# Evaluation of the volatilomic potentials of the Lactobacillus casei 431 and Lactobacillus acidophilus La-5 in fermented milk

This study was carried out to investigate the contribution of two strains of Lactobacilli; Lactobacillus casei 431 and Lactobacillus acidophilus La-5 to the volatile organic compounds (VOCs) in fermented milk. The samples were subjected to the headspace-solid phase micro-extraction (HS-SPME) and gas chromatography mass spectrometry (GC-MS). Prior to the HS-SPME, four different silica fibres were screened for their ability to retain VOCs in the fermented milk. The fibre that retained the highest amount of VOCs was selected and used for the subsequent analyses. A total of 105 compounds made up of a wide range of VOCs such as acids, alcohols, aldehydes, aromatic compounds, esters and ketones were identified. The ketones were the most abundant group of compounds produced by the two strains of lactic acid bacteria (LAB) investigated. In addition, L. casei 431 was able to produce higher concentrations of typical flavour compounds like 2,3-butanedione, 2-heptanone, acetoin and 2-nonanone compared to L acidophilus La-5. As such, the ability of these strains to produce these distinct typical flavour compounds suggests their potential as starter cultures for the production of fermented dairy products with enhanced flavour/or aroma.

**Keyword:** Lactobacillus acidophilus La-5; Lactobacillus casei 431; Milk fermentation; Volatile organic compounds