Consumer Palatability Scores and Volatile Beef Flavor Compounds of Five USDA Quality Grades and Four Muscles


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Abstract

Proximate data, consumer palatability scores and volatile compounds were investigated for four beef muscles ([Longissimus lumborum] Strip Loin), [Psoas major] Tenderloin), [Semimembranosus] Top Round) and [Gluteus medius] Top Sirloin]) and five USDA quality grades (Prime, Upper 2/3 Choice, Low Choice, Select, and Standard). Quality grade did not directly affect consumer palatability scores or volatile compounds, but interactions (P < 0.05) between muscle and grade were determined. Consumer palatability scores and volatiles differed (P < 0.05) between muscles. Consumers scored Tenderloin highest for tenderness, juiciness, flavor liking and overall liking, followed by the Strip Loin, Top Sirloin, and Top Round (P < 0.05). Principal component analysis revealed clustering of compound classes, formed by related mechanisms. The volatile compound n-aldehydes were inversely related to percent fat. Increases in lipid oxidation compounds were associated with the Top Sirloin and Top Round, while greater quantities of sulfur-containing compounds were associated with the Tenderloin. Relationships between palatability scores and volatile compound classes suggest that differences in the pattern of volatile compounds may play a valuable role in explaining consumer liking.


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