

**Title** Quality loss during the frozen storage of sea salmon (*Pseudoperca semifasciata*). Effect of rosemary (*Rosmarinus officinalis* L.) extract

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#### **Abstract**

Lipid and protein alterations during the frozen storage (-11 °C) were analyzed in minced sea salmon muscles to evaluate the effect of the application of rosemary extract (200 and 500 mg/kg). Lipid oxidation reached maximum TBA values between 3 and 4 months of storage in untreated muscles. The main polyunsaturated fatty acids affected were 22:6- $\omega$ 3, 22:5- $\omega$ 3 and 20:4- $\omega$ 6 acids. Phospholipid hydrolysis was also detected. Rosemary extract reduced lipid oxidation for 6 months (500 mg/kg, muscle with 10.8 g/kg lipids) or 3 months (200 mg/kg, muscle with 5.3 g/kg lipids). Myofibrillar proteins showed a decrease of extractability (80%) after 2 months of storage. Myosin denaturation was evident by DSC at 3 months, while myosin and actin peaks disappeared at 6 months. A diminution of extractable polypeptides of high molecular weight was recorded by SDS-PAGE after 3 months. The available lysine content suffered a reduction starting at 3 months of storage, suggesting some interaction involving the free amino groups of lysine. Fluorescent compounds' determination did not show changes due to the interaction of lipid oxidation products and proteins, while protein alterations could not be reduced by the rosemary extract. Furthermore, the antioxidant reduced the loss of red color in the muscle.