

Effect of Nano Calcium Fortification from Layer Chicken Eggshells on the Physical Quality of Ungkep Meat from Male Layer Chickens

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ABSTRACT

This study aimed to determine the effect of nano-calcium lactate fortification derived from layer chicken eggshells on the physical quality of ungkep meat from male layer chickens. The research materials consisted of breast and thigh meat of male layer chickens and nano-calcium lactate. A Completely Randomized Design (CRD) was applied with three treatments: P1 (0%), P2 (0.30%), and P3 (0.60%) based on meat weight, each with four replications. The observed parameters included pH value, water holding capacity, cooking loss, and tenderness. Data were analyzed using analysis of variance (ANOVA) followed by Duncan's multiple range test at a 95% confidence level. The results showed that nano-calcium lactate fortification had a significant effect ($P < 0.05$) on pH value and cooking loss, but had no significant effect ($P > 0.05$) on water holding capacity and tenderness. The pH value decreased from 6.44 to 6.07. Cooking loss increased from 5.63% to 11.36% with increasing fortification concentration. Water holding capacity ranged from 80.23% to 82.03%. Tenderness values ranged from 105.65 to 112.22 N. Numerically, tenderness tended to increase at the 0.60% fortification level, although the difference was not statistically significant. It can be concluded that nano-calcium lactate fortification derived from layer chicken eggshells affects certain physical quality parameters of ungkep meat from male layer chickens, particularly pH value and cooking loss.

Keywords: *nano calcium lactate, male layer chicken, physical quality, ungkep meat.*