



Effect of Marination Technique and Marinade Type on the Physicochemical and Sensory Properties of Broiler Thigh Meat

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Abstract

Marination is a process used to improve both the physicochemical properties and sensory attributes of meat. The present study investigated (i) the effect of marination and (ii) the interactive effects of three marination techniques (immersion, injection, and tumbling) and two marinade types (acidic vs. basic) on the physicochemical and sensory attributes of broiler thigh meat. The experiment was conducted using a 3×2 factorial arrangement in a Completely Randomized Design (CRD), with an additional unmarinated control treatment. A total of 56 deboned chicken (35-d-old, Cobb 500, unsexed) thigh samples (Mean $\pm$ SD, 60 ± 5 g) were treated with either acidic (pH: 4.5) or basic (pH 8.5) marinade and were assigned to one of the six treatment groups. The samples were held at 4 °C for 8 hours. The one-way ANOVA revealed that the control and marinated treatments were differed ($p < 0.05$) for marinade uptake, meat pH and cohesiveness. The two-way ANOVA results revealed a significant method $\times$ marinade type interaction ($p < 0.05$) for the marinade uptake, pH, cooking loss, cooking yield, drip loss, and TP. All the colorimetric parameters except the internal b^* resulted a significant method $\times$ marinade type interaction ($p < 0.05$). At basic pH, tumbling resulted the highest marinade uptake than its acidic counterpart ($p < 0.05$). Both immersion, INA, and TB marinade types resulted the highest cooking yield ($p < 0.05$) and the minimum cooking loss ($p < 0.05$). IMA and the INA resulted in the lowest hardness ($p < 0.05$). INA exhibited the optimal values across all tested colorimetric parameters. Sensory results revealed that the overall acceptability was similar across all treatments. The study concludes that injection marination in an acidic medium enhances the physicochemical properties of broiler meat without affecting its sensory characteristics.

Keywords: Chicken, Immersion, Injection, Marination, Tumbling, Sensory

