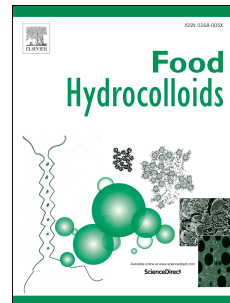


Accepted Manuscript

Sweet potato starch with low pasting temperature to improve the gelling quality of surimi gels after freezing

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PII: S0268-005X(17)31308-5

DOI: [10.1016/j.foodhyd.2018.03.024](https://doi.org/10.1016/j.foodhyd.2018.03.024)

Reference: FOOHYD 4335

To appear in: *Food Hydrocolloids*

Received Date: 1 August 2017

Revised Date: 26 January 2018

Accepted Date: 12 March 2018

Please cite this article as: Jia, R., Katano, T., Yoshimoto, Y., Gao, Y., Watanabe, Y., Nakazawa, N., Osako, K., Okazaki, E., Sweet potato starch with low pasting temperature to improve the gelling quality of surimi gels after freezing, *Food Hydrocolloids* (2018), doi: 10.1016/j.foodhyd.2018.03.024.

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1 Abstract

2 The effects of native sweet potato starch (NS) and native sweet potato starch with low
3 pasting temperature and slow retrogradation tendency (NSL) on quality changes of
4 heated surimi gels after freezing and thawing were evaluated and compared.
5 Starch-surimi gels were frozen by quick or slow freezing and were stored at $-20\text{ }^{\circ}\text{C}$
6 for 4 weeks. Gelling quality was determined by microstructure, drip loss, and texture
7 profile analysis. The results showed that ice crystal size after freezing and void size
8 after thawing were larger in NS-surimi gels than in NSL-surimi gels, and NSL-surimi
9 gels showed less structural damage after thawing. Higher drip loss was observed with
10 NS-surimi gels after freezing, although the expressible drip before freezing was nearly
11 the same in both types of surimi gels. As for the texture profile analysis, NSL-surimi
12 gels showed no increase in hardness and a lower decrease in adhesiveness than
13 NS-surimi gels. Moreover, freezing rate also affected changes in gelling quality.
14 Compared with slow freezing, quick freezing led to the formation of smaller ice
15 crystals, which allowed starch granules to maintain their original globular shape,
16 resulting in a minor change in gelling quality. Our results indicated that addition of
17 NSL could improve the gelling quality of surimi gels after freezing.

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