

Effects of shiitake mushroom (*lentinula edodes*) powder on the quality of reduced-fat chicken sausage

ABSTRACT

This study aimed to determine the effects of reducing chicken fat levels from 15% to 7.5% by partially substituting the fat with Shiitake mushroom powder. A total of five chicken sausage formulations was developed and tested for its physicochemical properties as well as sensory evaluation. The samples include control sample (15% fat; 0% mushroom powder), and treated samples consist of F1 (7.5% fat; 0% mushroom powder), F2 (7.5% fat; 3% mushroom powder), F3 (7.5% fat; 6% mushroom powder), and F4 (7.5% fat; 7% mushroom powder). Reduced-fat chicken sausage with a 7% Shiitake mushroom powder had lower cooking loss ($6.58 \pm 0.23\%$), pH (5.91 ± 0.08), total fluid released, fat released ($0.64 \pm 0.10\%$), water released, lightness, and reduced the juiciness of the chicken sausage (2.23 ± 1.28). Increased Shiitake mushroom powder, on the other hand, resulted in more redness, yellowness, hardness (ranging from 22.17 ± 1.79 to 42.92 ± 2.41). Shiitake mushroom powder was successfully used in the formulation to reduce fat content in the formulated sausages while maintaining similar quality characteristics to the regular-fat (15%) control. In fact, the addition of shiitake mushroom powder to the chicken sausage could improve quality properties in terms of cooking loss, emulsion stability, texture, and consumer acceptance. Reduced-fat chicken sausage with 3% Shiitake mushroom powder scored similarly to high-fat control sausages in terms of sensory evaluation (6.07 ± 0.58), respectively. The addition of Shiitake mushroom powder at 6% and 9%, on the other hand, reduced the panellists' acceptance of that sausage. This is due to perceived dark colour, strong mushroom flavour, as well as less juicy contributes to less this acceptancy. Overall, the findings of this study suggested that adding 3% Shiitake mushroom powder to reduced-fat chicken sausage can be used as a fat replacer because it can improve the quality characteristics of the sausage.