Physical Quality of Broiler Meatballs with Nano Calcium Fortification of Broiler Bones Through Green Synthesis Method

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ABSTRACT

This study aims to determine the effect of nano calcium fortification on the physical quality of broiler meatballs. The materials used included broiler fillet meat, nano calcium from broiler bones, tapioca flour, eggs, salt, MSG, pepper, garlic, shallots, soy protein isolate (SPI), lime, ethanol, and ice cubes. A completely randomized design (CRD) was used. This study used 5 treatments: P0 (0%), P1 (0.15%), P2 (0.30%), P3 (0.45%), and P4 (0.60%) nano broiler bone calcium from the total dough with 4 replicates for each treatment. The parameters observed were pH value, cooking shrinkage, water binding capacity, and tenderness. The physical test data were analyzed using one-way analysis of variance, and if there were differences in the means, they were further tested using Duncan's Multiple Range Test (DMRT). The results showed that broiler meatballs fortified with nano broiler bone calcium had a significant effect on water-holding capacity and tenderness. The results of the study showed that broiler meatballs fortified with nano broiler bone calcium had a significant effect on water-holding capacity and tenderness but did not affect pH and cooking loss. The best results were obtained for water-holding capacity at the highest fortification level of 0.60%, with a value of 28.63%.

Keywords: *Nano calcium, broiler bones, broiler chicken meatballs, physical quality*