

Opportunities of non-conventional plant extracts in functional and technological food applications

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INTRODUCTION

The food industry is increasingly seeking natural, sustainable solutions to replace synthetic additives and extend the shelf life of perishable products. Plant extracts, rich in bioactive compounds, show great potential as natural preservatives due to their antioxidant, antimicrobial and sensory-enhancing properties. This study explores the application of rosemary and oregano extracts, and onion peel extract in shrimp products (fresh shrimp on ice, marinated shrimp and shrimp pâté) to improve quality and prolong shelf life under refrigerated storage.

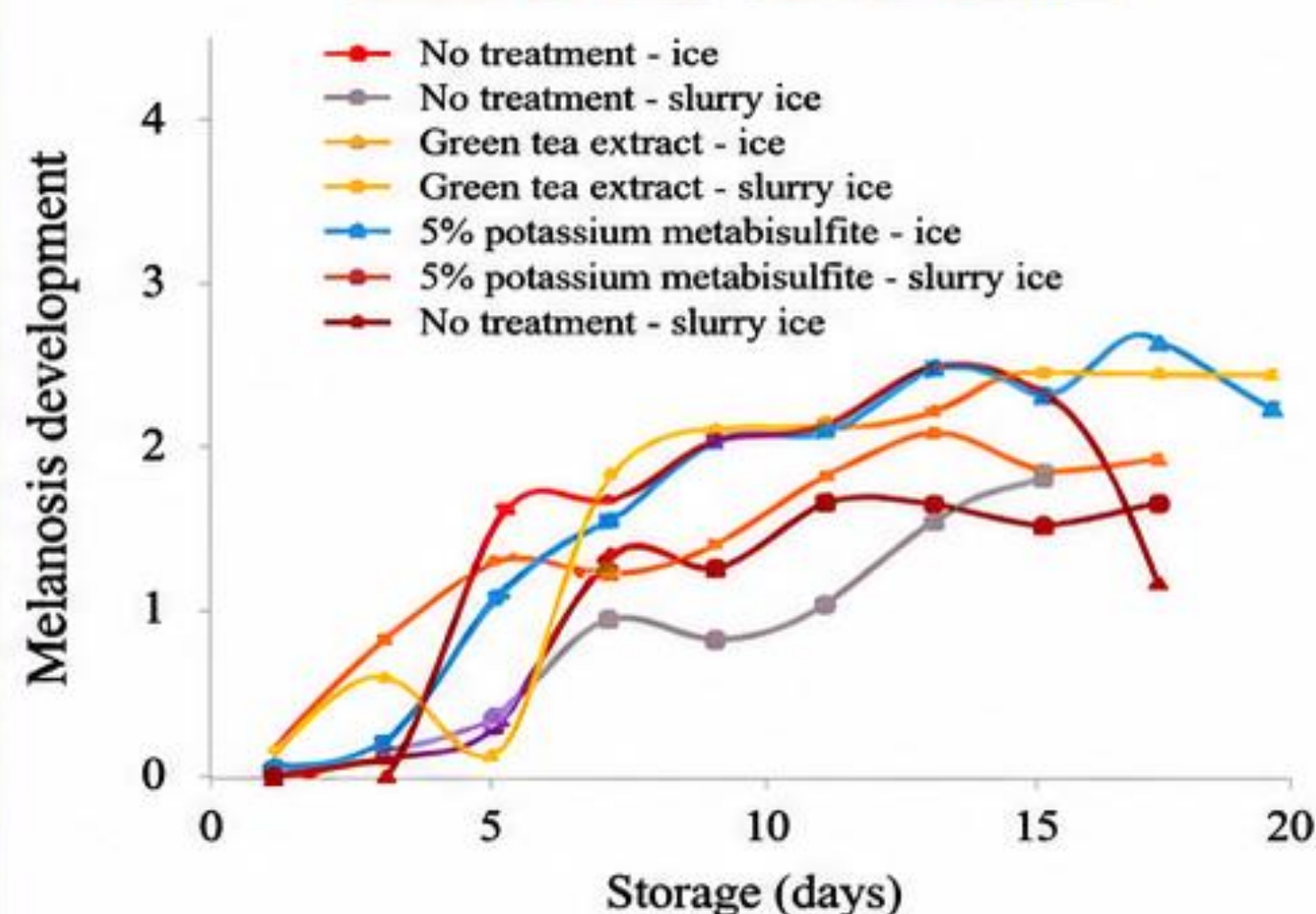
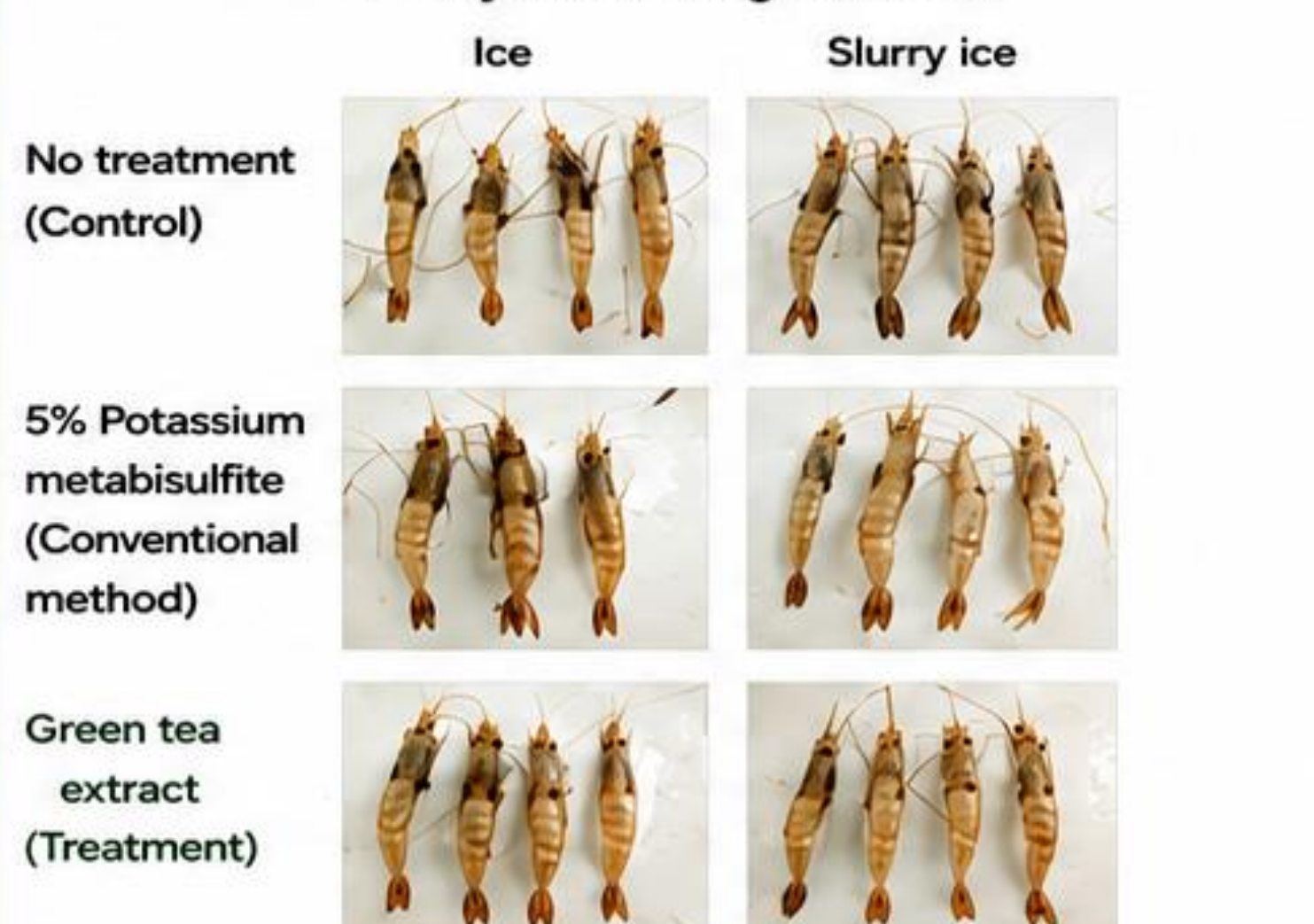
MATERIALS & METHODS



RESULTS

1. CONTROL OF MELANOSIS (FRESH SHRIMP)

11 days of storage at 2 °C

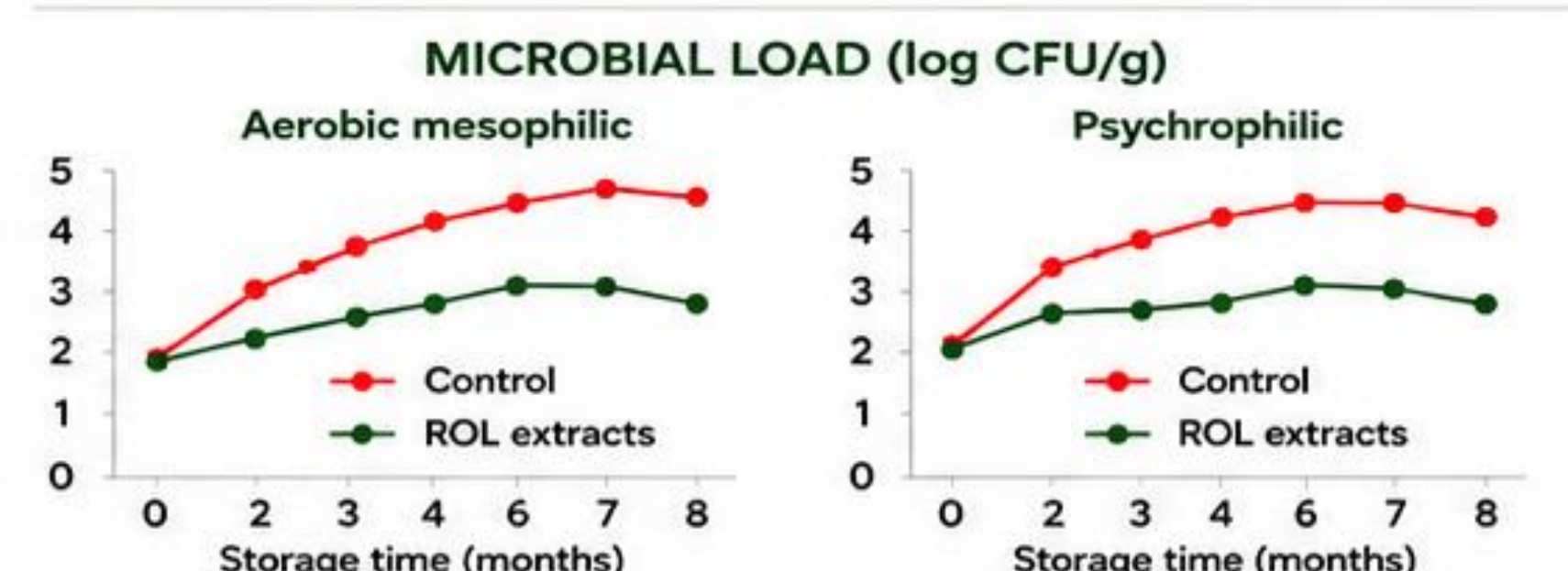
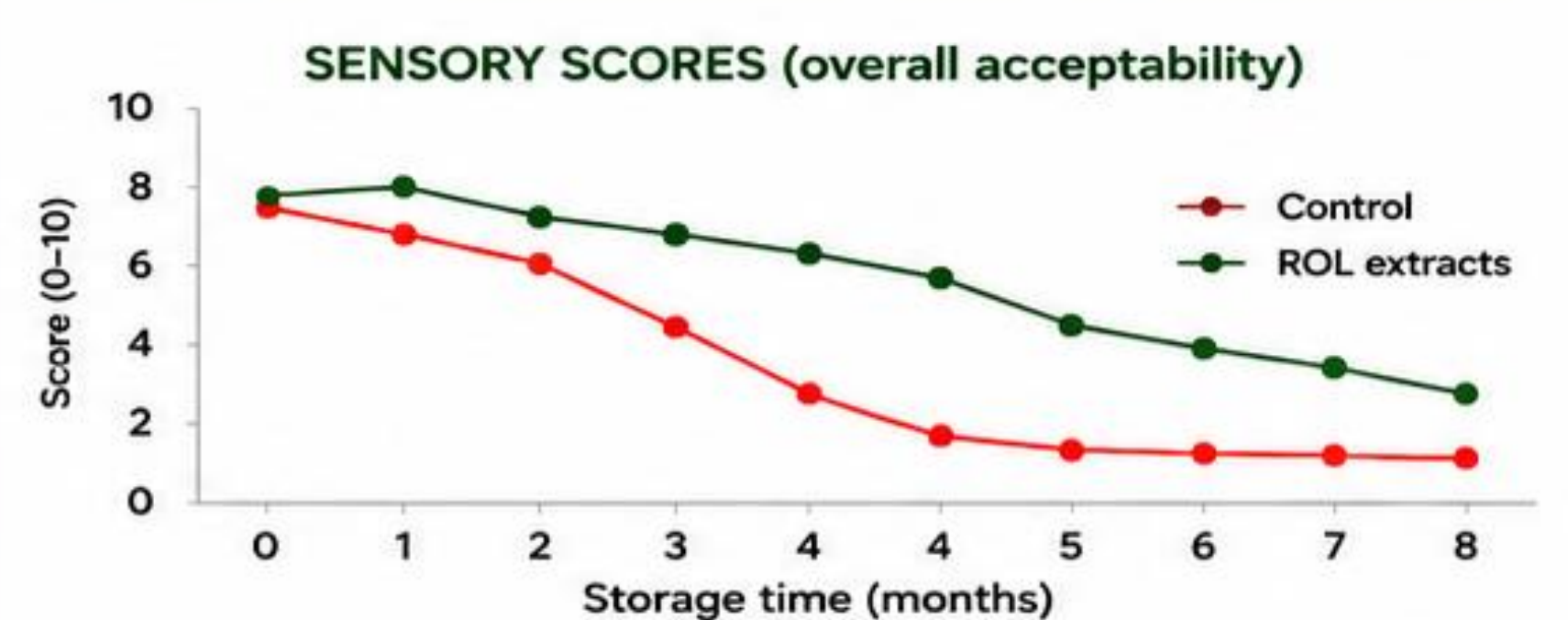
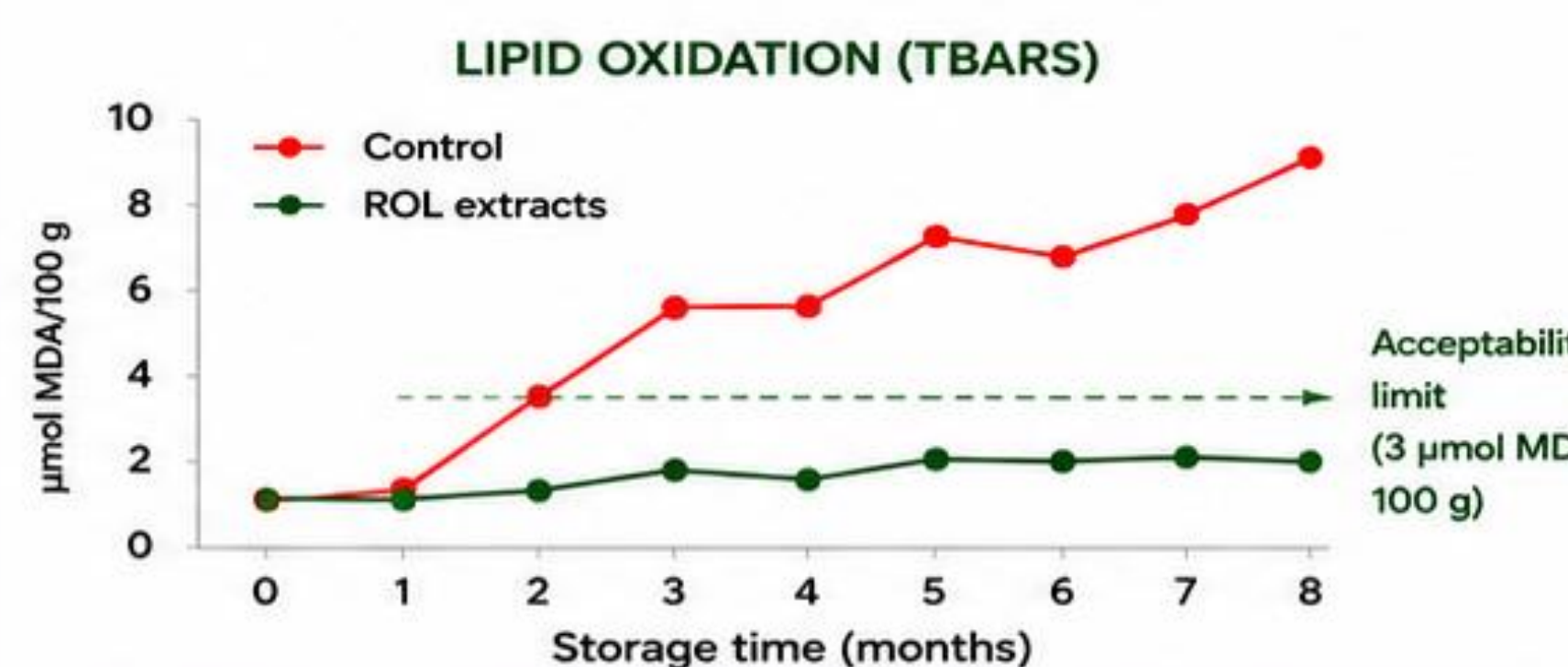


Green tea extract in ice and slurry ice significantly delayed melanosis compared to untreated shrimp and conventional method.

2. MARINATED SHRIMP (ROSEMARY & OREGANO EXTRACTS – ROL)

Shelf-life study under refrigerated storage (4–8 °C)

Treatment with ROL extract mixture extended shelf life and improved quality compared to control.

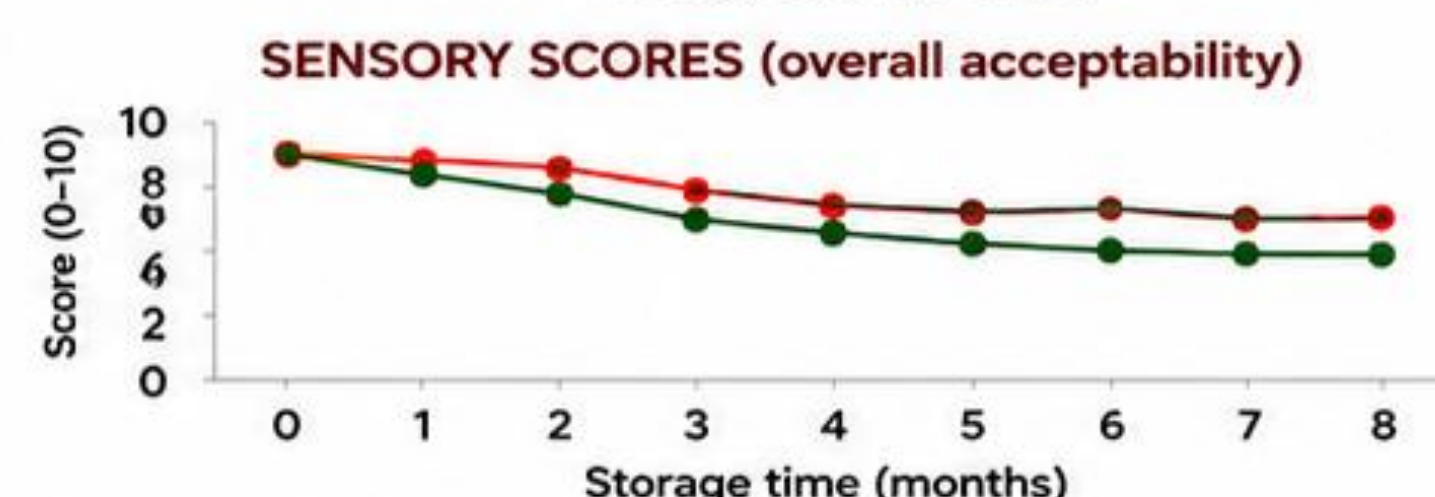
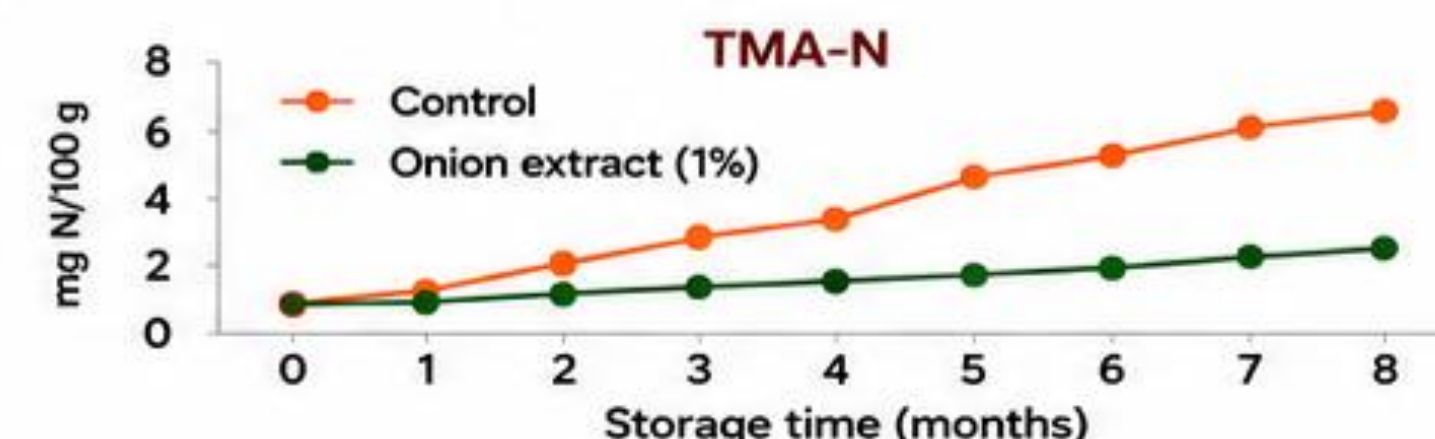
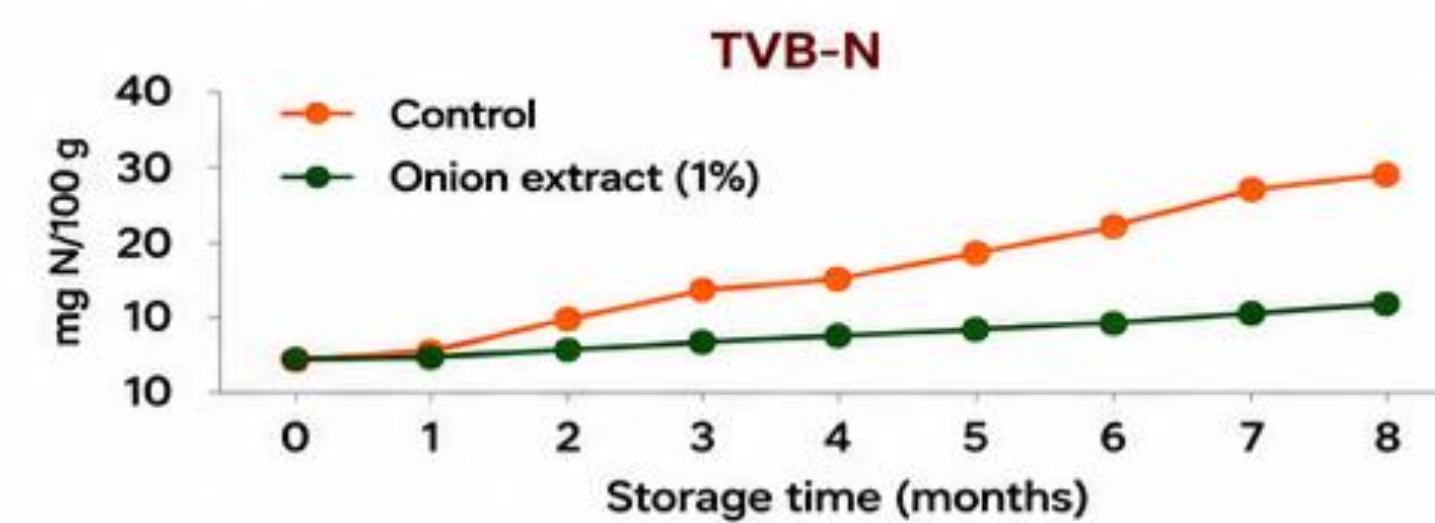
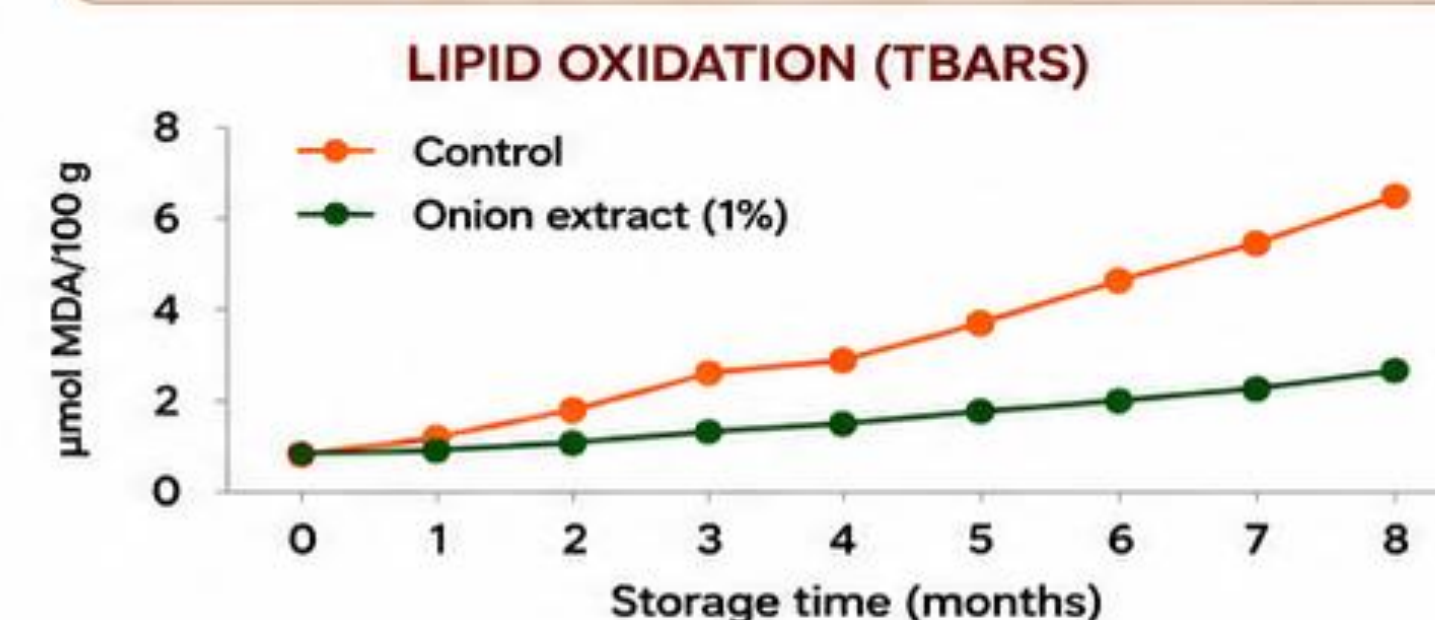


ROL mixture inhibited lipid oxidation, slowed sensory deterioration and reduced microbial growth, extending shelf life by ~46%. (Šimat, V. et al. Foods 2023, 12, 1836)

3. SHRIMP PÂTÉ (ONION PEEL EXTRACT)

Shelf-life study under refrigerated storage (4–8 °C)

Addition of onion peel extract (1% w/w) improved chemical stability while maintaining acceptable sensory quality. No significant effect on total microbial load was observed.



CONCLUSION

- ✓ Natural extracts improved shrimp quality and shelf life.
- ✓ Green tea delayed melanosis formation.
- ✓ Plant extracts reduced oxidation and extended shelf life by 46%.
- ✓ Natural additives are safe, sustainable alternatives.



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