**Effect of Chilling Storage and Aging Treatment on Chemical Components of fish.**

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## Outline

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## Abstract

Due to the highly perishable nature of fish, the storage of fresh fish slices is often influenced by post-mortem microorganisms and endogenous biochemical reactions, leading to deterioration in quality and a shortened shelf life. The degradation of inosine monophosphate (IMP) and the accumulation of inosine and hypoxanthine (Hx) contribute to the loss of freshness. Different storage methods and processing techniques further affect the freshness of fish, the rate of IMP degradation, and even flavor and physicochemical properties. Therefore, study aim to investigate the effects of storage temperature and different processing methods on IMP degradation, freshness, flavor, and physicochemical properties of fish meat. The results indicate that pretreatment can extend the freshness by reducing microbial contamination and inhibiting the Total Volatile Basic Nitrogen (TVB-N) levels, while there was no significant difference in IMP degradation between storage temperatures of 4°C and -1°C, pretreatment resulted in a significant difference in the levels of inosine and Hx during the final stages of refrigeration in both groups. In addition to altering temperature and microbial treatment, deep-sea aging improves fish flavor and storage. Deep-sea aging mitigates the decrease in IMP content in big amberjack meat and promotes increased free amino acid content due to protein degradation. However, significant effects of deep-sea aging on flavor component increase and protein autolysis promotion were not observed in bluefin tuna, indicating species-specific factors. Overall, these two studies demonstrate that refrigeration temperature, microbial treatment, and aging processes can all control the freshness of fish and the rate of IMP degradation, with deep-sea aging showing promise in addressing long-term storage issues and flavor enhancement.

## Reference

Li, J., Zhou, G., Xue, P., Dong, X., Xia, Y., Regenstein, J., Du, M., & Sun, L. (2021). Spoilage microbes' effect on freshness and IMP degradation in sturgeon fillets during chilled storage. *Food Bioscience*, *41*, 101008.

Nakamura, Y., Sato, T., Takatori, M., Hirama, T., Oshima, K., & Takahashi, K. (2021). Impacts of deep-sea aging on quality of greater amberjack (*Seriola dumerili*) and 7 bluefin tuna (*Thunnus orientalis*) meats. *LWT*, *146*, 111326.