



Quality Attributes during 160 Days Refrigerated Shelf Life of a Smoked, Fully Cooked Sausage Formulated With a Nitrite Containing Pork Preblend

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Objectives

The objective of this study was to determine whether the addition of a pork preblend within a smoked sausage formulation affects quality characteristics of the final product in a refrigerated retail display case for a shelf life of 160 d.

Materials and Methods

Pork preblend treatments held for either 0, 4, or 7 d were individually formulated into smoked sausages and analyzed for cook yield on d 0, purge percentage on d 110, 131, and 160 and instrumental external color, pH, salt content, proximate analysis, Warner-Bratzler shear force (WBSF), thiobarbituric acid reactive substances (TBARS) and sensory analysis on d 0, 110, 131, and 160 of display at an average 2.65°C under fluorescent lighting. Three replications of the experiment were conducted. Data was analyzed using PROC MIXED in SAS 9.2 (SAS Inst. Inc., Cary, NC).

Results

No Preblend × Days of display interactions ($P > 0.05$) were shown for any attributes measured except for b^* values ($P < 0.05$). Initially on display d 0, similar ($P > 0.05$) b^* values for preblend treatments held for 0 and 4 d were both less ($P < 0.05$) yellow than d 7; however, for d 110 and 160 no differences ($P > 0.05$) were shown between preblends. On d 131, preblend d 0 was similar ($P > 0.05$) to d 7 but more ($P < 0.05$) yellow than d 4.

No differences ($P > 0.05$) were shown between preblend treatments for cook yield, percent purge loss, prox-

imate analysis, pH, salt content, thiobarbituric acid reactive substances (TBARS), L^* , a^* , b^* , $a^*:b^*$, saturation index, or hue angle. When evaluating the effect of preblend treatment on sensory characteristics of bite, juiciness, flavor intensity, saltiness, off flavor, and mouthfeel coating, no differences ($P > 0.05$) were found.

Purge loss percentage, WBSF, pH, moisture, fat, and protein analyses revealed no differences for any days of display ($P > 0.05$). Sausage salt content decreased ($P < 0.05$) from d 0 to d 110. For d 0 of display, a smaller ($P < 0.05$) TBARS value was found compared to all other days (110, 131, and 160); however, d 110, 131, and 160 revealed no differences ($P < 0.05$). As days of display progressed, sausage product became lighter, less red, had a lower $a^*:b^*$ and were less saturated and had a greater hue angle ($P < 0.05$). Days of display did not affect juiciness, saltiness or off flavor ($P > 0.05$); however, bite, flavor intensity and mouthfeel were affected by days of display ($P < 0.05$). Results for bite were inconsistent with d 0 and 160 had similar scores while d 110 had the softest bite ($P < 0.05$). Flavor intensity declined from d 0 to d 110; however, d 110, 131, and 160 were similar in flavor intensity. For mouthfeel, on days of display 0, 110, and 131, no statistical differences ($P > 0.05$) were found; however, d 160 had the least mouthfeel coating ($P < 0.05$).

Conclusion

Preblend hold time did not influence any attributes measured on cooked sausage during 160 d of refrigerated display. Displaying vacuum packaged cooked dinner sausage under fluorescent light for up to 160 d makes sausage lighter, less red, less yellow, and increases lipid oxidation to a detectable level.