



Società Chimica Italiana
Divisione di Spettrometria
di Massa



XXII International Mass Spectrometry Conference

Florence (Italy) - August 26-31, 2018



ABSTRACT BOOK



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Results

Ethyl caproate (*i.e.*, ethyl hexanoate) provides one of the characteristic fragrances of sake. As the cup of sake was placed at the introducing tube of the Volatimeship, ethyl caproate was immediately detected by mass spectrometer. The volatilization behavior of ethyl caproate for each cup were measured. The wineglass not only showed higher intensity at the moment of placing the cup, but it also showed better sustainability. These analysis results supported the results of organoleptic evaluation. Moreover, the detected compounds from sake was different depend on cups. As for wineglass and champagne glass, there were some compounds that were not detected from Choko. These analysis results also supported the results of organoleptic evaluation, too.

Conclusions

An introducing device for volatile compounds combined with DART-MS enabled continuous detection of the change in fragrance intensity directly from the sake vessel. Therefore, this method can be useful for objective evaluation of the duration and change of scent. Additionally, this method can be useful for visualizing the sensory evaluation, because it enabled visualization of the varying intensity, or quality, of the fragrance of sake depend on cups.

Novel Aspect

An introducing device for volatile compounds combined with DART-MS enables objectively evaluation the sensual sensation of fragrance.

MP-130 / EXPLORING INTER-INDIVIDUAL DIFFERENCES IN IN-VIVO FLAVOUR RELEASE BY SIFT-MS

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Introduction

Selected-Ion Flow-Tube Mass Spectrometry (SIFT-MS) allows on line accurate quantification of several volatile organic compounds down to the ppb range [1]. The technique has been applied to different cases of breath analysis [2]–[5] but to the authors knowledge it has not been applied to monitor in nose flavor release during food consumption for a large population.

In this work we describe a SIFT-MS based approach to measure in-vivo nose-space VOCs concentration during consumption of strawberry flavored candies on a large healthy population with the aim to investigate the inter-individual variability in flavor release: nose space analysis might disclose new information regarding the interaction between products and consumers [6].

Methods

In this study the effect of gender, age and BMI on flavor release was investigated. Ninety-two volunteers (60.9 % female) between 22 to 68 years old (mean= 40.9; SD= 11.9) participated in the study. Each subject, after filling in a socio-demographic questionnaire, consumed a strawberry candy following a specific bite-based procedure supported by a video tool. Simultaneously nose-space analysis with a SIFT-MS machine was carried out (SYFT VOICE 200 ultra, Syft Ltd, New Zealand). Each subject performed at least 3 replicates of the same sample.

Results

With the set up used it was possible to monitor in real time 7 different aroma compounds released by the candy (ethyl maltol, 3-hexen-1-ol, ethyl 2-methylbutanoate, (Z)-3-hexenyl acetate, ethyl butanoate, ethyl hexanoate, 2-methylbutanoic acid) and acetone as marker of the participant breathing cycle. Principal Component Analysis (PCA) showed a possible effect of age and BMI on the flavor release signals. Both age and BMI were found to have a slightly negative correlation with in-nose aroma release for three of the monitored compounds (Pearson correlation, $p < 0.05$). Significant differences were found in hexenyl acetate and acetone levels (Welch t-test $p < 0.01$) between males and females: in both cases females presented higher in-nose levels. The study is part of a broader investigation that aims to evaluate the Italian olfactory function (COLFIT PROJECT) and here some preliminary results of the explorative data analysis are presented.

Conclusions

Real time mass spectrometry analysis by SIFT-MS can detect and monitor in-vivo volatile organic compounds release during candies consumption. For the first time the analysis was applied to a large sample of the population with the aim to characterize how physiological factors like age, gender, BMI and eating behaviors affect in nose aroma release. The results suggest an effect of age on aroma release and an effect of BMI that might be used to study some aspects underlying the retronasal perception mechanisms in more detail.

Novel Aspect

Real time direct injection mass spectrometric analysis through SIFT-MS is a powerful tool to realize population screening and investigate flavor release mechanisms.

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MPS-S06 - Clinical chemistry

Chairs: Hugo Rocha, Giancarlo la Marca

MP-131 / IMPACT OF CYP2D6 GENETIC POLYMORPHISM ON THE PHARMACOKINETICS OF TRAMADOL AND ITS THREE MAIN METABOLITES IN KOREANS

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