Smart solution to detect seafood spoilage

October 29 2020, by Flinders University

Credit: CC0 Public Domain

Importantly, Flinders University's Professor of Aquaculture Jian Qin—who led the study with Flinders colleague Professor Youhong Tang—says this simple device could become commercially viable and enable a "real-time" monitoring of spoilage in seafood to ensure food safety for consumers.

The first author of this publication was Professor Yonghua Jiang, a visiting scholar from Jimei University, China. She estimates that this device can be a major cost saver for the seafood industry and retailers, as spoilage accounts for at least 10% of all seafood production.

The core of the new spoilage analysis technology is understanding that biogenic amines play an important physiological function of living cells, but a high level of biogenic amines in seafood has an adverse impact on human health and can cause food poisoning.

Therefore, biogenic amines have become important indicators for the evaluation of food freshness and edibility—and reading these amines can be done by a simple and cost-effective method using the filter papers loaded with an AIEgen, such as dihydroquinoxaline derivative (H + DQ2), to monitor salmon spoilage.

The research found that as spoilage in the salmon samples increased, triggering more amine vapours, so too did the intensity of the readings on the treated filter papers.

Results from the study—"Semi-quantitative Evaluation of Seafood Spoilage Using Filter-paper Strips Loaded With an Aggregation-induced Emission Luminoge," have been published in the journal *Food Chemistry*.

"This study provides a quick and simple way for testing amine vapour from fish and provides baseline information for developing an easy-to-use, on-site method to evaluate seafood quality for customers," says Professor of Materials Engineering Youhong Tang, from Flinders University's Institute of NanoScale Science and Technology and Medical Device Research Institute.

The research team will now do further optimisation tests on the paper

strips and the AIEgen loading, to provide a more robust solution for daily usage towards commercial applications.

More information: Yonghua Jiang et al. Semi-quantitative evaluation of seafood spoilage using filter-paper strips loaded with an aggregation-induced emission luminogen, *Food Chemistry* (2020). DOI: 10.1016/j.foodchem.2020.127056

Provided by Flinders University

Citation: Smart solution to detect seafood spoilage (2020, October 29) retrieved 26 April 2024 from https://phys.org/news/2020-10-smart-solution-seafood-spoilage.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.