Chutiwan Nimitmai 2008: Aroma Compounds in Processed Fingerroot. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Associate Professor Siree Chaiseri, Ph.D. 96 pages.

Krachai or fingerroot is commonly used in Thai cooking. Using fingerroot in processed foods might change its aroma compounds. This experiment was to study the differences in aroma compounds among fresh fingerroot roots and 4 types of processed roots. Processes employed in this study were; tray-drying at 55 °C for 4.5 h, boiling for 30 min, stir-frying at 90-100 °C for 30 min and canning at 121 °C for 15 min. Volatile compounds from fresh and processed roots were extracted using diethyl ether and then isolated by high vacuum distillation. Volatile compounds were analysed using gas chromatography-mass spectrometry (GC-MS). Aroma active compounds were analysed by using gas chromatography-olfactometry (GC-O). Major volatile compounds in fresh root were *(E)*-β-ocimene, geraniol, camphor, 1,8-cineole, *(Z)*-β-ocimene, geranial and camphene. Dried roots had the decrease of these major compounds content except for geraniol. Boiled roots had a reduction of linalool and geranial. The amounts of other major compounds remained the same as those found in fresh roots. Canned roots had similarly effect on volatile compounds to those in boiled roots. However, aroma compounds in canned fingerroot were at higher concentration than those in boiled fingerroot. Therefore, the aroma of canned roots should be higher intensity than the boiled roots. Some high OAV major compounds in stir-fried roots were lower than those in fresh roots. The aroma active compounds in fresh and processed roots were determined with Aroma Extract Dilution Analysis (AEDA). The aroma active compounds in fingerroot were α-pinene, 1,8-cineole, alloocimene, geraniol, methyl cinnamate, geranyl propionate and (-)-endo-2,6-dimethyl-6-(4-methyl-3-pentenyl) bicycle[3.1.1]hept-2-ene. These were decreases of $\log_3$FD factor of major aroma compounds in dried roots compared with those of fresh roots. This agreed with the result from GC-MS. This study showed that the aroma of boiled roots was similar to the canned root aroma because most of their aroma active compounds were similar.

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