

# Sensory and Gas Chromatography-Olfactometry Analyses of Aroma Compounds in Fresh and Canned Coconut Milks

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## Introduction and Objective

Demands of coconut milk for Asian cuisine are worldwide. To preserve shelf-life and be commercial available, canning is one a widespread process. However, the overall odor of coconut milk was almost completely changed after canning. This work aimed to clarify phenomenon occurring after canning process by sensory and gas chromatography analysis.

## Methods

Canned coconut milk was retorted at 121°C to have F<sub>0</sub> of 5 min. Ten trained panelists were asked to clarify the odor attributes and range their intensities using the 15-points-scale consensus descriptive analysis. The fresh and canned coconut milk samples were extracted by solvent assisted flavor evaporation unit using diethyl ether. The extracts were analyzed using gas chromatography-olfactometry (GC-O) by two trained panelists on RTX-wax and DB-5 columns. Identifications of aroma compounds were conducted on gas chromatography-mass spectrometry (GC-MS) analysis, retention indexes (RI) comparison and the authentic compound confirmation.

## Results

Sensory panels gave 9 attributes to represent the odor of coconut milks, including coconut-like, creamy, caramel or custard-like, popcorn, nutty, potato, meaty, fruity and fresh. The higher intensity scores in all attributes except for the fresh and fruity in canned coconut milk pointed out the differences from the fresh sample. Compounds that could play important roles on the aroma difference between the fresh and the canned coconut milk samples were sulfur-containing compounds, pyrazines, pyrroles and lactones. The highlighted compounds were 2-methyl-3-furanthiol, 2-acetyl-1-pyrroline, dimethyl trisulfide, methional,  $\delta$ -octalactone,  $\delta$ -decalactone and furaneol.

## Conclusion

Thermal degradation and Maillard reaction products contributed to the aroma generated after canning process. These compounds brought meaty, sulfurous, nutty and caramel odors to canned coconut milk.

**Keywords:** canned coconut milk, aroma compounds, sensory analysis, GC-O

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