

Effect of Marination with Lime Juice, Papaya Juice and Sesame Oil on Meat Quality Characteristics of Chicken Wings

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As a result of consumer's attention towards health, it has become a trend to consume natural ingredients to improve the quality of the product. There is a high possibility to use natural ingredients in the meat industry to improve the quality parameters of chicken meat. This study was done to determine the meat quality parameters of marinated chicken wings with lime juice, papaya juice, and sesame oil. Chicken wings were marinated for three hours with spice mixture mixed with lime juice, papaya juice, and sesame oil separately and the control sample was marinated with spice mixture mixed with water. Marinade: meat ratio was 1:1. Marinade uptake, meat quality parameters, proximate analysis, microbiological parameters, and lipid oxidation level of marinated chicken wings were evaluated. Sensory analysis was performed using a 7-point hedonic scale. The results showed that papaya juice has improved the tenderness of chicken wings ($p < 0.05$). Flavor desirability and general acceptability were significantly higher in chicken wings marinated with sesame oil according to the sensory evaluation. Lime juice ensured microbiological safety as it showed the lowest total plate count (7.25 CFU mL^{-1}). TBARS value was higher ($p < 0.05$) in wings marinated with lime juice (0.73 mg kg^{-1}). The antioxidant activity was higher in sesame oil (72%). Marinade uptake, crude ash, crude protein, and crude fat content of three treatments were significantly different. Chicken wings marinated with sesame oil had higher ($p < 0.05$) marinade uptake ($3.18 \pm 0.53\%$), fat content ($8.30 \pm 0.17\%$) and protein content ($67.11 \pm 0.05\%$) while those marinated with lime juice obtained higher ($p < 0.05$) crude ash content ($1.63 \pm 0.01\%$). Meat quality parameters such as pH, color, and texture were significantly different ($p < 0.05$) among the treatments. Chicken wings marinated with sesame oil had the highest texture, pH, and color values. In conclusion, sesame oil was a better marinade ingredient compared to lime juice and papaya juice.

Keywords: Tenderness, Antioxidant activity, Marinade uptake