OMICS International
conferenceseries.com

Yasuyuki Tsukamasa et al., J Food Process Technol 2015, 6:8
http://dx.doi.org/10.4172/2157-7110.S1.024

4th International Conference and Exhibition on
Food Processing & Technology
August 10-12, 2015 London, UK

# Delay of met-myoglobin formation in frozen skipjack tuna (*Katsuwonus pelamis*) meat during cold storage using NADase

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Raising the temperature of frozen tuna meat from below -40°C to approximately -10°C before thawing has been reported to remove NAD+ and prevent thaw-rigor. If NAD+ is degraded by NADase, glycolysis will cease and a high pH and low met-myoglobin content will be maintained after thawing. Therefore, we attempted to identify conditions that would suppress met-myoglobin formation during cold storage of frozen skipjack tuna meat. B1 skipjack tuna stored at -40°C was used. Temperature shift treatment (TST) was performed by raising the temperature of the meat to -5°C, -6°C, -7°C and -8°C for 24 hours. After TST, samples were stored at 5°C for 2 days with or without vacuum packaging. Regardless of the packaging, 24 hours of TST reduced the NAD+ content. A remarkable decrease in pH from 6.3 to 6.0 was observed in meat stored at -5°C TST; however, the pH of all other TST samples remained stable during storage at 5°C. In contrast, non-treatment groups with and without vacuum packaging showed a major decrease in pH to as low as 5.6. The met-myoglobin content increased remarkably during cold storage in all non-treatment groups with and without vacuum packaging and in all TST groups without vacuum packaging. However, all TST groups including the -5°C with vacuum packaging group maintained the met-myoglobin content at the level measured after 0 hour storage at 5° C. Thus, TST and vacuum packaging are both required to delay met-myoglobin formation. The NADase activity of skipjack tuna meat was also measured.

## Biography

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