

The Effect of a natural ingredient from plum by-products for the preservation of pork burgers

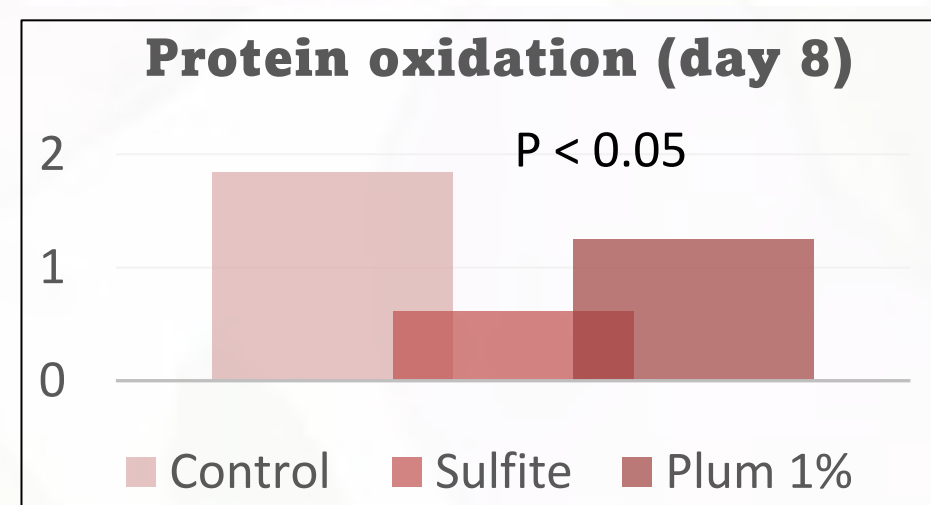
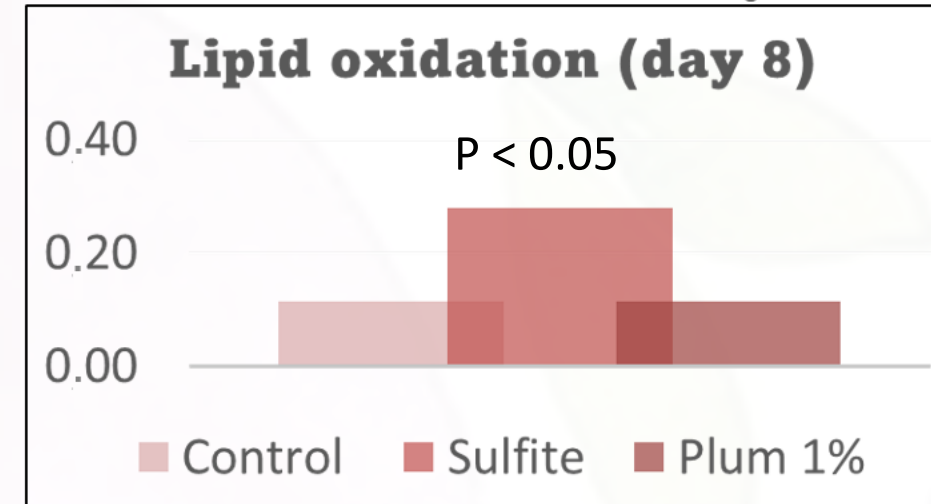
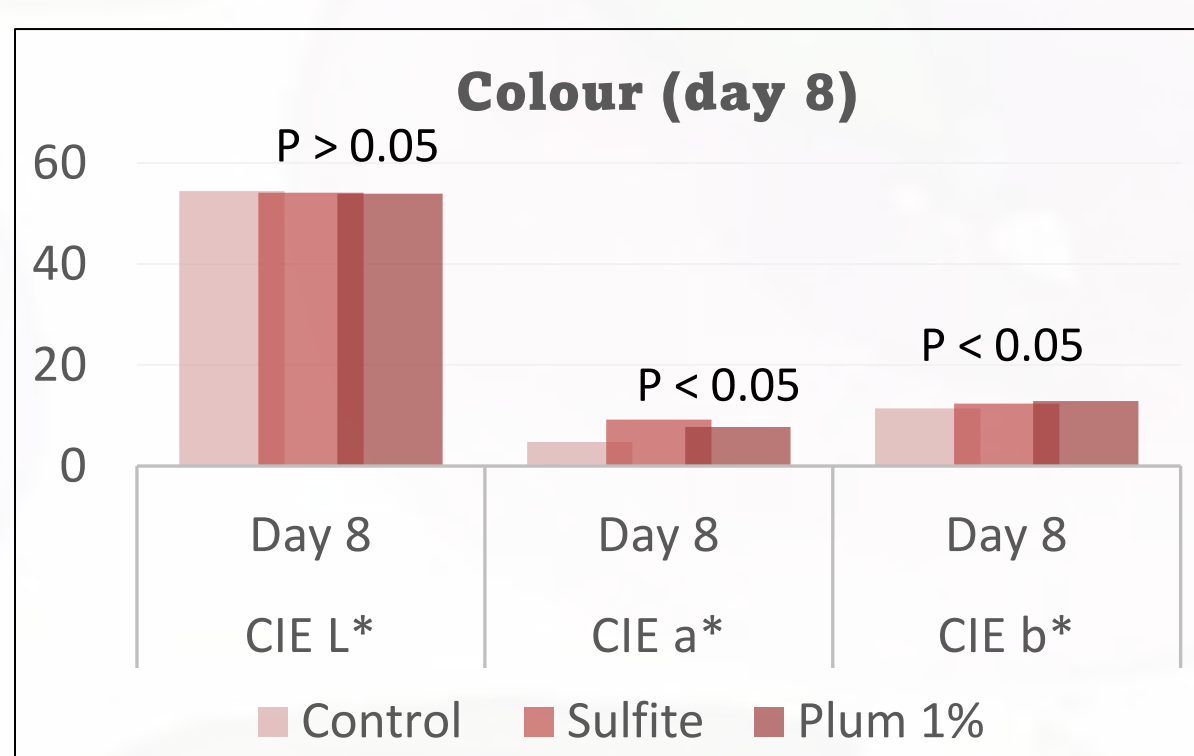
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INTRODUCTION

Plum by-product (var. *Crimson Globe*) contains healthy bioactive compounds such as fiber and phenolic compounds with antioxidant and antimicrobial activity. Consumer concern about chemical additives in meat foods has been increasing. Natural ingredients are a good alternative to replace chemical additives and preserve meat products.

The valorization process using high hydrostatic pressure (HHP) preserves food products by reducing microbiological counts while maintaining levels of bioactive compounds. The aim was to evaluate the effect of an ingredient from plum by-products for the preservation of pork burgers. And the acceptance of the natural ingredient by consumers at the sensory level.

Formulation						
	Control	Sulfite	Plum 1%	P-value		
CIE L*						
1d	52.58 ± 0.99	53.83 ± 1.45	52.74 ± 0.88	0.205		
8d	54.43 ± 0.41	54.10 ± 0.76	53.90 ± 0.72	0.448		
P-value	0.005	0.730	0.054			
CIE a*						
1d	8.20 ^b ± 0.69	9.35 ^a ± 0.55	8.82 ^{ab} ± 0.49	0.028		
8d	4.74 ^c ± 0.38	9.20 ^a ± 1.18	7.75 ^b ± 0.51	0.000		
P-value	0.000	0.800	0.010			
CIE b*						
1d	10.95 ± 0.52	11.62 ± 0.64	11.81 ± 0.42	0.063		
8d	11.41 ^b ± 0.64	12.33 ^{ab} ± 0.41	12.88 ^a ± 0.72	0.007		
P-value	0.252	0.069	0.021			
Lipid oxidation						
1d	0.10 ± 0.03	0.14 ± 0.05	0.09 ± 0.01	0.103		
8d	0.11 ^b ± 0.04	0.28 ^a ± 0.07	0.11 ^b ± 0.05	0.000		
P-value	0.423	0.005	0.427			
Protein oxidation						
1d	1.57 ^b ± 0.21	2.38 ^a ± 0.73	3.08 ^a ± 0.74	0.003		
8d	1.84 ^a ± 0.21	0.61 ^c ± 0.24	1.50 ^b ± 0.32	0.000		
P-value	0.076	0.001	0.001			



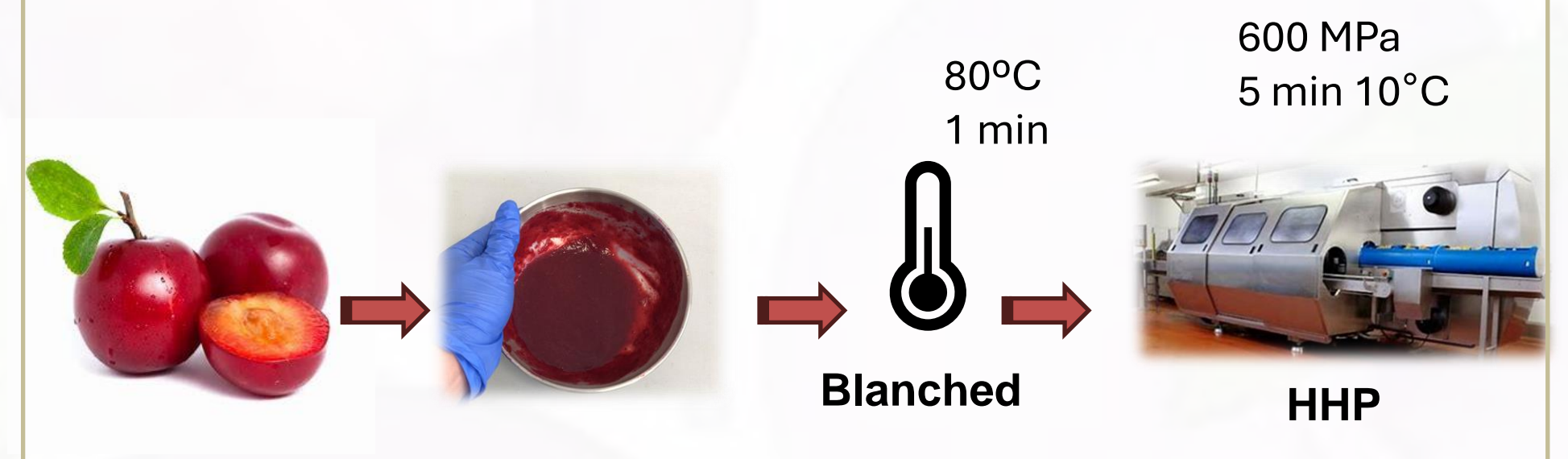
After 8 days of refrigerated storage, burgers with natural plum ingredient showed higher red and yellow color (CIE a* and b*) and lower protein oxidation compared to control burgers. The development of lipid oxidation was also lower in burgers with plum than in burgers with sulfites.

CONCLUSION

The natural ingredient from plum by-product is a good alternative for preserving pork burgers. Healthier burger would be obtained by replacing sulfites with the developed ingredient.

MATERIAL AND METHOD

Bioactive ingredient



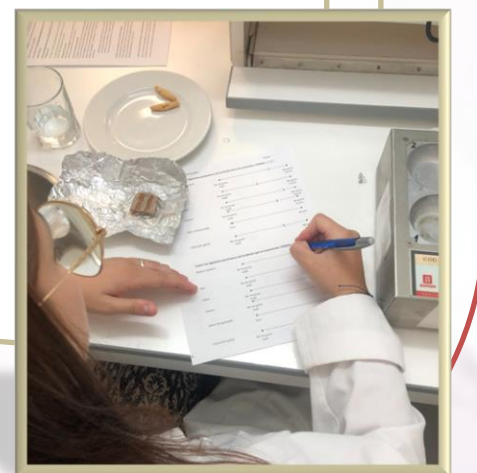
Pork Burger with bioactive ingredient



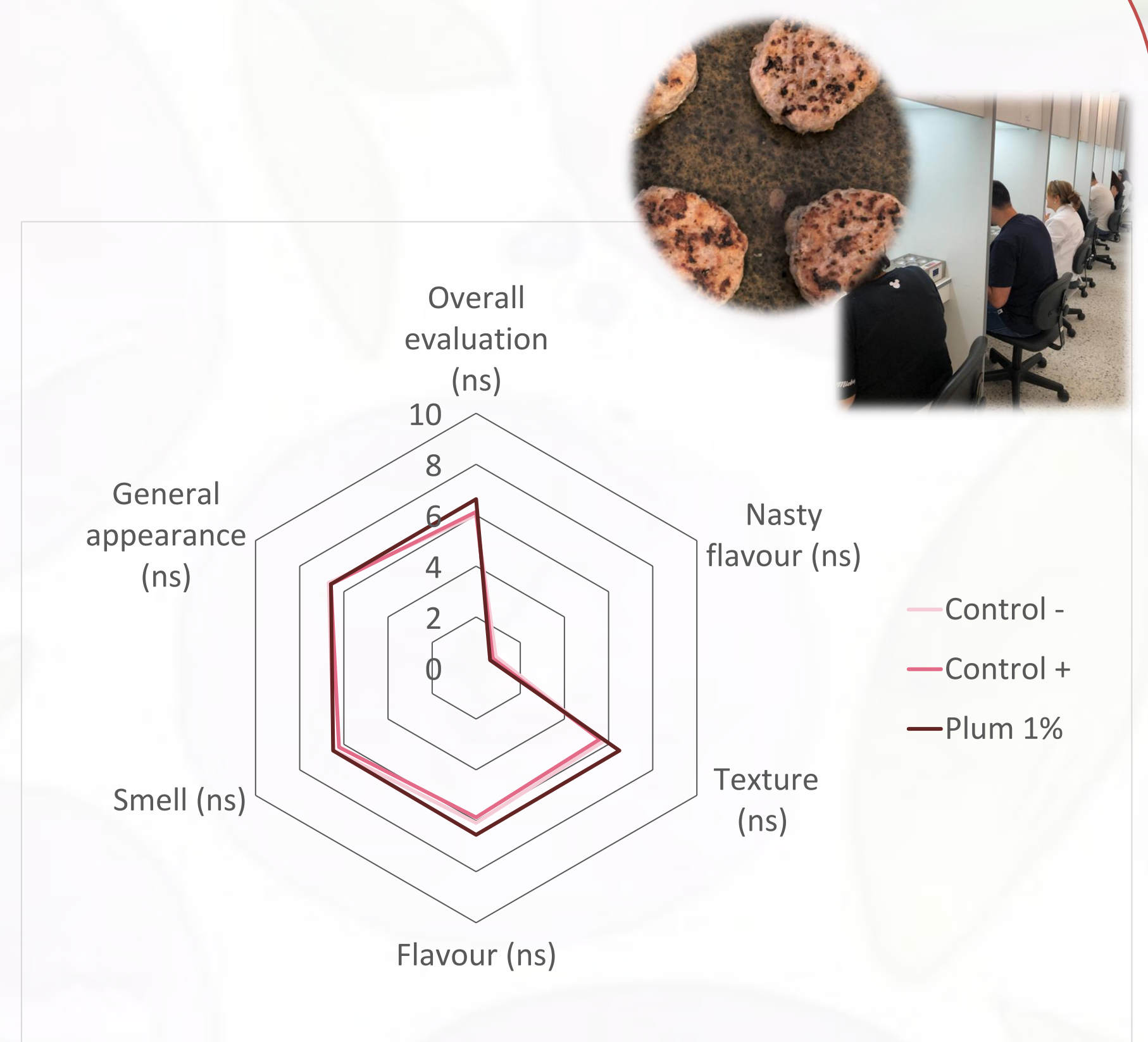
Measured in the burgers 8 days storage

- Instrumental colour
- Lipid oxidation (TBA-RS)
- Protein oxidation (carbonyls)

Sensory analysis
Panel of 8 expert tasters different burgers



RESULTS & DISCUSSION



In the sensory evaluation, the tasters evaluated the burgers with natural ingredient and no differences were observed with respect to other formulations.

ACKNOWLEDGMENTS

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