

New Approach to Field Sampling of Flavors and Fragrances

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Field sampling of flavors and fragrances achieved much attention many years ago as scientists at IFF and Givaudan demonstrated their ability to capture the fragrance of living flowers. The technologies most commonly used were either trapping of the volatiles on an absorbent tube or collection onto Solid Phase Micro Extraction (SPME) fibers. These techniques enabled the discovery of different stages of volatile emission from flowers during the course of blooming and inspired the creation of new fragrances by perfumers. These accomplishments were inspiring; however, there is an inherent barrier or flaw in these techniques – the perfumers or flavorist are unable to smell the captured aromas prior to analysis by the instruments such as gas chromatography – mass spectrometry (GC-MS). In other words, they are given the results, but they don't know if the initial captured aroma is to their liking. If there was a technique that enables collected aromas to be brought back into the lab where they could be released for both sensory and analytical analysis, then that capability would add more value to field sampling approaches. Our lab has been focused on the development of this capability and we will be sharing our results in this journey. Initial prototypes have been developed and applied to the capture of coffee and floral aromas. We will continue to apply this to other applications as well.

1. Yong Foo Wong, Dan Dan Yan, Robert A. Shellie, Danilo Sciarrone, and Philip Marriott (2019) Rapid plant volatiles screening using headspace SPME and person-portable gas chromatography-mass-spectrometry. *Chromatographia* 82, 297-305.
2. Wei L., Wei S., Hu D., Feng L., Liu Y., Liu H., and Liao W. (2022) Comprehensive flavor analysis of volatile components during the vase period of cut lily (*Lilium spp.* 'Manissa') flowers by HS-SPME/GC-MS combined with e-nose technology. *Front. Plant Sci.* Volume 13 - 2022 | <https://doi.org/10.3389/fpls.2022.822956>