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Effects of Addition of NaCl on the Formation of Lipid Peroxidation Derived Toxic Aldehydes, 4-Hydroxyalkenals in Processed and Stored Fish and Meats, Especially Suppression of the Formation

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Summary

In order to elucidate the role of NaCl for suppression of the formation of 4-hydroxyalkenals in processed and stored fish and pork, we investigated the changes on 4-hydroxyhexenal (HHE) or 4-hydroxynonenal (HNE) contents in fish meats or pork containing NaCl, respectively.

Yellowtail meats containing 0, 0.3, 0.6 and 0.9 M NaCl were stored at -20°C for 20 weeks and changes of HHE contents were analyzed. HHE contents decreased after 4 weeks of storage and then increased after 12 weeks of storage.

Pork containing 0, 0.3, 0.6 and 0.9 M NaCl were stored at -20°C for 20 weeks and changes of HNE contents were analyzed. HNE contents in control samples decreased gradually and those in 0.9 M NaCl decreased significantly after 4 weeks of storage.

Yellowtail meats containing 5 % BHT, 0.6 M NaCl and 5 % BHT + 0.6 M NaCl were stored at 0°C for 7 days and changes of HHE contents were analyzed. HHE contents in the meats containing BHT increased significantly after 7 days of storage, but HHE contents in other samples did not change significantly.

Pork containing 5 % BHT, 0.6 M NaCl and 5 % BHT + 0.6 M NaCl were stored at 0°C for 7 days and changes of HNE contents were analyzed. HNE contents in the meats containing BHT increased significantly after 7 days of storage, but HNE contents in other samples did not change significantly.

NaCl was added to boiled yellowtail meats, stored at 4 °C and changes of HHE contents were analyzed. HHE formation might be accelerated in the samples containing 2 % NaCl.