

Influence of Wet-Aging on Bloom Time of Beef Inside Rounds

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Introduction

The visual appearance of meat quality impacts a consumer's decision to purchase a product at the retail case. Consumers have indicated that color was the single most important factor influencing their meat purchase decision. There is little available information, however, concerning factors affecting bloom development in vacuum-packaged subprimal cuts.

Objective

To evaluate the effect of muscle and postmortem aging period on ability of vacuum-packaged beef subprimal cuts to bloom

Materials and Methods

Over an eighteen week trial, 60 USDA Select Inside Rounds (*semimembranosus*; SM)

- ✦ Allocated randomly to one of 6 aging periods (0, 7, 14, 21, 28, and 35 d; 10 subprimals/aging period)
- ✦ Each week - SMs aged the appropriate days were faced
 - ✦ Two 2.54-cm-thick steaks were cut from each subprimal

Instrumental color readings

- ✦ Hunter Miniscan XE
 - ✦ (illuminant A and a 10° observer)
- ✦ Three readings/steak immediately after cut from subprimal, at 10-min intervals from 0 to 120 min.
- ✦ L*, a*, b*
- ✦ Spectral data
- ✦ After 120 min, each steak was vacuum-packaged and frozen (-20°C)

Instrumental tenderness

- ✦ Steaks were thawed overnight at 2°C
 - ✦ Cooked to an internal temperature of 71°C in a forced air convection oven
- ✦ Steaks equated to room temperature (21°C)
 - ✦ Six 1.27-cm-diameter cores removed parallel to muscle fiber
 - ✦ WBSF analysis

Statistical analysis

- ✦ Analyzed as a CRD using PROC MIXED (SAS, Cary, NC)
 - ✦ Main effects: Age, Time, and Age*Time
 - ✦ Error Term: Subprimal within age
 - ✦ Repeated Measure: Time
- ✦ Least squares means computed and separated by PDIFF option when significant ($P \leq 0.05$)

Conclusions

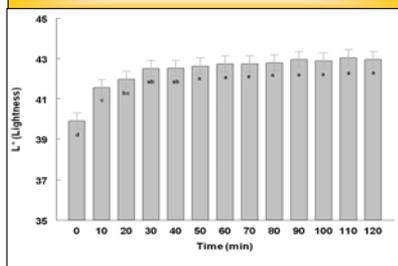
The greatest amount of color change (L*, a* and b*) was observed during the first 10 min after steak fabrication, and results indicated that TB color stabilized at approximately 80 min after exposure to air. Yet, results of this trial indicate that length of postmortem aging has little to no effect on bloom development.

Acknowledgements

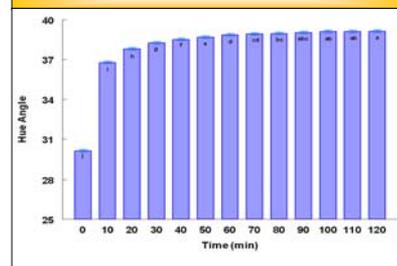
Appreciation is expressed to the Arkansas Beef Council for funding this research, as well as Cargill Fresh Meat Solutions, Oklahoma City, OK with product procurement.

Results

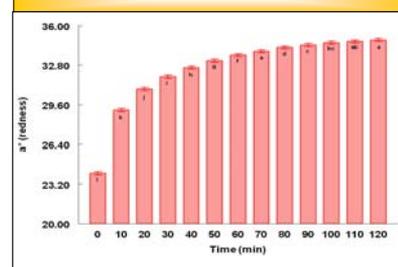
Variation of lightness over time



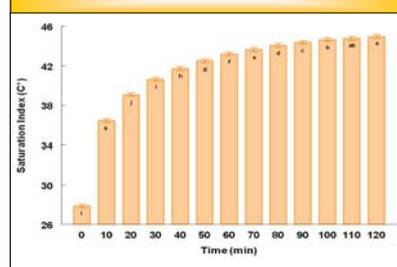
Variation of hue angle over time



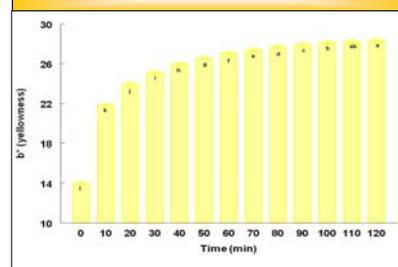
Variation of redness over time



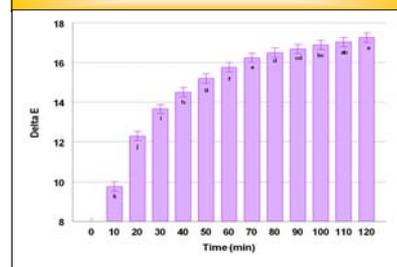
Variation of saturation index (C*) over time



Variation of yellowness over time



Change in color over time (Delta E)



Reflectance values of the *semimembranosus* over time

