



Muscle-Specific Color Stability in Springbok Meat

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Objectives

Fresh meat color critically influences the consumers' purchase decisions at the point of sale. Color and color stability of fresh red meats are muscle-dependent. While muscle-specific color stability has been studied extensively in livestock, scientific information on this aspect is nonexistent in game species. Springbok (*Antidorcas marsupialis*) is a prominent South African game species that has significant potential in meat production. Our objective was to characterize the color stability of 3 economically important muscles (i.e., infraspinatus, IS; longissimus lumborum, LL; and biceps femoris, BF) in springbok carcasses.

Materials and Methods

The muscles (IS, LL, and BF) were removed from both sides of 6 ($n = 6$) male springbok carcasses 24 h post-mortem, vacuum-packaged, and stored at 2°C. After 48 h, each muscle was fabricated into 2.5-cm steaks. The steaks were placed in trays, aerobically over-wrapped, and stored at 2°C for 8 d. Meat pH, instrumental color (L^* , a^* , and b^* values), color stability (R630/580; ratio of reflectance at 630 nm and at 580 nm), surface myoglobin redox forms, metmyoglobin reducing activity (MRA), and lipid oxidation (TBARS) were measured on

0, 1, 2, 4, 6, and 8 d. Data were analyzed using mixed model repeated measures ANOVA, with carcass as random effect, and muscle and storage time as fixed effects.

Results

Throughout the storage, the IS steaks demonstrated greater ($P < 0.05$) pH than the LL and BF steaks. IS exhibited the greatest ($P < 0.05$) L^* values (lightness), whereas LL had the lowest ($P < 0.05$) L^* values. IS also exhibited greater ($P < 0.05$) a^* values (redness) than LL and BF throughout the storage. While IS steaks exhibited no changes ($P > 0.05$) in a^* values during the storage, LL and BF demonstrated a decline ($P < 0.05$) in a^* values. In addition, IS demonstrated greater ($P < 0.05$) b^* values (yellowness), R630/580, and MRA, than the LL and BF counterparts. Furthermore, surface metmyoglobin content and lipid oxidation were lower ($P < 0.05$) in IS than in LL and BF.

Conclusion

The results suggested that springbok IS muscle is more color-stable than their LL and BF counterparts. The game meat industry may employ muscle-specific strategies for processing and marketing fresh meat from springbok.