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**ID:** 107**Division:** Refrigerated & Frozen Foods**Seventy-Day Storage Under Retail-Simulated Thermal Stress Conditions: Effect on Chitosan-Based Coatings and Water Glazing Applied on Frozen Salmon (*Salmo Salar*)***Antonio Vicente, Braga, Portugal**Pedro Silva**Nuno Soares***Introduction:**

During retail storage, frozen fish products can suffer temperature variations that lead to a decrease in quality. These temperature variations can be caused by a multitude of reasons, some of which are easy to control, while others are due to unforeseen circumstances. In either case, thermal stress can often affect frozen fish products and this effect is of considerable importance. This work reports a strategy to help mitigating the effects of thermal stress of frozen fish samples.

**Method:**

A 15 g/L chitosan solution was applied on frozen salmon samples through dipping at a temperature of 8°C, with a dipping time of 10 s; water glazing was applied as blank treatment at 0.5°C, with a dipping time of 40 s. All samples were submitted to retail-simulated thermal stress conditions (i.e. a temperature variation of -15°C to -5°C was enforced), and studied during a 70-days long experiment. Total viable counts (TVC), total volatile basic nitrogen (TVB-N), pH, coating loss, and color were assessed during that period.

**Results:**

The anti-microbial effect of chitosan was confirmed through TVC which showed a reduction in microbial counts in chitosan coated samples. Through coating loss, it was possible to verify that chitosan coatings offer better protection, with water glazed samples becoming virtually unprotected after the evaluation period, with losses of more than 80% of glazing, while chitosan coated samples maintained 50% of coating. Extrapolating this data to complete loss of water glazing shows an increase in shelf life of at least 26% in chitosan coated samples. No significant changes between samples were obtained in the other parameters assessed.

**Significance:**

The proven anti-microbial effect of chitosan coated samples in conjunction with a slower coating loss leads to an expected increase in shelf life, even in unforeseen circumstances of temperature change in retail transportation.

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