Prevalence of Pale, Soft, and Exudative (PSE) Condition in Chicken Meat in a Commercial Meat Processing Plant and Its Effect on Roasted Chicken Breast

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Pale, soft, exudative (PSE) condition is a growing problem in the broiler industry and it results in PSE meat with pale color, low water holding capacity, and softer texture. Pre slaughter handling, post mortem factors, and genetics are the main predisposing factors contributing to PSE condition in meat. This condition affects the product yield and quality. The objectives of this study were to determine the incidence of PSE chicken meat in a commercial meat processing plant and to find out its consequences on the meat quality traits of roasted chicken breast. A total of sixty breast fillets were randomly selected and evaluated based on color and placed into one of two categories, PSE or normal. A total of 20 breast fillets (10 PSE and 10 normal) were analyzed for color, pH, and water holding capacity. After processing them into roasted chicken breast, cooking loss, color, pH, water holding capacity and texture of samples were evaluated. Sensory evaluation was done using 30 untrained panellists. The incidence of PSE meat was 70% in the experiment. The PSE fillets were significantly ($p<0.05$) lighter and had a lower pH compared to normal fillets. The negative correlation between the lightness and pH was significant. There was no significant difference in color, texture and water holding capacity when fillets were processed into roasted chicken breasts. However, results showed an approximately 3% cooking loss in PSE meat. Moreover, cooking loss and lightness values showed a significant positive correlation. Nevertheless there were no significant differences in sensory parameters among normal and PSE chicken meat. These results indicated that although significant color differences were not detected between PSE and normal meat after roasting, it may cause economic losses due to significantly higher cooking losses.

Keywords: Color, pH, Water holding capacity, Cooking loss, PSE