

AN INVESTIGATION OF BIOCHEMICAL FACTORS AFFECTING ASIAN CONSUMERS PREFERENCE FOR STEWED GOAT MEAT

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I. OBJECTIVES

Many Asian cultures enjoy stewed goat meat cubes (skin-on or -off) because of its unique flavor and texture. With the growing Asian population in the US, there is potential to grow the goat meat market to meet the new demand. Therefore, the objective of this study was to investigate biochemical factors that influence Asian consumers' palatability preferences for stewed goat meat.

II. MATERIALS AND METHODS

A total of 14 Boer goats averaging 35.6 ± 2.96 kg were harvested either skin-on ($n = 7$) or -off ($n = 7$). The carcasses were fabricated into 4 primals—loin, shoulder, leg, and breast—and each primal, regardless of harvest technique, was cut into 5 cm × 5 cm cubes. Fifty-three Asian consumers were recruited from Manhattan, Kansas, and evaluated tenderness, juiciness, flavor, connective tissue amount, fat amount, and overall liking of the stewed goat meat from the 8 treatments. Collagen, moisture, and lipid content; cook loss; and pH were also measured in this study. Finally, correlation analysis was conducted to determine the driving factors that contributed to Asian consumers' preference for goat meat.

III. RESULTS

Panelists found that meat cubes from breast tended to have more connective tissue than meat cubes from other primals ($P = 0.08$). They also determined that meat cubes from shoulder and breast were more tender and juicier than meat cubes from loin and leg ($P < 0.01$). Panelists indicated that meat cubes from breast had the most fat followed by shoulder, loin, and leg ($P < 0.01$). Panelists rated meat cubes from the shoulder with the highest overall liking score compared to those from the other primals ($P < 0.01$). Finally, meat cubes from breast had less cook loss percentage compared to those from the other primals ($P < 0.01$). It was interesting to note that Asian consumers determined that meat cubes with skin-on were more tender, juicier, and had more fat than those without skin ($P < 0.05$). However, treatments of skin-on versus skin-off did not differ in consumer overall liking ($P > 0.10$). Meat cubes from shoulder and breast had higher pH than meat cubes from leg and loin. There was an inverse relationship between moisture and lipid content. Meat cubes from leg had the greatest amount of moisture, followed by loin and shoulder, with breast with the least ($P < 0.01$), whereas lipid content followed the exact opposite trend ($P < 0.01$). Meat cubes from breast and loin had more collagen than meat cubes from leg ($P < 0.01$), while meat cubes from shoulder was not different from any of the primals. In addition, meat cubes with skin-on had more collagen content than those with skin-off ($P < 0.01$). Lipid percentage had a positive correlation with overall tenderness, juiciness, flavor, amount of fat, and most importantly, overall liking ($P < 0.05$). As expected, pH also had a positive correlation with overall tenderness and juiciness ($P < 0.01$). To our surprise, collagen content did not exhibit a relationship with any of parameters measured in the consumer panel.

IV. CONCLUSION

This study provided a missing knowledge gap that shed light on Asian consumers' eating preferences of goat meat. Asian consumers preferred goat shoulder primal with skin-on over the other treatments. Meat cuts with greater lipid percentage and pH were found to be the more important palatability traits to the Asian consumers, while collagen content did not seem to play a large role in Asian consumers' overall liking.

Keywords: Asian consumers, collagen, goat, pH, skin-on processing