

Patcharaporn Tinchai 2014: Changes in Odor Characteristics of Canned Coconut Milk during Storage. Doctor of Philosophy (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Associate Professor Siree Chaiseri, Ph.D. 209 pages.

The changes of the volatile profiles in the canned coconut milk, stored under the tropical condition (32-35 °C) for 6 months, were investigated in the first experiment. Two stages of major changes in volatile profiles were observed. First, there was the major change in month 2 identified by the increases of alcohols, acids and lactones. The second change was observed in month 5 when lactones and acids extensively increased corresponded with the notification of the coconut-like, sweet, fatty and rancid odors. To gain better understanding of the odor development during the canning process and the storage of canned coconut milk, the second experiment was performed. The aroma characteristics of the fresh coconut milk (FCM), the canned coconut milk immediately after processing (CCM0), the canned coconut milk after 3 months of storage at ambient temperature of 23 °C (CCM3-AT) and those after 3 months of storage at 40 °C (CCM3-40C) were investigated. Thirty-seven odorants were detected in FCM, with the dominance of δ -octalactone (FD = 486), δ -decalactone (405), guaiacol (378), 2-phenylethanol (54), 4-ethylguaiacol (54), methional (45), capric acid (18) and octanal (15). After canning process, 51 odorants were detected in CCM0, and most of them had FD values higher than those in FCM, correlating to the stronger odor of CCM0. Methional (FD = 729), 2-actyl-1-pyrroline (27), dimethyl trisulfide (18) and 2-methyl-3-furanthiol (9) associated with the potato, popcorn, sulfury and meaty odors that led to the off-odor of canned coconut milk. The non-terminological odor, described as stale, rancid-green, sweet, fatty and astringency, was detected by the trained panelists in CCM3-AT and CCM3-40C. Storing at 40 °C for 3 months reduced FD values of most odorants comparing to those of CCM3-AT. Indole and skatole were firstly detected in CCM3-40C and could contribute to the off-odor. Quantification of volatile compounds and lipid profiles of coconut milks were also investigated in this study.

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