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Assessing the Effect of Cassava Flour as a Binding Agent in Chicken Sausages

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Abstract

Meat products are widely consumed globally, offering a valuable opportunity to enhance health benefits through improved formulations. The purpose of the present study was to assess how varying levels of cassava flour (CF) incorporation (0%, 50%, 75%, and 100%) as a binding agent affects the nutritional composition, physicochemical properties, and sensory appeal of chicken sausages. This study was conducted in a completely randomized design (CRD) evaluating four (04) treatments (Control: 0%, CF50: 50%, CF75: 75%, and CF100: 100% CF substitution from the conventional binder mixture). Each treatment replicated three times. Cassava flour and all four treatments were analyzed for proximate composition and physicochemical properties. Sensory attributes were evaluated in a 6-point hedonic scale. One-way ANOVA was used to analyze proximate and physicochemical data and the sensory scores were separated using unpaired t-test. Results showed that the Control, CF50 and CF75 exhibited the optimal nutritional profile recommended for sausages. Increasing CF incorporation ($P<0.05$) changed pH to become more acidic. The water holding capacity, cohesiveness, gumminess, chewiness, external redness (a*), yellowness (b*) and internal lightness (L*), a* and b* values were similar ($P>0.05$) across all four treatments. Unlike the treatments CF75% and CF100%, incorporation of CF at 50% (CF50) produced sausages with favorable folding test scores, extract release volume (ERV), springiness, and external L* and in comparable with the control. Resilience was higher in CF50 and CF100 than the control. Total CF substitution (CF100) increased moisture retention but reduced cooking yield with increased cooking loss ($P<0.05$). Total CF substitution resulted the lowest hardness ($P<0.05$). The results of the sensory evaluation revealed that CF50 was the most preferred sausage treatment by the panelists ($P<0.05$). The present study concluded that CF when substituted by 50% in the conventional binder mixture optimally enhances the proximate profiles, physicochemical properties and sensory attributes of chicken sausages.

Key Words: *Cassava flour, Chicken sausage, Physicochemical properties, Sensory attributes, Texture.*