The Effect of Pulsed Ultraviolet Light on the Color of Beef, Chicken, and Pork Surfaces.

Vyas, Ishaan (School: Northside High School)

Pulsed ultraviolet light (PUVL) serves as a processing method that retains natural appearance of foods, lacks residual compounds, saves energy, and is considered environmentally friendly. Although a plethora of research has been conducted about the inactivation of foodborne pathogens on meat surfaces, studies on the effect of PUVL on meat quality characteristics are limited. Therefore, this study aims to evaluate the effect of PUVL on color of chicken, beef and pork. A Z-1000 Modular sterilization system will be used for PUVL production. Meat samples will be cut into squares with surface area of 16 cm2 and placed in a glass petri dishes. Thickness and weight of meat samples will also be measured. Petri dishes with meat samples will be placed at 4.47 and 14.76 cm distance from the light source in the sterilization chamber and treated for 1 and 5 s. Treated and untreated meat samples will then be tested for change in color (L*, a* and b*) using a ColorFlex EZ colorimeter immediately after treatment (0 h) and after 24 h. This experiment includes three samples for each distance and treatment time. Experiments will be repeated three times on different days. Using Excel Statistical analysis, the analysis of variance (ANOVA) will be used to determine signi?cant (P=0.05) differences between the treatment times, and distances from the light source on meat color. MOST of the results found were null meaning that the Pulsed UV-light machine was successful in not altering the color of meat (desired outcome).

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