

ABSTRACT

Sodium tripolyphosphate (STPP) is one of the most prevalent food additives used in chicken sausages manufacturing due to its exceptional water retaining and texture modulating functions. However, the increasing health concerns and avoidance policy related to its consumption prompt the search of its probable substitute. In this research, potassium carbonate (K_2CO_3) combined with carrageenan (at 0.5%) were used to replace STPP due to their potential pH increasing, water retaining, and texture modulating functions. Used in combination with 0.5% carrageenan, the effect of K_2CO_3 concentrations (0.05%, 0.1%, 0.2%, 0.4%, and 0.8%) was evaluated towards several properties of chicken sausage such as pH, cooking loss, brightness (ΔL^*), and freeze-thaw stability (thawing loss, water holding capacity (WHC), and texture profile). In combination with 0.5% carrageenan, the higher the concentration of K_2CO_3 resulted to higher sausage pH, lower cooking loss, and darker surface color compared to control (containing 0.2% STPP). Over four freeze-thaw (FT) cycles, the same circumstances led to a lower sausage thawing loss and higher WHC compared to control, but no significant effect was observed on sausage texture profile (hardness, springiness, and cohesiveness) in each of the FT cycles. This study could subsequently become the preliminary findings for using K_2CO_3 and carrageenan in formulating STPP-free processed meat products.