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Comparison of palatability characteristics of beef gluteus medius and triceps brachii muscles

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Abstarc :

The objective of this experiment was to evaluate triceps brachiisteaks as a substitute for gluteus medius steaks in foodserviceand retail applications, including the effect of aging timeand USDA quality grade on the palatability of both muscles.Top sirloin butts (n = 600) and shoulder clod arm roasts (n= 600) representing US Choice and US Select quality grades wereselected at 48 h postmortem and aged for 7, 14, 21, 28, 35,or 42 d. Steaks were evaluated using a trained sensory panel,slice shear force, sarcomere length, and Western blotting ofdesmin measurements. Sarcomere length was measured only on steaksat 14 and 42 d. Triceps brachii and gluteus medius steaks weresimilar in tenderness rating at 7 and 14 d, but triceps brachiisteaks aged longer were more tender ($P < 0.05$) than weregluteus medius steaks. Triceps brachii steaks reached ultimatetenderness values by 21 d. Gluteus medius steak tenderness ratingsimproved through 35 d, and at 42 d were similar to those givento triceps brachii steaks at 21 d. Sarcomere lengths were longer($P < 0.05$) in triceps brachii than in gluteus medius (2.09and 1.58 µm, respectively). Significant increases in desmindegradation were detected through 42 d in both muscles (30.9,46.3, 50.6, 51.0, 57.6, and 64.1% at d 7, 14, 21, 28, 35, and42 for gluteus medius and 28.9, 40.8, 49.3, 59.2, 61.8, and71.9% at d 7, 14, 21, 28, 35, and 42 for triceps brachii). At14 d, gluteus medius had more ($P < 0.05$) desmin degradedthan triceps brachii, but by 28 d, desmin degradation was greater($P < 0.05$) in triceps brachii. Quality grade had minimaleffects on palatability traits. Desmin degradation contributedto gluteus medius tenderness variation (r = 0.36) across allaging times, but not at individual aging times. Sarcomere lengthcontributed to variation in slice shear force values of gluteusmedius at 14 and 42 d (r = –0.59 and –0.48, respectively).Sarcomere length contributed to triceps brachii tenderness variationat 14 d, but not 42 d (r = 0.44 and –0.12, respectively).Desmin degradation was strongly correlated (r = 0.55) to tricepsbrachii tenderness ratings pooled across aging times but notat individual aging times. These data indicate that tricepsbrachii steaks could provide the same or improved palatabilityas gluteus medius steaks at the same or slightly shorter agingtimes.

Key Word :
gluteus medius, postmortem proteolysis, sarcomere length, tenderness, triceps brachii

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