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Biopeptides from Milk Fermented by *Limosilactobacillus fermentum* (LBF 433): A Peptidomic Study

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Introduction

The peptidomics of biopeptides derived from food sources investigates compounds generated during food hydrolysis processes, which may exhibit potential for various biological activities beneficial to health. Hydrolysis mediated by proteases from lactic acid bacteria is one of the most popular and cost-effective methods for obtaining peptides with biological activity.

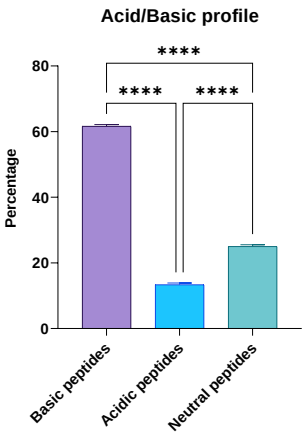
This abstract aims to report on the peptidomics of peptides derived from the fermentation of whole milk by *Lactobacillus fermentum* (LBF 433).

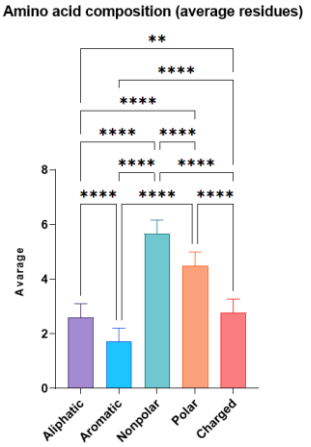
Methods

Through the fermentation of bovine milk and subsequent identification of peptides using the nanoLC-MS/MS technique, analyses were conducted to investigate the proposed objective, employing in silico prediction tools available on online platforms.

Results

Parameter	Value
Number of peptides identified	232
Average peptide length	13.56 residues
Average molecular mass	1535.42 Da
Average isoelectric point (pI)	2.95
Average net charge at pH 7.0	4.97
Average hydrophobicity	42.23%
Water solubility	56.03% of peptides soluble





Conclusion

These findings suggest that the peptides are stable in acidic environments, such as the gastrointestinal tract, due to their average molecular mass and low isoelectric point. The positive net charge at neutral pH and presence of basic amino acids suggest antimicrobial potential. Hydrophobic residues favor interactions with membranes, implying immunomodulatory and anti-inflammatory effects, making these peptides suitable for nutraceutical and pharmaceutical applications.

References

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Acknowledgments

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