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# Impact of starter culture, ingredients, and flour type on sourdough bread volatiles as monitored by selected ion flow tube-mass spectrometry

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**Running title:** Sourdough bread volatiles measured by selected ion-flow tube mass spectrometry

**Abstract**

This study deals with the detection of volatile compounds originating from the crumb of breads made with sourdoughs obtained through starter culture-initiated fermentations, which differed in flour type (wheat and teff), ingredients (citrate and malate), fermentation time (24 h or 72 h), and starter culture strains (homo- and heterofermentative lactic acid bacteria species and acetic acid bacteria species) applied. Therefore, selected ion flow tube-mass spectrometry (SIFT-MS) was used. SIFT-MS is an easy-to-use and promising technique in the field of food and flavor analysis. Volatile compounds of crumb samples from the breads with sourdough were measured and compared with those of reference bread crumb samples. In general, sourdough addition had a positive effect on the concentrations of the volatile compounds measured by SIFT-MS. Furthermore, a trend toward higher concentrations of several volatiles was seen upon the addition of sourdoughs that were fermented up to 72 h,