



## Effect of early postmortem enhancement of calcium lactate/phosphate on quality attributes of beef round muscles under different packaging systems

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### Abstract

The objective was to determine the influence of calcium lactate/phosphate enhancement on quality of beef round cuts in high-oxygen modified atmosphere (HiOx-MAP; 80% O<sub>2</sub>/20% CO<sub>2</sub>). *Mm. semimembranosus* (SM), *semitendinosus* (ST), and *adductor* (AD) were divided and assigned to water-injected control (CON), 3 mM phosphate (STP), or 200 mM calcium lactate/3 mM phosphate (CAL/STP) treatments at 24 h postmortem. Steaks (n = 10) were vacuum packaged (VAC) and stored for 9 days, then displayed for 7 days in VAC or HiOx-MAP. Lipid oxidation, pH, surface color, star probe, and sensory characteristics were evaluated. HiOx-MAP resulted in greater lipid oxidation, more discoloration, and decreased sensory quality of steaks ( $P < 0.05$ ) compared to VAC. However, CAL/STP enhancement significantly reduced lipid oxidation of all steaks, decreased ST and SM star probe values, and improved tenderness of HiOx-MAP packaged AD and SM ( $P < 0.05$ ). Results suggest that CAL/STP enhancement has beneficial effects on lipid stability and sensory attributes of beef round cuts under HiOx-MAP.

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