

NEWS RELEASE

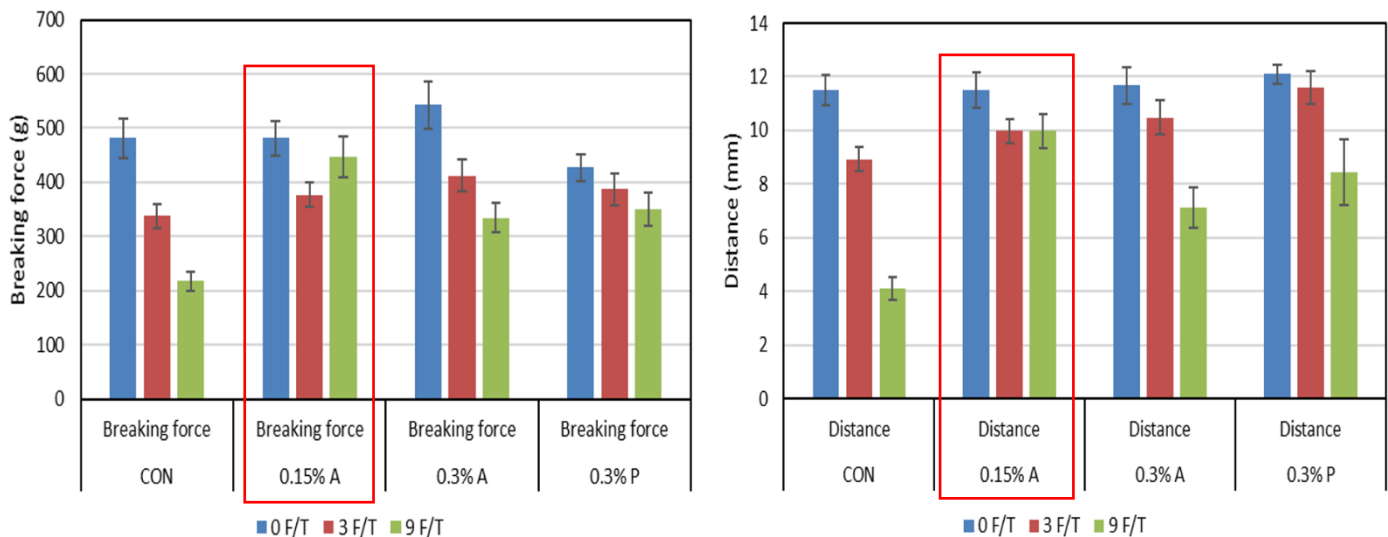
Are you interested in **no-phosphate surimi**? Have you experienced **significant texture reduction** with no-phosphate surimi?

Arginine, which is one of essential amino acids, **is your answer**.

Sodium phosphate mixture (50/50) [sodium tripolyphosphate (STPP) and tetrasodium pyrophosphate (TSPP)] has been used as a critical ingredient after being mixed with sugar and sorbitol in the production of commercial surimi since 1960s. Its role is to keep the pH of washed fish mince neutral (7.2 ± 0.2) and chelate any possible divalent metal ions during frozen storage, minimizing the protein denaturation and keeping texture quality good. The usage level has been 0.3% for coldwater surimi and 0.2% for tropical surimi. However, starting in France last 10 years, there has been a marketing trend to remove the sodium phosphate from the crabstick. Consequently some frozen surimi made without sodium phosphate has been suffered with significant texture deterioration at prolonged frozen storage. Therefore replacing sodium phosphate with a consumer friendly food ingredient is highly needed.

Prof. Jae Park and OSU Surimi School conducted a research using arginine, which is an essential amino acid, as a phosphate replacement in Pacific whiting surimi. L-arginine (A) (0.15 and 0.3%), along with 0.3% sodium phosphate (P), was tried in Pacific whiting surimi. During frozen storage (20°C), surimi was subjected to freeze/thaw treatments (0, 3, and 9 cycles) to mimic long term frozen storage (i.e., 6 mo and 18 mo). Once surimi gel was made, pH, water retention ability (WRA), whiteness, and texture were measured.

The pH of control, 0.15% A, 0.3% A, and 0.3% P decreased from 6.9 to 6.7, from 7.1 to 7.0, from 7.8 to 7.6, and 7.2 to 6.8, respectively. L-arginine at 0.15% maintained the pH unchanged during F/T cycles. WRA was well maintained for A and P during F/T cycles. [Gel whiteness and texture were maintained](#)



better at 0.15% A, compared to other treatments (0.3% Arginine, 0.3% Sodium phosphate mixture, and control). As shown in figures above, 0.15% arginine treatment showed the highest breaking force and highest distance after 9 cycles of freezing/thawing. They were better than 0.3% sodium phosphate addition.

This study suggested that **L-arginine can replace sodium phosphate mixture in surimi production effectively.**

This paper will be presented at the **70th Pacific Fisheries Technologists Conference** (February 25-27, 2019) in San Carlos Nuevo Guaymas, Mexico and the **12th Surimi School Europe** (September 25-27, 2019) in Madrid, Spain.

For details (how to get samples and make a trial run),

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