

Method for optimizing salt concentration to control histamine levels in fermented fish sauce to ensure safety and reduce waste

Processing and distribution

Implementation

Item: Fermented fish sauce

Food loss reduction

Outline

Optimizing the salinity of fermented fish sauce during preparation effectively prevents histamine accumulation during fermentation, which can cause allergy-like food poisoning. The method can be used to reduce the risk of product disposal owing to safety concerns.

Background/effect/note

Fermented fish sauce is prepared by mixing salt/freshwater fish with salt and fermenting for months to a year is widely used in Asia. The production methods and ingredients vary by region. Fish proteins break down during fermentation into various amino acids, such as glutamate and histidine. Glutamate is known for its umami taste, while histidine can be converted into histamine by certain bacteria. Although human sensitivity to histamine varies, foods containing 500–1,000 ppm of histamine or more are considered inedible owing to the risk of allergy-like food poisoning and must be discarded.

Lower-salinity *padaek*, a traditional fermented fish sauce in Laos, has a higher histamine content (Fig. 1). Mixing fish, salt, and rice bran in a 3:1:1 ratio results in approximately 18% salinity, which suppresses histamine-producing bacteria, based on an analysis of the traditional production method. A simplified chart (Fig. 2) describes this method. The salinity and histamine levels in the *padaek* prepared by farmers instructed in using this method were substantially higher and lower, respectively, than those in samples from the same village before implementing the salinity management practice (Fig. 3).

The salinity of fermented fish sauce should be adjusted to suit local methods when applying this practice. Controlling fish freshness is essential to ensure product safety.

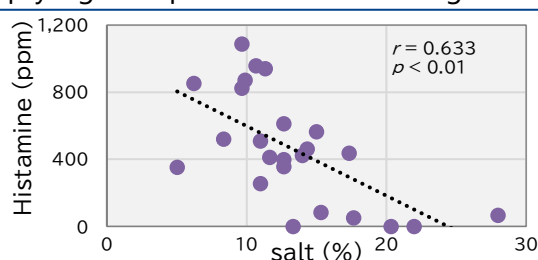


Fig. 1. Negative correlation between salt and histamine contents in *padaek* corrected from rural households

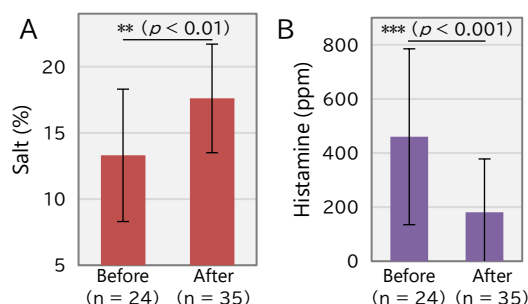


Fig. 3. Comparisons of average salt (A) and histamine (B) contents of *padaek* sampled from a village before (Before) and after (After) implementing salinity optimizing practices.

