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Texture and Consumer Acceptability of Goat Sausages Made With Beef Fat from Various Locations on a Carcass

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Objectives

Chevon is a globally produced lean protein source. However, Western consumers are not accustomed to the effects of 4-ethyl octanoic acid which gives Caprinae meat its musky flavor. Mono-unsaturated fatty acids found at higher ratios in the brisket than in other beef carcass fat depots, produce a brothy beef flavor, while saturated fatty acids form less stable emulsions. Therefore, value-added goat meat products using beef fat have potential of increase palatability and texture for Western markets. The objective of this study was to evaluate the texture profile and consumer acceptability of goat sausages formulated with beef fat from various locations.

Materials and Methods

Subcutaneous fat was obtained from beef carcasses at 3 different locations: brisket (BF), plate (PF), and round (RF). Goat meat and beef fat were initially course ground using a 12.5mm grinder plate. Sausage formulations consisted of 17.01kg goat meat, 3.40kg beef fat, 907.18ml water, 0.22kg ice, seasoning blend, and curing salts (6.25% sodium nitrite). The control sausage consisted of 1.13kg of beef fat from each beef fat location. Each formulation mixed for 4 min and then finely ground using a 9.5mm grinder plate. Meat batter was stuffed into natural hog casing, linked and thermally processed to 71°C. Sausages were chilled for 24h, vacuum packaged and frozen. Frozen sausages were thawed at 5.5°C and assigned a random identification number. Sausages were then reheated to 71°C and cut into 2.54cm pieces. Two pieces were placed in Styrofoam cups and served to 100 panelists. Each panelist evaluated samples for aroma, color, overall opinion, texture of exterior and interior, greasiness, juiciness, and flavor using

a 9-point hedonic scale (1 = dislike extremely to 9 = like extremely). Likelihood of purchasing was rated using a 5-point hedonic scale (1 = definitely would not buy to 5 = definitely would buy). Texture profile analysis (TPA) variables were evaluated using model TA.XT2. The following variables were determined: hardness, springiness, cohesiveness, chewiness, and resilience.

Results

The consumer panel data indicated a difference ($p < 0.05$) in greasiness. Sausages that contained BF and PF were slightly disliked (4.84 and 4.97) more than sausages made with RF (5.58). The consumer panelists found no differences in other variables evaluated between the treatment groups. The TPA analysis indicated that sausages formulated with RF (6.12kg and 3.61kg) and the control (6.18kg and 3.77kg) were significantly harder and chewier than BF (4.78kg and 2.87kg) or PF (5.14kg and 3.11kg) treatments. Sausages made with BF (86.1%) or PF (86.1%) were also springier than control sausages (85.5%). Sausages made with RF were found to be less cohesive and resilient (68.8 and 36.4%) compared to the other sausages.

Conclusion

The purpose of this study was to expand options in the goat meat market without sacrificing quality by evaluating consumer acceptability and texture profile analysis for goat sausages formulated with beef fat from various locations on a carcass. According to the consumer panel, sausages made with PF and BF were slightly disliked due to greasiness. Texture profile analysis indicated that sausages formulated with RF were found to be harder, chewier, less cohesive and resilient, while sausages made with BF or PF were found to be springier.