

In-Mouth Coffee Aroma: Breath-By-Breath Analysis of Nose-Space While Drinking Coffee

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SUMMARY

Currently the vast majority of the investigations on aroma are performed under equilibrium or dynamic headspace conditions to best estimate flavour. However, eating or drinking conditions have additional important factors such as mixing, mastication and salivation, heating and others. This can lead to significant alterations of the physical and chemical state of its constituents (e.g. melting, emulsification, adsorption) and modify the release of volatiles relative to headspace profiles. Nose-space analysis is a method to sample aroma compounds directly released from humans through the nose when eating food. The main benefits of such an approach is the ability to investigate the aroma during the actual situation of consumption.

Here, we would like to present a novel approach to breath-by-breath analysis of volatiles exhaled through the nose based on Proton-Transfer-Reaction Mass-Spectrometry. First we will discuss the methods and outline the advantages of this novel method relative to current approaches. We then go on presenting breath-by-breath nose-space results while drinking coffee. Keeping the coffee for some while in the mouth, we observe a marked change in volatile distribution with time. This is indicative for a change of the perceived coffee flavour profile with time.