Maintaining an acidic condition can prevent liquefaction of fermented rice noodles

Processing and distribution ➤ Implementation ➤ Item: Fermented rice noodles   Food loss reduction

Outline

Maintenance of acidic condition (approximately pH 4) of fermented rice noodles can suppress the growth of amylase-producing bacteria, which cause liquefaction of the product under the post-manufacturing ambient storage conditions. This technique is effective for reducing food loss and waste.

Background/effect/note

Fermented rice noodles are traditional foods widely produced and consumed in Thailand. Similar products are common in Laos, Vietnam, Cambodia, Myanmar, and China. These noodles are prepared from fermented rice flour containing lactate and retain quality without rotting for a few days at ambient temperature. However, these noodles may occasionally undergo severe liquefaction, causing economic and food losses (Fig. 1).

This is attributed to bacterial amylolytic enzymes (α-amylase) that are activated when the pH of the noodles increases to ≥ 6.0. However, liquefaction can be prevented by maintaining the product under an acidic condition (approximately pH 4) (Fig. 2).

In addition to the technology to control liquefaction of the product, the use of a booklet (Fig. 3) that explains the production process and cooking method in simple local language will improve the profitability of producers, reduce food loss, and promote dietary education.

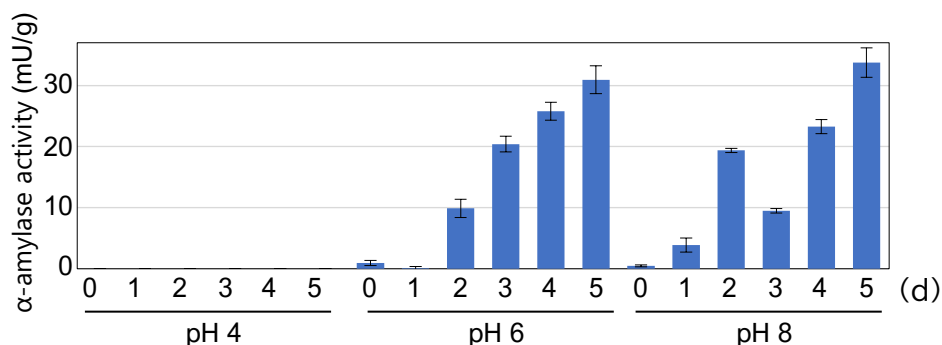Fig.1. Fermented rice noodles recalled from the market before selling due to the liquefaction

Fig. 2. Time-dependent change in α-amylase activity (cause for the liquefaction) in fermented rice noodles treated with buffers at pH 4.0, 6.0, and 8.0

Technical details:

https://www.jircas.go.jp/en/publication/research_results/2019_c01

https://www.jircas.go.jp/ja/publication/kanomjeen

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Fig. 3. Introduction of pH monitoring methods for fermented rice noodles in the form of a booklet written in Thai

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