

Effects of Temperature and Time on Proximate Composition of Canned Oyster Mushroom and Functional Properties of Its Brine Solution

ABSTRACT

Canning is a method to preserve highly abundant and perishable edible mushrooms. However, high temperatures applied during canning caused nutrient degradation and leaching into the brine solution. This study aims to determine the effect of retort temperatures (116, 121 and 126 °C) at 25, 30 and 35 minutes on oyster mushrooms by measuring their proximate composition. Meanwhile, the foaming capacity, foaming stability and emulsion capacity were conducted to determine the functional properties of the brine. The results showed that the retort temperatures and times decreased the protein and fat content of the oyster mushroom ($p < 0.05$) up to about 20.20% and 50.30%, respectively, hence indicating the occurrence of nutrient denaturation and leaching. In contrast, an increase in ash and fibre was observed with the retort processing temperatures and times ($p < 0.05$). The brine solution of canned mushrooms subjected to more than 30 minutes of retort processing time had better foam formation (60-83%) with the greatest stability ($p < 0.05$). In conclusion, retort processing temperatures and time greatly affect the nutrients of oyster mushrooms. Moreover, the formation of stable aerated bubbles indicates the functional potential of the brine even with the slight occurrence of nutrient leaching..