FST Lunchtime Seminars

Impacts of Storage on the Chemical and Sensory Profiles of Heat Treated Green Tea Model Systems

By **Mr. Yu Peigen**

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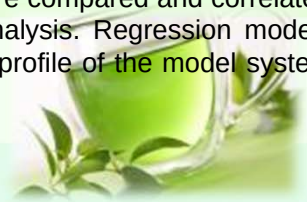
Abstract

Green tea, a beverage conventionally prepared from the infusion of unfermented leaves of Camellia sinensis in hot water, is presently one of the most widely consumed drinks throughout the world, especially in East Asian countries. In recent years, there has been a rising trend in demand for canned or bottled ready-to-drink (RTD) green tea beverages, due to the increasing recognition of the health benefits of green tea globally, as well as consumers' growing desire for convenience in their lifestyles. Production of such green tea beverages typically involves a heat treatment process, followed by bottling, and storage of up to a year. Thermal treatment at elevated temperatures is generally known to cause degradation of key non-volatile compounds, such as tea catechins. However, RTD green teas are also susceptible to oxidation during storage, which brings about additional changes over time, during which its sensory and chemical profiles change correspondingly, until it stabilises. These factors thus affect the eventual sensory characteristics and consumer liking of the product, and hence are of interest to the RTD beverages industry. While the effects of storage on the profile changes of green tea leaves have been investigated previously, there are no studies focusing on RTD green tea products. The main objective of this study was to investigate the impacts of storage on the chemical and sensory profiles of a RTD green tea model system. Following an ultra-high temperature treatment, the model green tea products were stored at different temperatures over a period of 28 days, with periodical sampling for analyses. Sensory characteristics of the green tea samples were evaluated by a trained sensory panel using the Flavour Profile Method. High performance liquid chromatography coupled with a photodiode array detector, as well as gas chromatography coupled with a flame ionisation detector and a mass spectrometer, were used for instrumental analysis of volatile and non-volatile analytes. Sensory data were compared and correlated with chemical data obtained from instrumental analysis. Regression models were developed to objectively predict the sensory profile of the model system based on its flavour constituents.



Effects of Fish Gelatin and Chitosan Coating on Quality Attributes and Nanostructural Changes of Fish Fillet

By **Ms. Feng Xiao**

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Abstract

Fish gelatin incorporating chitosan was applied as edible coating in fish fillet during cold storage to extend fillet's shelf life. Five edible coating groups including control, 0.4% chitosan, 0.4% chitosan with 3.6% gelatin, 0.4% chitosan with 5.4% gelatin, and 0.4% chitosan with 7.2% gelatin were applied in fish fillet that was manually produced from farm-raised golden pomfret. Physicochemical properties including weight loss, pH, colour, electrical conductivity and total volatile basic nitrogen (TVB-N) were measured. The result revealed that the pH of control group increased significantly from 5.9 to 7.9 from day 0 to day 17 during 4ºC storage. On contrast, pH of gelatin/chitosan coated groups remained stable (approximately 6.1) at day 17. The TVB-N of control group increased from 3.59 to 93.52 mg/ 100 g, while for gelatin/chitosan coated groups TVB-N was below 13.56 mg/100 g at day 17, suggesting a preservation effect of antimicrobial coating. There is no significant difference of pH and TVB-N between the chitosan only group and the chitosan and gelatin combined groups. Interestingly, the weight loss of gelatin coated groups was dramatically less than that of control and 0.4% chitosan coated group. Qualitative and quantitative nanostructural analysis of myofibril of fish fillet via atomic force microscpy provided evidence of delayed degradation of myofibril in chitosan/gelatin coated groups. Meanwhile, the group with gelatin had lower myofilament/ myofibril ratio compared to the group only with chitosan, which shows the preservative function of gelatin on fish fillet. MALDI-TOF Mass Spectrometry results showed more compounds of greater molecular weight in chitosan/gelatin coated groups than control group. Overall, these results demonstrate that edible coating of chitosan combined with fish gelatin can delay the quality deterioration and nanostructural degradation of fish fillet during cold storage..

Host: Dr. Yang Hong Shun
Date: 5th November 2014, Wednesday
Time: 1 to 2 pm
Venue: Seminar Room S14-06-20