Characteristics of the Beef Cheek Meat-Based Sausage Added with Snakehead (Channa striata) Gelatin

ABSTRACT

This study is aimed at determining the functional effect of snakehead fish gelatin as a binder on the characteristics and shelf life of beef cheek-based emulsion sausage compared with bovine commercial gelatin. The level of snakehead fish gelatin used was 0%, 1%, 2%, and 3%, while that of bovine commercial gelatin was 2% with a storage time of 0 to 28 days in the refrigerator (4±2° C). Emulsion stability, cooking loss, proximate composition, texture profile, and microstructure of sausage were initially determined before storage; then, observations were made every seven days to determine the shelf life of sausages based on pH, antioxidant activity, and TBA reactivity. Characteristics such as emulsion stability, proximate composition, and texture profile were influenced by the treatment ($p < 0:05$). The gelatin level significantly affected the water holding capacity of sausages ($p < 0:05$), but the storage time did not ($p > 0:05$). On the other hand, the pH, TBA reactivity, and antioxidant activity of sausages were not only affected by gelatin level ($p < 0:05$) but also by storage time ($p < 0:05$). The sausage microstructure confirms the use of 2% snakehead fish gelatin to make sausages with properties similar to 2% commercial bovine gelatin. The byproduct of the snakehead fish industry can be used as a gelatin alternative to produce sausages. This gelatin has the potential as a binder, which can functionally improve sausage characteristics. This effectiveness can boost the water holding capacity of sausages, although it has not been effective in inhibiting fat oxidation which causes an increase in malonaldehyde levels.