

P. H. IMAZAKI*, A. TAHIRI, J. THIMISTER, M.-L. SCIPPO AND A. CLINQUART

University of Liège, Faculty of Veterinary Medicine, Department of Food Science & FARAH, Liège, Belgium

* PH.Imazaki@ulg.ac.be

INTRODUCTION

Two common techniques of beef aging are “dry” and “wet” aging:

- dry aging: ancient process of placing an entire carcass or a wholesale cut in a refrigerated room
- wet aging: aging of meat in a sealed barrier package at refrigerated temperatures.

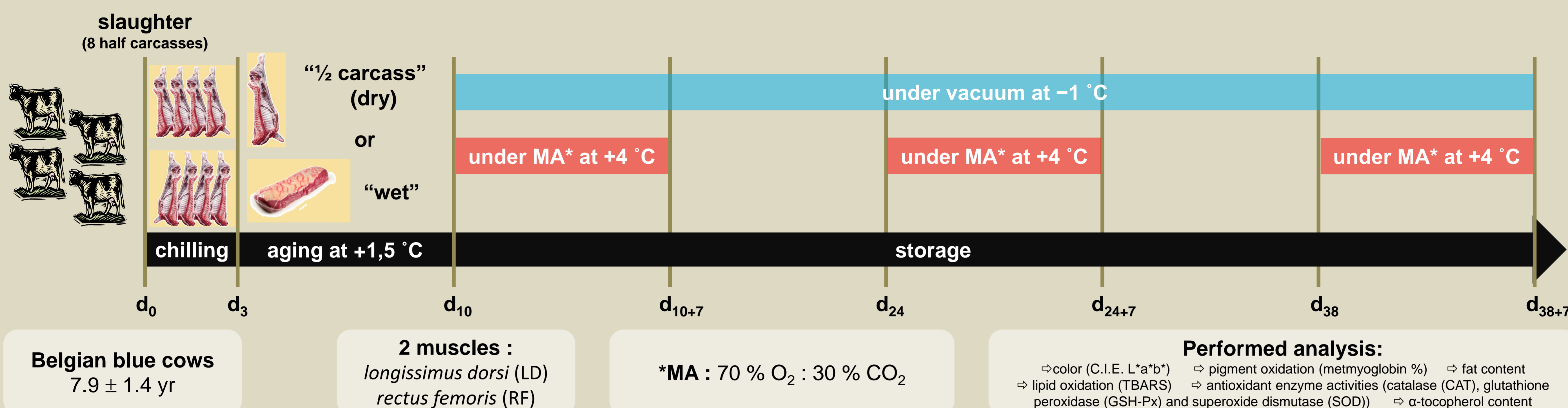
The shelf life of meat is mainly limited by the development or pathogenic of spoilage microorganisms, and by oxidation of lipid and pigments.

The meat sector often complains of a sensitivity of beef to oxidation processes, in particular the discoloration of high-oxygen modified atmosphere packaged (MAP) meat previously aged in vacuum conditions.

OBJECTIVE

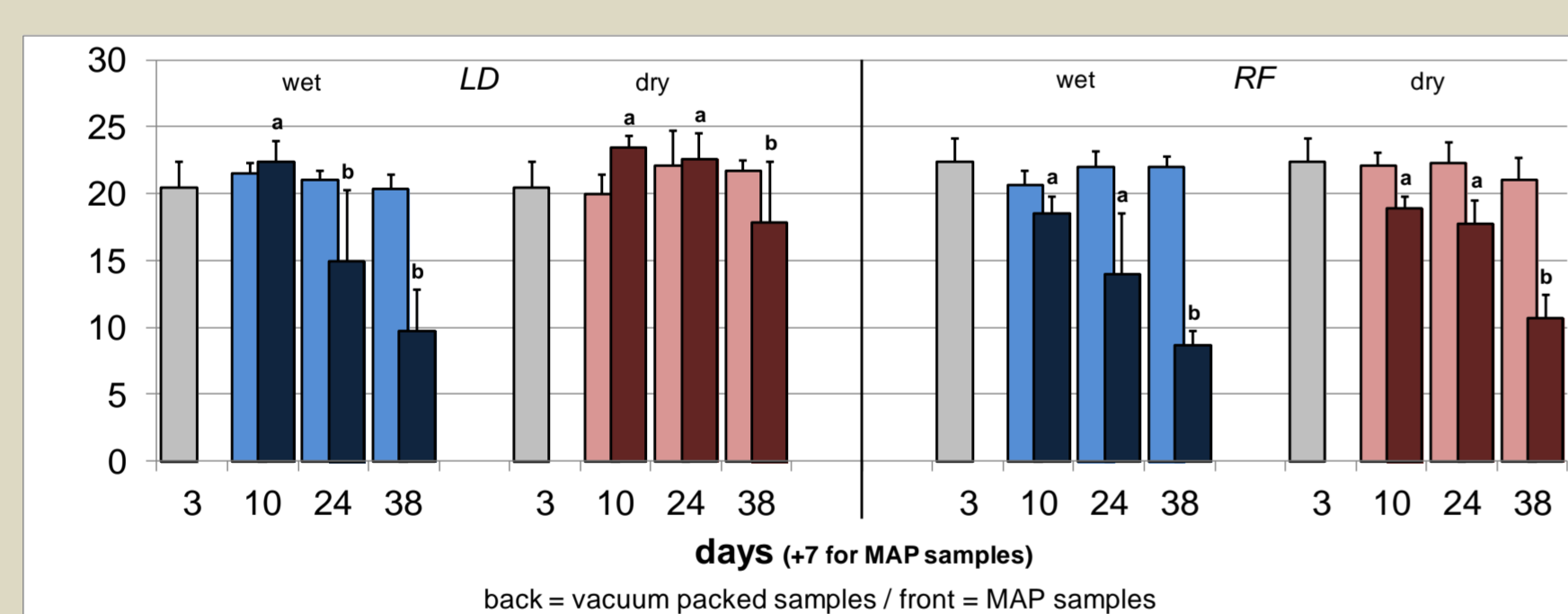
To evaluate the potential effect of aging technique (wet vs. dry), muscle (*longissimus dorsi* vs. *rectus femoris*) and previous storage time in vacuum conditions on the physicochemical stability of meat packaged in high-oxygen atmosphere.

MATERIALS AND METHODS



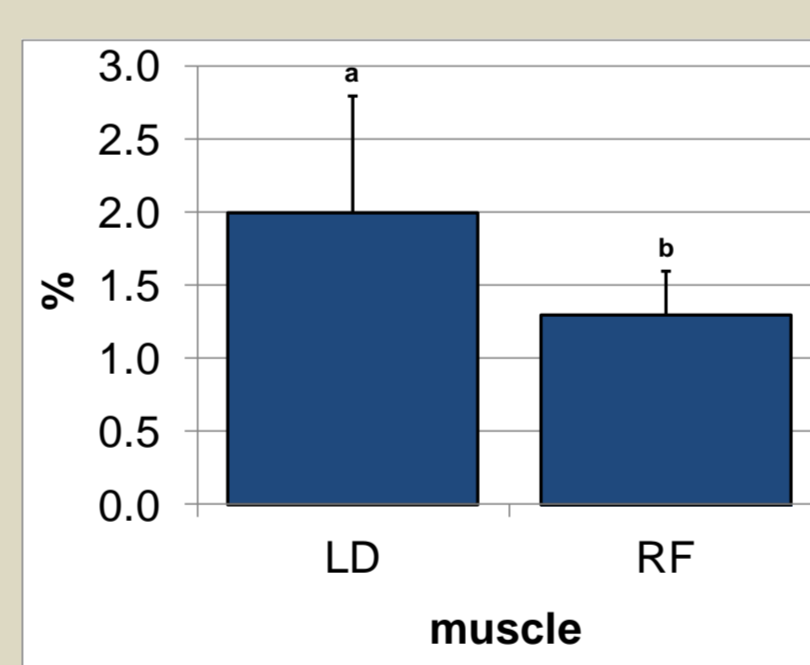
RESULTS

Color (a*)



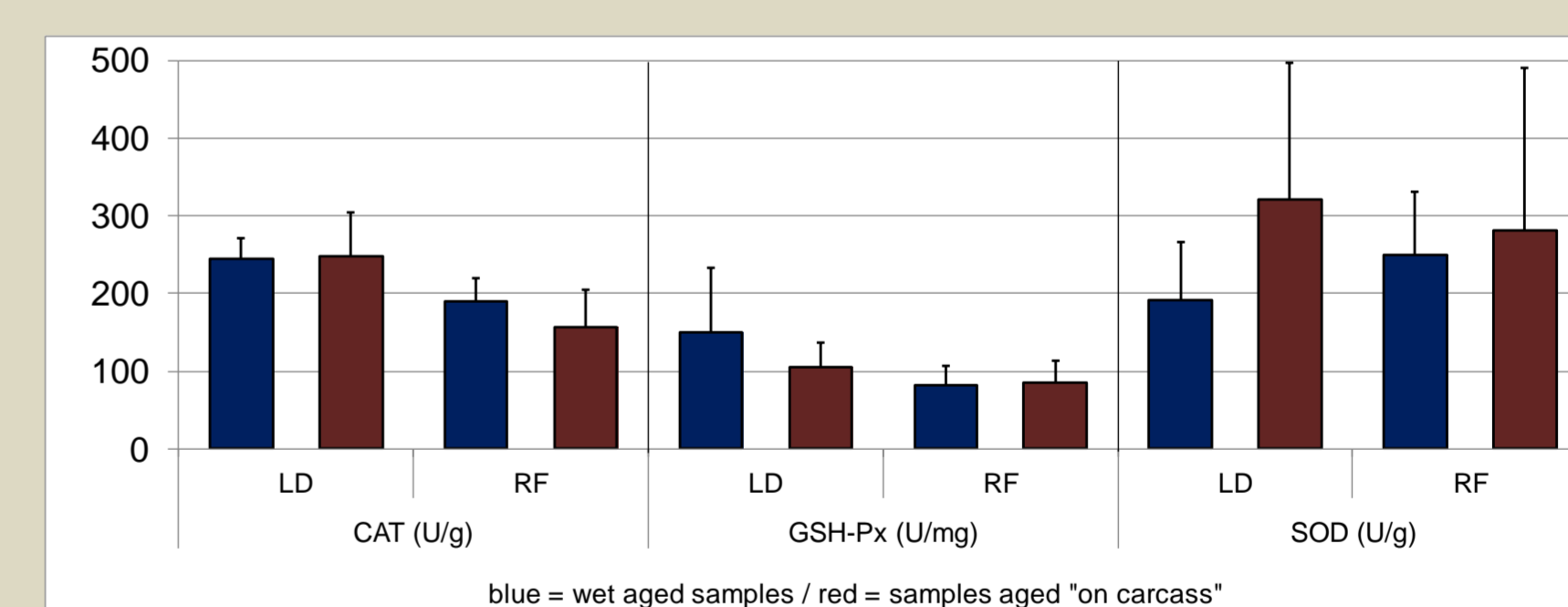
- ⇒ VP: no significant loss of redness
- ⇒ MAP: effect of previous storage time under vacuum and of aging technique (for LD after d₂₄₊₇)

Fat content



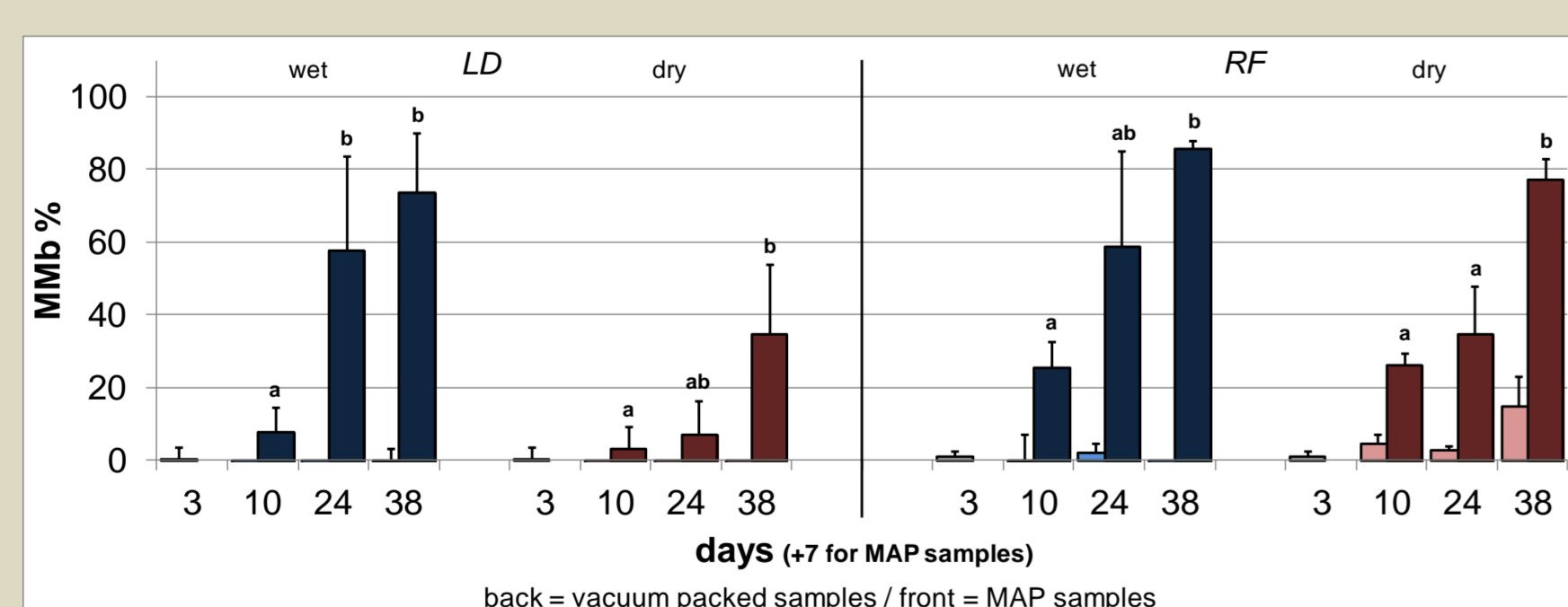
- ⇒ Higher fat content in LD samples

Antioxidant enzyme activities (d₁₀)



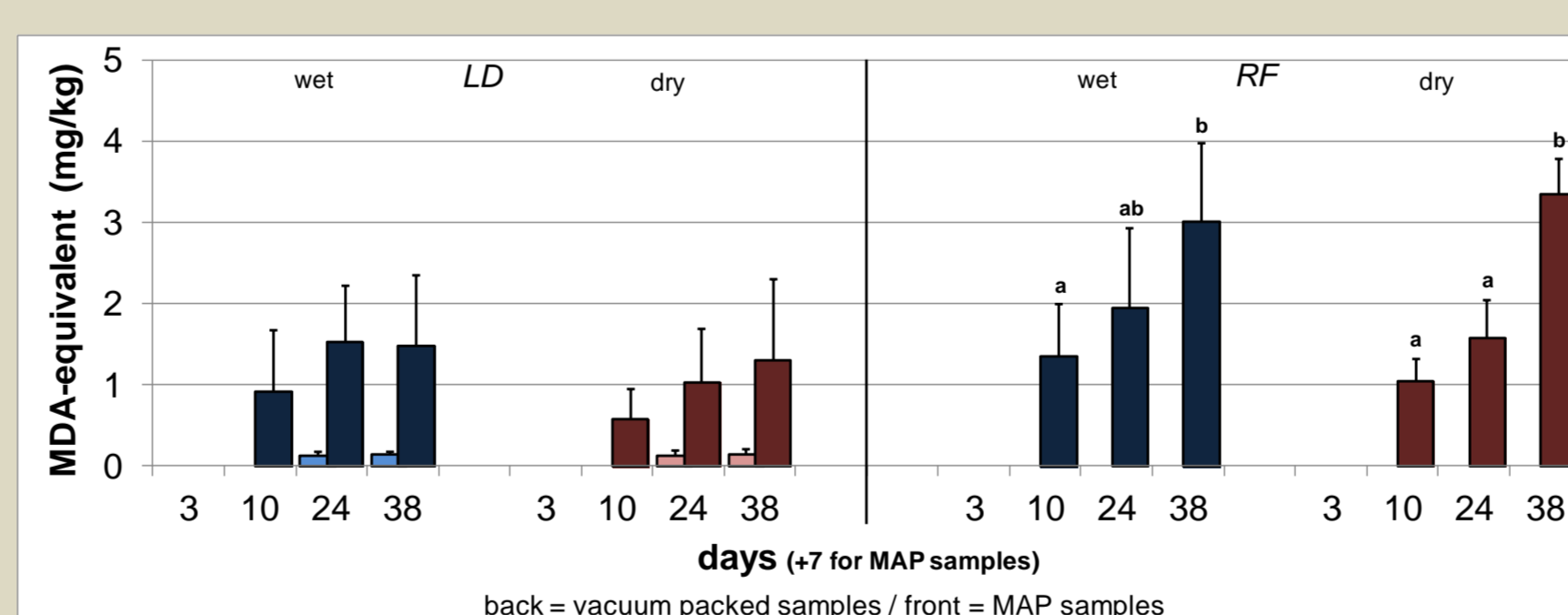
- ⇒ Only catalase activity differed according to muscle: possible explanation to the higher sensitivity of RF to oxidation

Metmyoglobin %



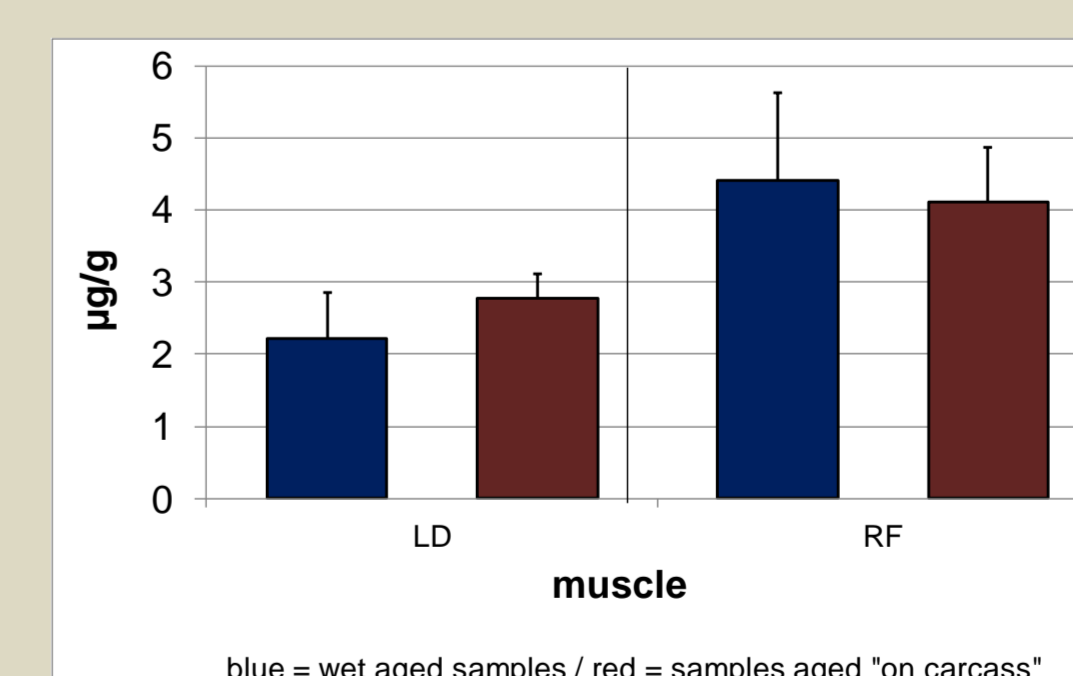
- ⇒ LD aged on carcass presented higher pigment stability
- ⇒ Wet-aging favored pigment oxidation

TBARS



- ⇒ Despite its higher fat content, LD presented higher lipid stability than RF

α-tocopherol (d₁₀)



- ⇒ Higher content of α-tocopherol did not prevent RF from being more oxidative
- ⇒ Fat content not directly proportional to α-tocopherol content: higher capillarity supply or mitochondria content of RF?

CONCLUSIONS

A higher sensitivity to oxidation was observed with seven-day wet-aging, and LD showed a higher oxidative stability than RF. The length of previous vacuum storage favored oxidation reactions when the samples were repackaged under modified atmosphere. Oxidation stability could be associated with the catalase activity in samples, but no association could be found regarding the α-tocopherol content. Further research will be conducted to study the fatty acid profile in order to better understand the lipid oxidation process.

ACKNOWLEDGMENTS



This study was funded by the General Operational Direction of Agriculture, Natural Resources and Environment (DGARNE) of the Walloon Region (Belgium)

Project D31-1275 (CONSB3B)