

Identification method of the cause for fat and oil oxidation

Quick and easy elucidation by NIR of the cause for fat and oil oxidation

Overview

Fat and oil are easily oxidized by heat and light irradiation during the manufacturing process and storage. Since antioxidant measure depends on the oxidation cause, it is important to determine not only the oxidation level but also its cause in order to maintain the vegetable oil quality.

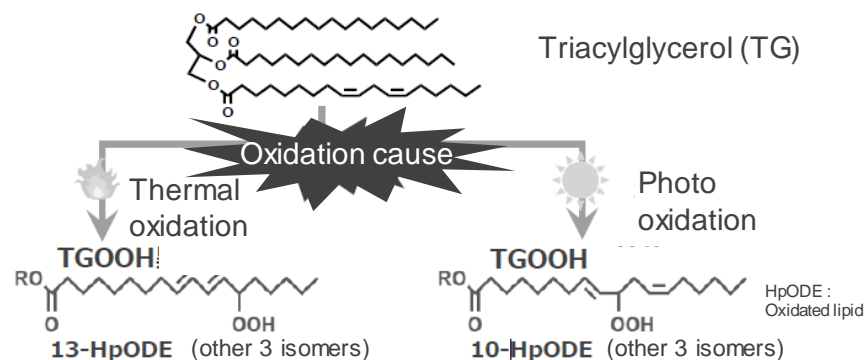
Although a method for identifying the oxidation cause through isomer analysis of lipid hydroperoxide by LC-MS/MS has been reported [1], this method is not versatile since it requires complicated operation, and laboratory level facility and equipment. On the other hand, this research has established a method to identify the oxidation cause using near-infrared spectroscopy (NIR), which is widely used for nondestructive analysis of food product. So far, NIR has been used to evaluate oil oxidation, such as peroxide value, carbonyl value, and conjugated diene value of vegetable oil, but it has not been applied to determine the oxidation cause. This invention is able to quickly and easily identify the cause for fat and oil oxidation.

Product Application

- Quality control of oil and fat

IP Data

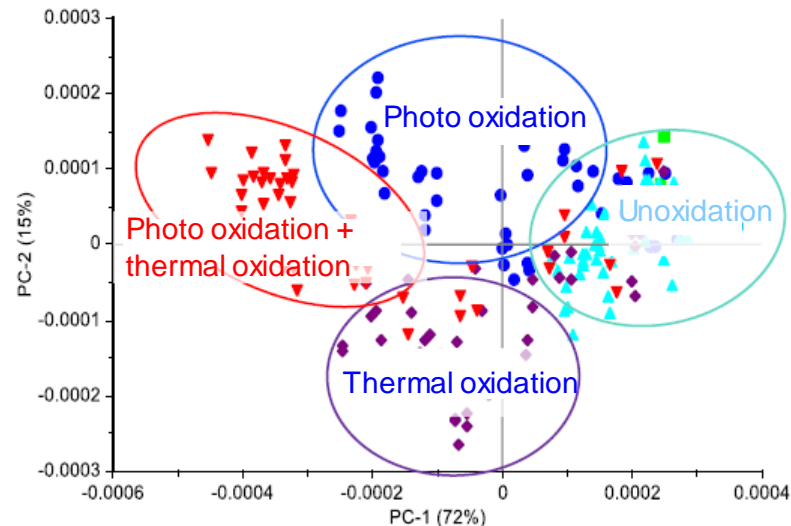
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Admin No. : T21-195



Determine small structural difference in TGOOH
Quick and easy identification of oxidation cause by NIR

Possible to identify different cause of oxidation (light/heat)

Result of principal component analysis of near infrared spectrum of rapeseed oil



Related Works

[1] Shunji Kato et al. NPJ Science of Food, 2 (2018)

Contact