



Effects of Divergently Selected Broiler Lines for Meat Color on *Pseudomonas* Growth Under Simulated Retail Display

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Objectives

Selection of broilers based on L^* values have affected the meat pH of broiler breast meat. The objective is to determine if the selection of L^* values have affected *Pseudomonas* ssp. growth under simulated retail display.

Materials and Methods

Broilers from the 13th generation of three different lines ($n = 30/\text{line}$) selected for high L^* (HMC), low L^* (LMC) and a random bred control (RBC) were harvested at 7 wk of age. Carcasses were weighed and deboned after a 4 h postmortem (PM) chill. Parts were weighed to determine parts yield based on chilled carcass weight. Meat pH was determined 24 h PM and 24 h drip loss was determined. Split breasts were weighed, packaged, displayed under simulated retail conditions, and sampled on display Days 0, 1, 2, and 3 for instrumental color and microbial count of *Pseudomonas* ssp.

Results

Chilled carcass weight was greater ($P < 0.05$) in the HMC and RBC lines than the LMC line. Percent yield of breast, wing, leg and rack were not different ($P > 0.05$) among the three lines. The LMC and RBC lines had greater ($P < 0.05$) tenderloin yield compared

to the HMC line. The LMC line had greater ($P < 0.05$) meat pH followed by the RBC line and then the HMC line. The HMC line had greater ($P < 0.05$) L^* , b^* and hue values followed by RBC line and then LMC line. The LMC line had greater ($P < 0.05$) a^* values and oxy-myoglobin ratio followed by RBC line and then LMC line. There was no difference ($P > 0.05$) in chroma among the three lines. After 24 h PM, the HMC line had more ($P < 0.05$) percent drip loss than the LMC and RBC lines but there was no difference ($P > 0.05$) in package drip loss from the start of simulated display to end of simulated display among the three lines. On each display day, the LMC line had increased counts of *Pseudomonas* ssp. compared to the RBC and LMC lines. Counts of *Pseudomonas* ssp. was similar between RBC and LMC lines on display Days 0, 2, and 3 with RBC line having increased counts on display Day 1 compared to the HMC line. There was a weak correlation ($r = 0.12$) between meat pH and counts of *Pseudomonas* ssp.

Conclusion

Selection for L^* affected chilled carcass weights and percent yield of tenderloins, but not any other part yields. The growth of *Pseudomonas* ssp. is affected by the lines selected for L^* but the relationship of meat pH and the growth of *Pseudomonas* ssp. is weak.