61st International Congress of Meat Science & Technology Clermont-Ferrand, August 23rd – 28th, 2015



Sensory quality of beef patties inoculated with strains of Carnobacterium maltaromaticum with potential as biopreservatives



P. H. IMAZAKI*, C. JACQUES-HOUSSA, G. KERGOURLAY, G. DAUBE AND A. CLINQUART

Fundamental and Applied Research for Animal & Health (FARAH), Department of Food Science, Faculty of Veterinary Medicine, University of Liège

FARAH

* PH.Imazaki@ulg.ac.be



Biopreservation is a natural tool used to extend the shelf life and to enhance the safety of foods by applying naturally occurring microorganisms and/or their inherent antimicrobial compounds.

RESULTS AND DISCUSSION

opearanc

Sensory analysis of patties inoculated with 10⁴ or 10⁶ CFU *C. maltaromaticum*/g meat after **<u>8 days</u>** of storage (5 days at 4 °C and 3 days at 8 °C)

Carnobacterium maltaromaticum is a lactic acid bacteria (LAB), and many LAB associated with meat are known for their bacteriostatic activity against other strains, species or genera of bacteria.

Nevertheless, undesired effects of *Carnobacterium* on food quality have been reported.



To perform a sensory evaluation of beef patties inoculated with potential biopreservative strains of C. maltaromaticum isolated from vacuum packaged beef with long shelf life.

MATERIALS AND METHODS



vacuum packed longissimus dorsi Australian origin commercial shelf life = 140 days at -1 °C





- Non inoculated beef patties (blank) received higher scores than inoculated patties, but no statistical difference was observed with samples inoculated with *C. maltaromaticum* at 10⁴ CFU/g.

- Samples inoculated with the strain CM_829 at 10⁶ CFU/g received the worst scores for appearance, odor and flavor (*P* < 0.05).







- Only appearance, color and odor were evaluated since samples were three days beyond commercial shelf life.

- A decrease in the sensory quality was observed during the last three days of storage.

RESULTS AND DISCUSSION



- Non inoculated raw samples (blank) were perceived as having the best color (P < 0.05).

- Non inoculated raw samples and inoculated samples with strain CM_827 were perceived as having the best appearance (P < 0.05).

- Samples did not differ statistically for odor.

CONCLUSIONS

This preliminary study permitted to evaluate the effect of three *C. maltaromaticum* strains on the sensory quality of beef patties.

Strain CM_827 did practically not change the sensory attributes of beef patties.

Therefore, further research on the biopreservative capacity of *C. maltaromaticum* should be conducted with the strain CM 827.



This study was partially funded by the General Operational Direction of Agriculture, Natural Resources and Environment (DGARNE) of the Walloon Region (Belgium) - Project D31-1275 (CONSBBB)