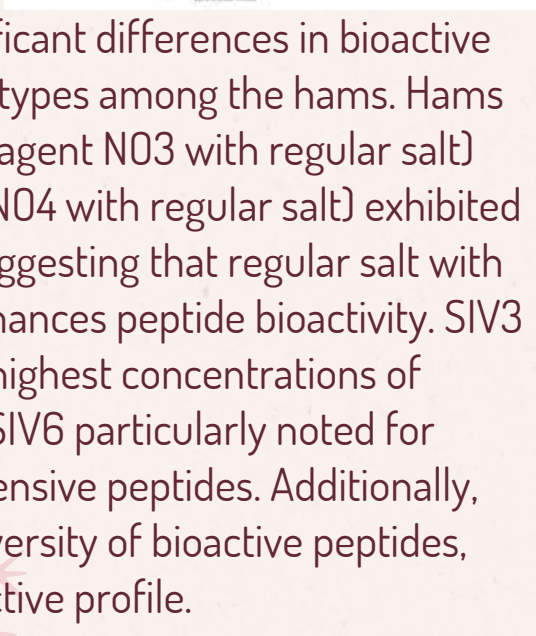
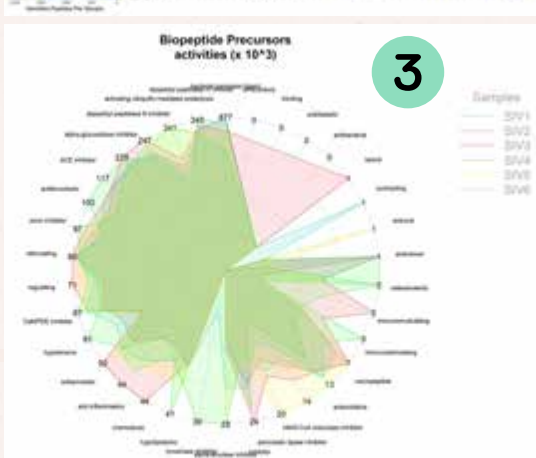
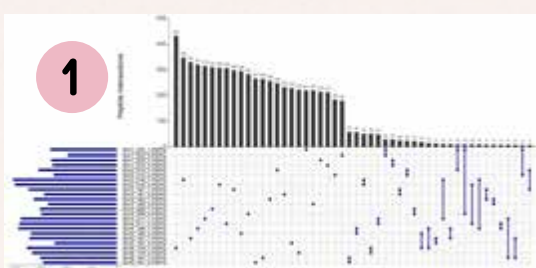
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RESULTS

*1: PEPTIDE INTERSECTIONS BY FREQUENCY AND DEGREE.

*2: ACTIVITY HEATMAP.

*3: QUANTIFICATION OF BIOPEPTIDE PRECURSORS.



The analysis revealed significant differences in bioactive peptide concentration and types among the hams. Hams cured with SIV3 (Nitrifying agent N03 with regular salt) and SIV6 (Nitrifying agent N04 with regular salt) exhibited higher bioactive activity, suggesting that regular salt with higher nitrifying agents enhances peptide bioactivity. SIV3 and SIV6 also showed the highest concentrations of bioactive precursors, with SIV6 particularly noted for antioxidant and antihypertensive peptides. Additionally, SIV6 displayed a unique diversity of bioactive peptides, indicating its superior bioactive profile.

CONCLUSION

The type of curing salt significantly influences the bioactivity of dry-cured hams. SIV6 (Nitrifying agent N04 with regular salt) optimizes bioactive peptide production, making it the most effective choice for enhancing the functional properties of cured meats. Reduced salt formulations, like SIV1 and SIV4, produce lower bioactivity levels, suggesting some trade-offs with salt reduction.

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