

Determination of Sensory, Microbiological, Physio-chemical Quality and Shelf life of Portioned Chicken Meat under Display Condition at Market Stage

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Abstract

Sri Lankan meat processing industry has been rapidly developed since last decade. With increasing market demand they develop various portioned meat products to the market fulfilling the customer requirement. Meat processors recently noticed that during display condition at market stage quality of the products were considerably changed. The aim of this study was to evaluate the physiochemical, microbial, sensory quality changes and shelf life of portioned chicken meat in three commercial brands at display condition (-4°C to $+4^{\circ}\text{C}$) during 9 days. During the storage period pH value, water holding capacity (WHC), sensory attributes and microbial count were measured in 3 days interval over 10 days. Statistical evaluation was performed using one way ANOVA, general linear model and Friedman test. Gradual and proportional increment of pH values (between 6.14 ± 0.51 and 6.93 ± 0.57) were observed in tested commercial brands of portioned meat samples during the storage time. Furthermore, WHC values were shown significant reduction (between 62.55 ± 0.50 and 55.32 ± 0.02) in all portioned meat samples during the storage time. Total plate counts were increased ($p > 0.05$) in the portioned meat of each three commercial brands until 9th day of storage whereas *coliform* bacteria also followed the same pattern. However, *Escherichia coli* were not found in any of sample analyzed. Total bacteria count in portioned chicken meat samples were changed from $3.60 \pm 0.58 \log_{10} \text{cfu g}^{-1}$ to $8.03 \pm 0.31 \log_{10} \text{CFU g}^{-1}$ from day 0 to day 9 of storage. The results showed a gradual and proportional decrease of sensory quality in all portioned meat samples during the storage time ($P < 0.05$). In conclusion, overall results of the study, number and diversity of bacteria species, pH, WHC and sensory quality of portioned chicken meat significantly change with the storage time under display condition at the market level. Also above quality changes significantly difference among three different commercial brands. To assure the quality of portioned chicken meat, it should not exceed five to six days in display condition (kept on -4°C to $+4^{\circ}\text{C}$) at market stage.

Keywords: Portioned chicken meat, color, sensory quality, refrigerated storage, *Escherichia*