

# Exploring the inter-individual variability in flavor release: preliminary results

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## Abstract

Factors affecting flavor release during food consumption have been widely debated in the literature for years. Due to the high complexity behind this phenomenon, several studies have undertaken the cause by mimicking the *in-mouth* processes by artificial devices or *in vitro* approaches (Salles *et al.*, 2011).

Nevertheless, studies involving *in vivo* approaches are not lacking (e.g. Aprea *et al.*, 2006; Pedrotti *et al.*, 2018), even if just few of them involved a large sample size (Repoux *et al.*, 2011) which may be the key point to disclose new insight on the inter-individual differences on flavor release.

Thus, here we present the preliminary results of a study, which aimed to investigate the inter-individual variability on flavor release during the consumption of a model food on a large healthy population.

Ninety-three subjects (60.9 % female) between 22 to 68 years old participated in the study. Each subject, after filling in a socio-demographic questionnaire and giving an unstimulated saliva sample, consumed at least three replicates of a strawberry jelly candy following a specific bite-based procedure supported by a video tool. Simultaneously *nose-space* analysis with Selected-Ion Flow-Tube Mass Spectrometry (SIFT-MS) was carried out (SYFT VOICE 200 ultra, Syft Ltd, New Zealand).

Flavour profiles information were extracted according to Romano *et al.* (2014) and then submitted to a Principal Component Analysis that revealed a negative effect of age and BMI on flavor release and persistence on the nasal cavity. No gender effect has been found.

These preliminary results, based on a large sample of healthy people, highlighted some factors involved on the mechanisms of flavor release that may be the starting point to set up new approaches to investigate specific populations (e.g. bariatric or chemotherapy patients) where flavor release have a strong and a direct impact on their quality of life.

## Keywords

Flavor release, In vivo flavor analysis, Inter-individual variability, SIFT-MS