



Effect of Sweet Potato Flour Addition on Batter Quality and Oil Absorption of Fried Chicken Drumsticks

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Abstract

Among different broiler chicken products, batter-coated fried chicken drumsticks are widely consumed. Deep-fat frying is known to increase oil absorption, which may cause adverse health effects. This study evaluated the effect of sweet potato flour (SPF) as a partial substitute for wheat flour (WF) on batter quality, oil absorption, and sensory acceptability of deep-fat-fried chicken drumsticks. Fresh chicken drumsticks (110.0 ± 8.72 g; Ross 308, unsexed chicken) were used. Batter was prepared with WF and SPF in different proportions. The experiment was conducted using a completely randomized design with five treatments and four replicates per treatment. Treatments consisted of different WF and SPF ratios: T1 (100% WF; Control), T2 (75% WF: 25% SPF), T3 (50% WF: 50% SPF), T4 (25% WF: 75% SPF), and T5 (100% SPF). Batter-coated drumsticks were examined for their proximate composition, gross energy (GE), physicochemical parameters, and sensory attributes. Results revealed that GE and moisture content were influenced by the treatments ($P < 0.05$). Crude protein content in the coated drumsticks decreased with increasing SPF levels ($P < 0.05$). Inclusion of SPF in batter reduced crude fat compared to the control ($P < 0.05$). Ash content was similar across all the treatments ($P > 0.05$), whereas the crude fiber increased with increasing SPF inclusion ($P < 0.05$). Batter pickup, frying yield, frying loss, pH, and water-holding capacity were similar across treatments ($P > 0.05$). Texture profile and instrumental color values (L^* , a^* , b^*) were not affected by SPF incorporation ($P > 0.05$). Sensory evaluation indicated that there were no differences in appearance, color, or aroma ($P > 0.05$) among the treatments. Sensory evaluation revealed that T2 reported the highest scores for crispiness and texture, while T4 reported the highest ratings for flavor and overall acceptability. In conclusion, substituting WF with 75% SPF can be recommended as the optimal formulation while maintaining product quality and sensory acceptability in fried chicken drumsticks.

Key Words: Batter-coated chicken drumsticks, Deep-fat frying, Oil absorption, Sweet potato flour, Wheat flour

