

Title Tomato volatile fingerprinting by direct PTR-MS headspace analysis
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Abstract

Information on the taste and flavor characteristics of intact and processed fruit products is increasingly important for the food industry for determining optimal harvesting dates and postharvest conditions, and in ensuring that the taste and aromas required for optimal consumer acceptability are produced and maintained. These considerations have resulted in a growing interest in detecting volatile organic compounds (VOCs) emitted from fruits and vegetables. Tomato flavor is one of the most complex fruit flavors. Its composition has been extensively studied and more than 400 flavor volatiles have been identified in tomatoes. Not all of these compounds contribute significantly to the overall flavor, and some authors have used gas chromatography-olfactometry to identify the most important flavor compounds. The composition of volatiles in the headspace of a food product is generally thought to be close to what is actually experienced during eating. PTR-MS is a direct headspace MS technique which allows rapid analysis of volatile flavor compounds, even at pptv concentration levels. In order to use volatile fingerprinting as a quality criterium, the volatile profiles of different tomato cultivars were compared using two analytical techniques. Firstly, the volatile profiles were determined by fingerprinting PTR-MS and, secondly, the volatile compounds of the tomatoes were identified by GC-MS using Solid Phase Micro Extraction (SPME) analysis.