Incidence of Pale, Soft, and Exudative (PSE) Chicken Meat at a Commercial Plant and Its' Effect on Marinated Chicken Breast

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Pale, soft, and exudative (PSE) condition is a growing problem in poultry industry. The studies in prevalence of PSE condition in Sri Lanka are minimal. Marination of meat helps in the improvement of meat quality traits. The objective of this study is to determine the incidence of PSE condition in a commercial plant, and to find out its' consequences on marinated chicken breast. A total of 195 randomly selected breast fillets were evaluated for color and the prevalence of PSE condition was recorded. A lightness (L*) value of 58.0 was used as the cutoff value for PSE meat characterization based on previous research. A total of 20 fillets, 10 PSE and 10 normal samples were selected and analyzed for color, pH and water holding capacity (WHC). The fillets were then processed into marinated and baked products. Processed samples from PSE and normal meat were compared for marinade uptake, marinade loss, cooking loss, color, pH, WHC, texture, and sensory properties. The incidence of PSE in the present study is 93.3%. PSE fillets had higher lightness (L*) and lower redness (a*) values compared to normal fillets ($p<0.05$). However, pH and WHC values of raw meat were comparable between the two groups ($p>0.05$). PSE fillets had higher L* values than the normal fillets even after marinating and baking ($p<0.05$). In addition, WHC of marinated and baked fillets were higher in normal fillets ($p<0.05$). However, pH and cooking loss values are similar between PSE and normal fillets after marinating and baking ($p>0.05$). Sensory properties of baked fillets were comparable between PSE and normal samples. In conclusion, approximately 4% lower WHC in marinated and baked breast fillets were identified as the consequence of PSE condition.

Keywords: Color, Water holding capacity, Marination, Broiler meat, PSE