EFFECT OF DRY AGING ON QUALITY ATTRIBUTES OF PORK LOINS

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I. OBJECTIVES

Dry aging is a traditional method known to improve the palatability attributes of meat. Unique flavors such as buttery and nutty have often been attributed to the dry aging process. While the benefits have often been observed in beef products, the effect of dry aging on pork product is not fully known yet. Additionally, given some eating quality issues associated with pork loins, such as toughness, dryness, and bland flavor, there is a need to improve the palatability attributes of fresh pork loins. Therefore, the objective of this study was to evaluate the effect of dry aging on meat quality and palatability characteristics of pork loins.

II. MATERIALS AND METHODS

Pork loins from one side of 10 pork carcasses were collected, split into 3 equal portions, and aged for 21 d at 2°C, 65% relative humidity, and 0.8 m/s air flow, using 3 different aging methods (wet aging, dry aging, and UV-light dry aging at 5 J/cm^2). After the completion of aging, sections were trimmed, and total saleable yield was determined for each aging method. Multiple chops were made from each section for several meat quality and chemical attributes. Color stability of the chops were determined using Hunter MiniScan through simulated retail display for 7 d. The lipid oxidation of the samples was measured by conducting 2-thiobarbituric acid reactive substances assay. Water-holding capacity of the samples was determined through multiple measurements including freezing/thawing loss, drip loss, and cooking loss. Warner-Bratzler shear force analysis and consumer sensory evaluation ($n = 120$) of pork chops from each treatment were conducted. The experiment was a complete block design with animal set as random. Data collected were analyzed using PROC GLIMMIX from SAS (SAS Institute Inc., Cary, NC), and least-squares means were separated with the PDIFF options (F-test, $P < 0.05$).

III. RESULTS

Both dry aging and UV-light dry aging resulted in lower yield compared to wet aging ($P < 0.05$). However, increase in water-holding capacity was observed in dry aging treatment compared to wet aging ($P < 0.05$) shown by lower loss in both freeze/thaw and drip loss. Warner-Bratzler shear force value was found to have no difference between all treatments ($P > 0.05$). Color was not different initially, until day 5 of display ($P > 0.05$), where both dry aging and UV-light dry aging had a significant increase in hue angle and decrease in redness, yellowness, and chroma values at the end of display ($P < 0.05$). Lipid oxidation increased during display, but no difference among the treatments was found ($P > 0.05$). Consumer panelists indicated that there were no significant differences in flavor, tenderness, juiciness, and overall liking between the treatments. Overall, aging in general improved pork quality, indicated by high rating from consumers.

IV. CONCLUSION

The results of the current study showed that dry aging would not negatively impact pork loin quality. Application of dry aging could potentially improve sensory acceptance due to greater water-holding capacity of the final product. Additionally, both dry aging and UV-light dry aging had a good color and oxidative stability, which could further suggest the benefit of dry aging application on pork product. Further study to identify flavor precursor changes as well as palatability profiling by trained panelists would be of interest.

Keywords: color stability, dry aging, pork, sensory panel