

## CHANGES IN FISH SAUCE QUALITY THROUGHOUT PRODUCTION

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### Abstract

Fish sauce is a seasoning made by combining fish extracts that have been aged and cured in salt. Fish sauce contains various amino acids that contribute to umami flavoring. Since amino acids are produced *via* enzymatic protein decomposition, the composition of umami ingredients changes during fish sauce production. In this study, we have produced fish sauce using horse mackerel and measured levels of histidine, arginine, taurine, and alanine, which are abundant in horse mackerel, to investigate changes in umami components over time.

Horse mackerel was gutted, soaked in saturated brine, and stored at 25 °C for 13 weeks. The amino acids in the fish sauce were extracted with perchloric acid and extracts were neutralized with KOH. Extract samples were phenyl isothiocyanate-derivatized and analyzed by high-performance liquid chromatography - HPLC on the production start date and after 1, 3, 5, 9, and 13 weeks.

Except for arginine, the amount of each amino acid increased with time, indicating that these amino acids are being produced by proteases. An enzyme that rapidly degrades arginine has been reported to exist in Japanese anchovy. The presence of a homologous enzyme in horse mackerel could explain why arginine was not seen to increase in this study.

To investigate changes in fish sauce quality during production, histidine, alanine, taurine, and arginine levels were measured over time. Histidine, alanine, and taurine content increased over time, but arginine did not.

**Key words:** *Fish sauce, Amino acids, HPLC.*