Abdullah Sinan Colakoglu et al., J Food Process Technol 2017, 8:9(Suppl)
DOI: 10.4172/2157-7110-C1-068

SPME/GC-MS characterization of volatiles in whey butter

Abdullah Sinan Colakoglu[1], **Hawrin S Abubakar**[1] and **Turkan Mutlu Keceli**[2]
[1]Kahramanmaras Sutcu Imam University, Turkey
[2]Cukurova University, Turkey

Since annual world cheese-whey production is increasing, whey utilization has been the subject of much research. Whey, depending on the milk source, type, and processing method of cheese, contains 0.3-0.5% of fat. This study was assessed to determine the volatile profile of whey butter, and to verify if the volatile fraction, determinant for butter flavor, differs among the collection centers and from milk butter. Whey butter was produced from whey collected from four different cities around Turkey. Briefly, after clarification and pasteurization, whey was concentrated to cream with 45-50% fat content by a cream separator. The cream was allowed to crystallize at a cool temperature and then churned. Finally, the obtained butter worked to improve its consistency and kept -20oC. A duplicate 3.0 g portion of the butter sample and 10 µL of 2-methyl-3-heptanone in methanol as an internal standard in a 15-mL vial were hermetically sealed with Teflon coated rubber septa and aluminum caps and allowed to equilibrate at 40oC for 30 min. Extraction is achieved by inserting a 75 µm carboxen-polydimethylsiloxane (CAR/PDMS) fiber into the vial and exposing it to the headspace for 30 min at 40oC. Desorption of the extracted volatiles was carried out on a gas chromatography-mass spectrometry system and run in split (ratio was 1:20) mode. During desorption, the fiber remained in the injector for 2 min at a temperature of 250oC, with helium as the carrier gas at a flow rate of 1.0 mL/min. The volatile compounds were separated on a DB-Wax column (60 m x 0.25 mm x 0.25 µm). The oven was held at 40oC for 2 min, then increased to 5oC/min to 240oC and held for 6 min at 240oC. The mass spectrometer was set to record at 33–450 atomic mass units (threshold 1000) at a sampling rate of 1.11 scans/s. The volatile compounds were identified by calculation of the retention index (RI) of each compound, using an n-alkane series (C10–C26) under the same conditions. Identifications were confirmed by comparing retention times with reference standards when available. The amount of the volatile compounds was calculated by the comparison of the peak area of the internal standard and the unknown compounds. Each compound was expressed as µg/100 g of butter. Two commercially produced milk butters were used as control samples. The results obtained from the study will be presented and discussed.

Biography

Abdullah Sinan Colakoglu is working as an Assistant Professor in Food Engineering at Kahramanmaras Sutcu Imam University, Turkey. He received his BSc degree from Cukurova University; MSc degree from The Ohio State University, USA and; PhD degree from Ankara University, Turkey. He has been active in Food Science for over 15 years and worked primarily on Food Chemistry. His research mainly includes thermal and oxidative stability of lipids by thermal analyses and bread quality and staling by thermal and mechanical analyses. He has completed four research projects supported by Scientific and Technological Research Council of Turkey and University research funds. His research team is currently working on characterization of whey butter obtained from different collection centers. He has produced 36 international and national publications and cited over 80 times. He has served as the Editor for *International Journal of Food Science and Biotechnology*, and Reviewer for the *Journal of Food and Turkish Journal of Agriculture - Food Science and Technology.*

ascolakoglu@ksu.edu.tr

Notes: