

The Effect of Green-Synthesized Nano-Calcium Fortification from Chicken Bones on the Chemical Quality of Chicken Meatballs

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ABSTRACT

This study aimed to determine the effect of green-synthesized nano-calcium from broiler chicken bones on the chemical quality of chicken meatballs. A Completely Randomized Design (CRD) consisting of five treatments and four replications was employed. The treatments included P0 (without nano-calcium fortification), P1 (0.15% nano-calcium), P2 (0.30% nano-calcium), P3 (0.45% nano-calcium), and P4 (0.60% nano-calcium) based on the total meatball batter. The observed parameters were moisture content, protein content, fat content, ash content, and calcium content. The data were analyzed using Analysis of Variance (ANOVA), followed by Duncan's Multiple Range Test (DMRT) when significant differences were detected ($P < 0.05$). The results showed that broiler bone nano-calcium fortification produced through green synthesis had no significant effect ($P > 0.05$) on the moisture, protein, fat, and ash contents of broiler chicken meatballs. However, it had a significant effect ($P < 0.05$) on calcium content. The calcium content increased with increasing levels of nano-calcium fortification, from 18.00 mg/100 g in P0 to 60.00 mg/100 g in P4. It can be concluded that broiler bone nano-calcium produced through green synthesis has the potential to be used as a fortifying agent to increase the calcium content of broiler chicken meatballs without adversely affecting their chemical quality.

Keywords: *nano-calcium, broiler bone, green synthesis, broiler meatball, chemical quality*