

In-situ conversion of natural sources of nitrate for clean labelling meat products: cooked ham case study

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Introduction

Clean labelling of meat products has emerged as a promising marketing trend in the industry. Ingredient lists with recognizable ingredients and minimal processing have been preferred by consumers in recent years, with increasing demand.

Objectives

This study firstly aimed to assess the behaviour of three pathogens commonly associated with ham products throughout storage at refrigeration (4 °C) and abuse (10 °C) temperature. Secondly, sensory analysis to evaluate differences between hams was carried out.

Methods

Challenge testing



Contamination with pathogens



Microbiological analysis:

- Tryptose Sulphite Cycloserine (TSC) – *Clostridium sporogenes* and *Clostridium perfringens*
- Polymyxin acriflavine lithium chloride ceftazidime aesculin mannitol (PALCAM) – *Listeria monocytogenes*

Sensory analysis

- Sensory analysis panel comprising of 30 individuals
- Difference to control test

Results and discussion

- When inoculated in the products, *L. monocytogenes* reached similar values in both control and the test hams.

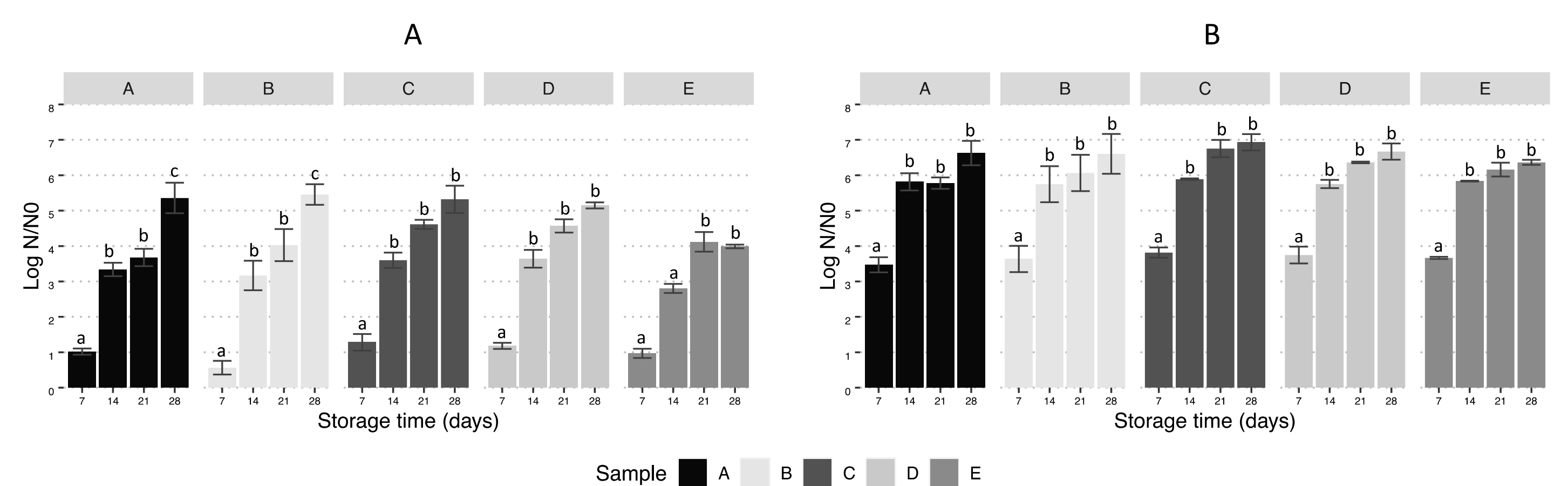


Figure 1. Microbial challenge test for *L. monocytogenes* cocktail, at refrigeration temperature (A) and abuse temperature (B). Equivalent lower-case letters mean no significant differences between each condition ($p > 0.05$).

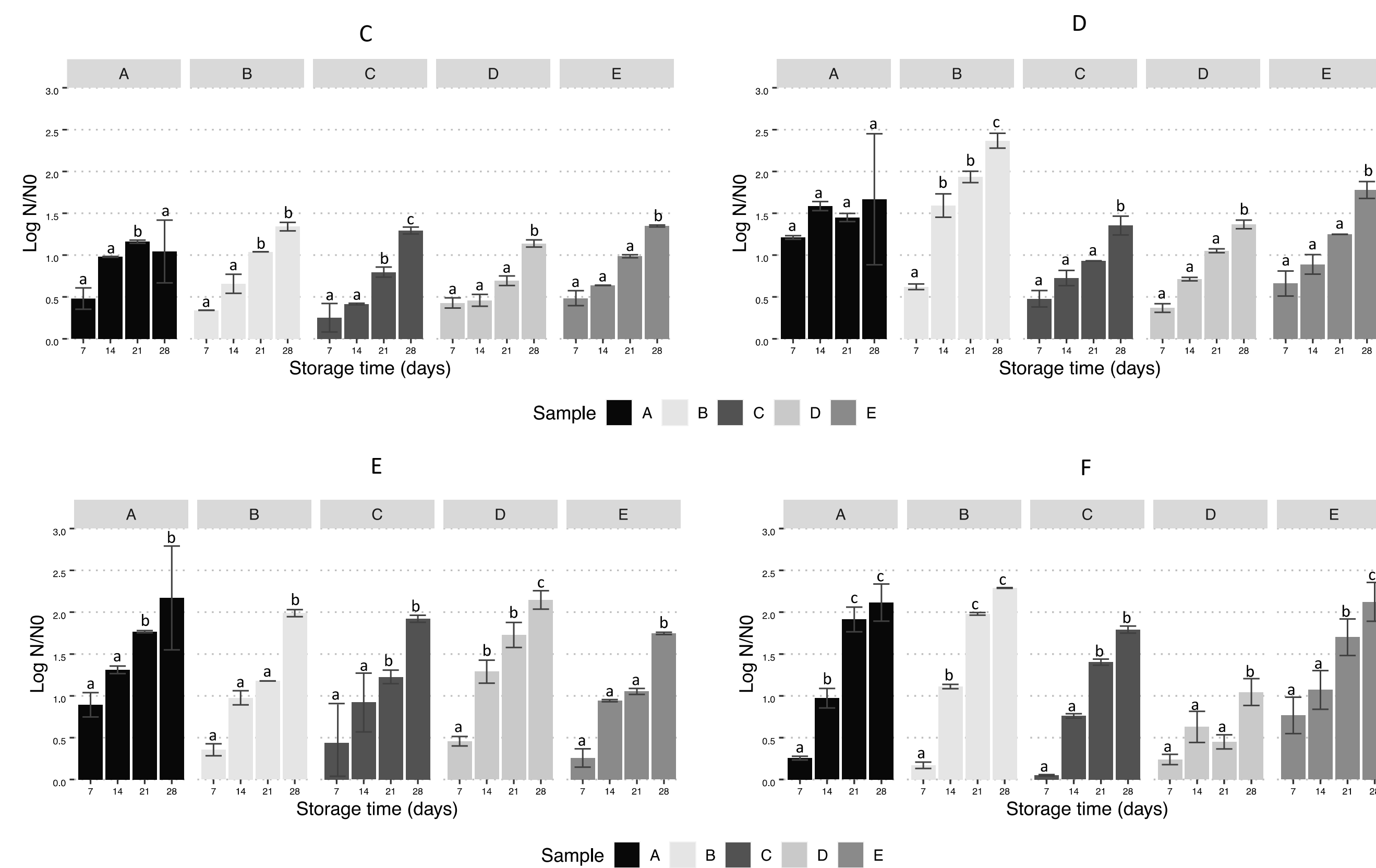


Figure 2. Microbial challenge test for *C. sporogenes* cocktail at refrigeration temperature (C) and abuse temperature (D); *C. perfringens* at refrigeration temperature (E) and abuse temperature (F). Equivalent lower-case letters mean no significant differences between each condition ($p > 0.05$).

No differences between samples, except ham sample C, and control were found in sensory analysis, proving the promising commercial potential of the restructured hams.

Conclusion

These results show the promising application of this technology in the meat industry, having in mind consumers wishes and demand for more nutritious and natural ingredients in day-to-day foods.

Acknowledgements

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