

## The Effects of Storage in Vegetable Oil on The Proximate Composition and Microbiological Quality of Hot Smoked South African Black Mussels (*Choromytilus meridionalis*)

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### Abstract

Commercial production of *Choromytilus meridionalis* (black mussel) and *Mytilus galloprovincialis* (Mediterranean mussel) contributes to half of the South African marine aquaculture production per year, however, limited ready-to-eat black mussel products are available. The aim of the study was to investigate the effects of storage (15 days at room temperature) of ready-to-eat small-scale kitchen-based produced hot smoked black mussels in vegetable oil on the total viable counts (TVC), coliforms, proximate composition, and fat oxidation (TBARS). Three batches of black mussel meat were hot smoked at 80°C for 15 minutes. Half of each batch were packaged in sterile glass bottles with heated (50°C) vegetable oil and half without oil. Microbiological analyses were done at days 1, 3, 9 and 15. Proximate composition was determined at day 1 and TBARS at days 1 and 15. Coliforms for all samples throughout the storage period were undetected. Mussels stored without oil had no growth at days 1 to 5 but reached TVC > 5 log<sub>10</sub>.g<sup>-1</sup> at day 15. TVC for mussels in oil increased from 0 at day 1 to > 5 log<sub>10</sub>.g<sup>-1</sup> at day 3 and remained > 5 log<sub>10</sub>.g<sup>-1</sup>. There was no significant difference (P>0.05) in moisture, protein, and ash for mussels stored in oil and those without oil, while significant differences (P<0.001) in total fat and carbohydrates in mussels with oil (10.27±2.10% and 6.80±2.22%) and without oil (5.05±1.49% and 10.59±3.00%) were detected. Differences were due to the presence of additional fats from the vegetable oil. TBARS at day 15 showed no significant difference (P>0.05) between mussels in oil and those without oil. There were also no significant differences in TBARS from day 1 to 15 for both oil and without oil. Kitchen-scale produced smoked black mussels preserved without vegetable oil could be stored for up to 9 days at room temperature.