

Addition of NaCl may suppress the formation of lipid peroxidation derived toxic aldehydes, 4-hydroxyalkenals in stored meats

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In order to elucidate effects of NaCl on the formation of 4-hydroxyalkenals in meats, we investigated the changes on 4-hydroxyhexenal (HHE) or 4-hydroxynonenal (HNE) contents in fish meats or pork containing NaCl, respectively. As an index of lipid peroxidation, we also analyzed malonaldehyde (MDA) and protein carbonyl (CP) contents in these samples.

Judging from MDA and CP contents, NaCl may suppress lipid peroxidation in yellowtail Seriola quinqueradiata meats stored at 0 °C. However, HHE contents increased during storage in the meats containing NaCl. In contrast to yellowtail meats, NaCl may accelerate lipid peroxidation but might suppress the formation of HHE in cangid fish Seriola dumerili meats stored at 0 °C.

The NaCl treated cangid fish meats stored at -20°C demonstrated a concentration dependent significantly high level of MDA and CP indicating NaCl accelerates lipid peroxidation. However, HHE was not detected in 0.6M and 0.9M NaCl treated samples after 12th storage indicating NaCl may suppress the formation of HHE.

Judging from MDA, CP and HHE contents, NaCl accelerated both lipid peroxidation and HNE formation in the pork stored at 0 °C.

Further studies are necessary to elucidate the effect of NaCl on the formation of 4-hydroxyalkenals in meats because results obtained from fish meats seems to be contrary to those obtained from pork.