

**Comparison of solid-phase microextraction and simultaneous distillation-extraction methods for the analysis of key aroma compounds in butter**Yang Li<sup>1</sup>, Yan Li<sup>2</sup> and Liebing Zhang<sup>1</sup><sup>1</sup>China Agricultural University, China<sup>2</sup>Beijing Technology and Business University, China

Various techniques have been applied to evaluate key aroma compounds in butter. This study aimed to compare the performance of two extraction techniques, static headspace (solid-phase microextraction, SPME) and simultaneous distillation-extraction (SDE), in evaluating key aroma compounds in butter. The volatile compounds in butter of different brands were identified by gas chromatography-mass spectrometry (GC-MS) and gas chromatography-olfactometry (GC-O) after extraction via the two extraction methods. 41 kinds of volatile compounds were detected using the SDE method, which was much more than using SPME method (31 kinds). Specifically, SDE method extracted more methyl ketones. Nine kinds of methyl ketones were identified in two brands of butter (2-pentanone, 2-hexanone, 2-heptanone, 2-octanone, 2-nonanone, 2-undecanone, 2-dodecanone, 2-tridecanone, 2-pentadecanone) using SDE method; only two of the methyl ketones were identified by SPME (2-nonanone and 2-undecanone). However, SPME demonstrated its advantage on extracting short chain fatty acids and lactones, especially more  $\delta$ -decalactone. Considering the discrepant performances, a combined application of the two methods is necessary for more precisely profiling the key aroma compounds in butter.

**Biography**

Yang Li has her expertise in studying Dairy Microorganisms and Dairy Science and has published one article "Effects of different inoculating and freeze-drying conditions on the fatty acid profile of *Lactobacillus delbrueckii subsp. Bulgaricus* (in Chinese)" in 2011. Recently, her research interests focus on dairy flavor chemistry, enzyme modified milkfat and cream aroma enhancement. She has already analyzed key aroma compounds in different milkfat products (sweet cream, sour cream, butter and enzyme modified butter) by aroma activity values and GC-O. The results show that  $\delta$ -decalactone is one of the most important active aroma compounds in milkfat products.

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