Food Quality and Design (FQD) group

The value of connecting food science

Wageningen University & Research

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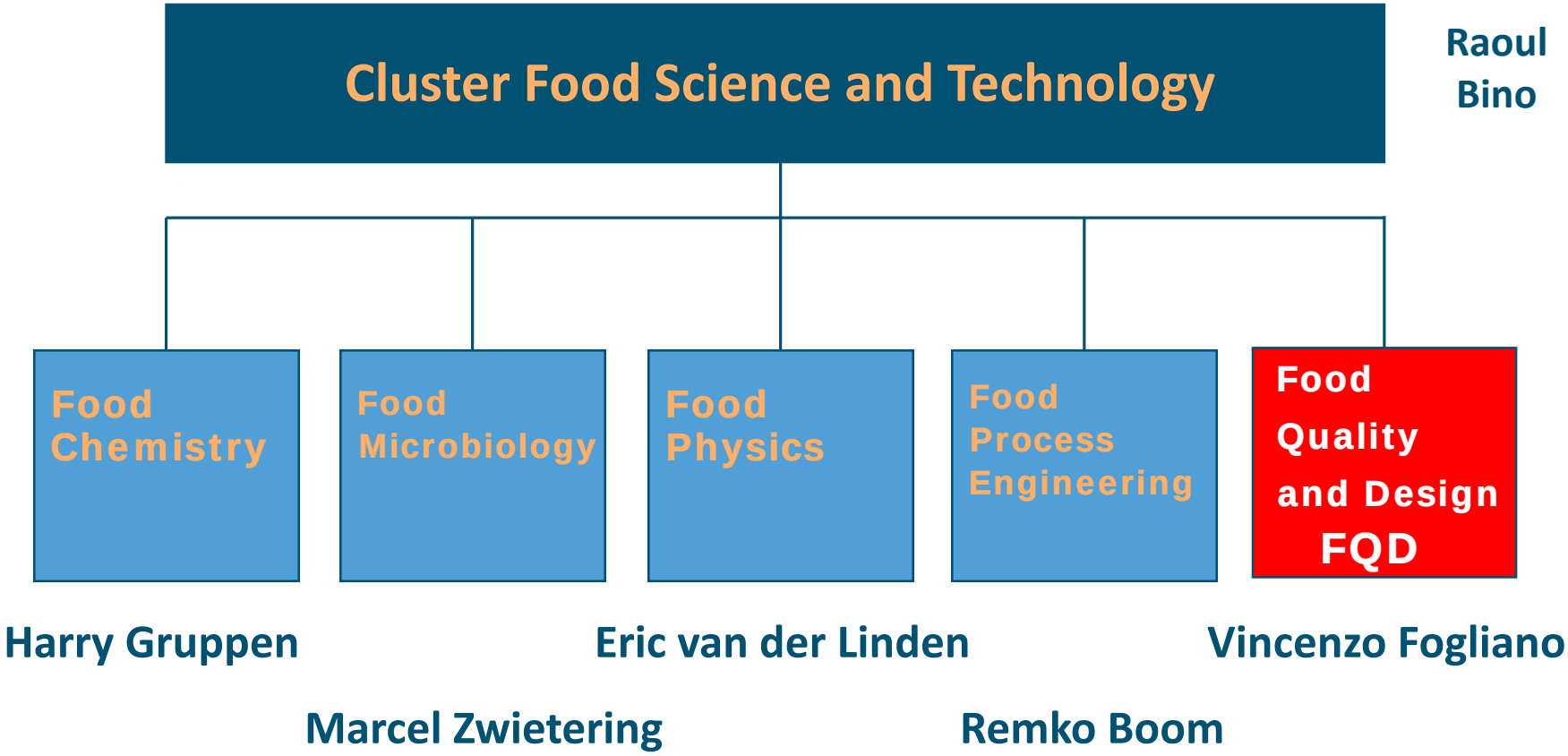
Food Quality and Design group (FQD) within Wageningen University



FBR Food Biobased Research (Applied Research Institute)

Food design: the chain approach

Raw material selection and improvement

Processing technology

Formulation

Identification physiological targets

Consumer perception & behaviour

Monitoring aroma release of chewing gum through Proton Transfer Reaction Mass Spectrometry and sensory analysis

PhD Michele Pedrotti

MSc Andrea Spaccassassi

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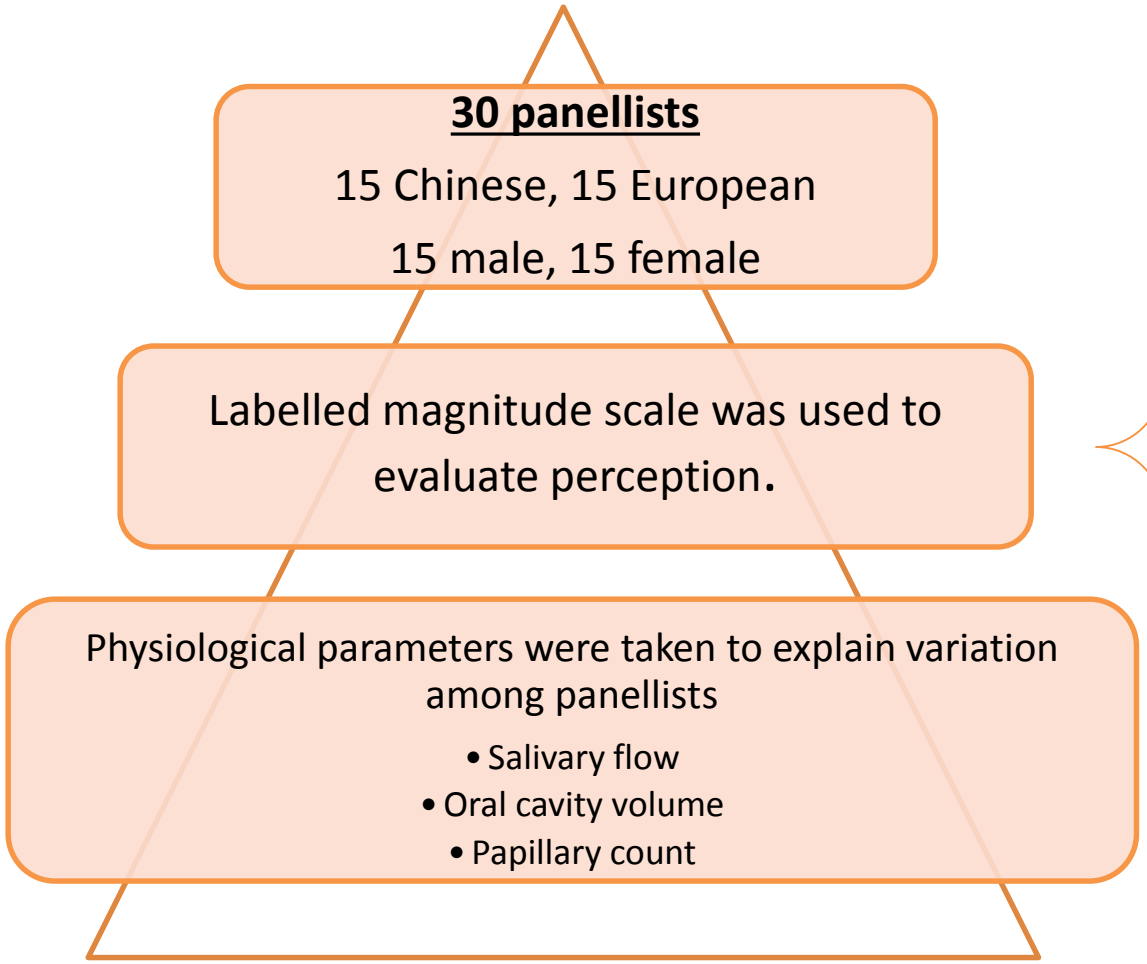
Experimental design



Gum in triplicate.

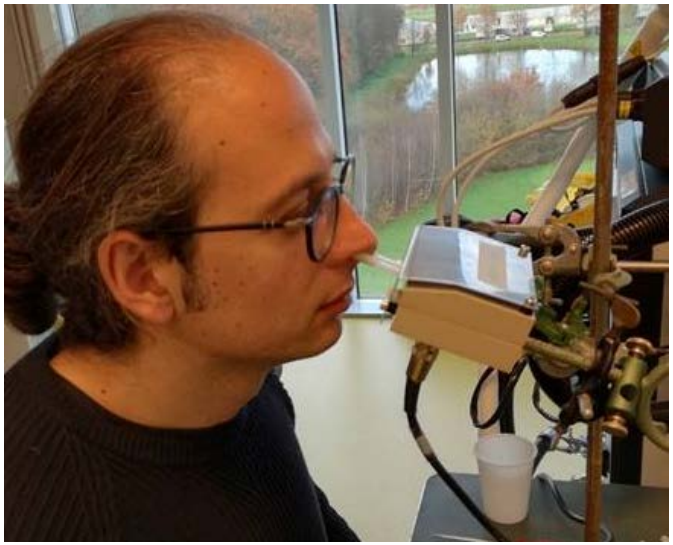
Each gum was masticated for 7 minutes.

Both PTR-MS and sensory analysis were performed simultaneously.

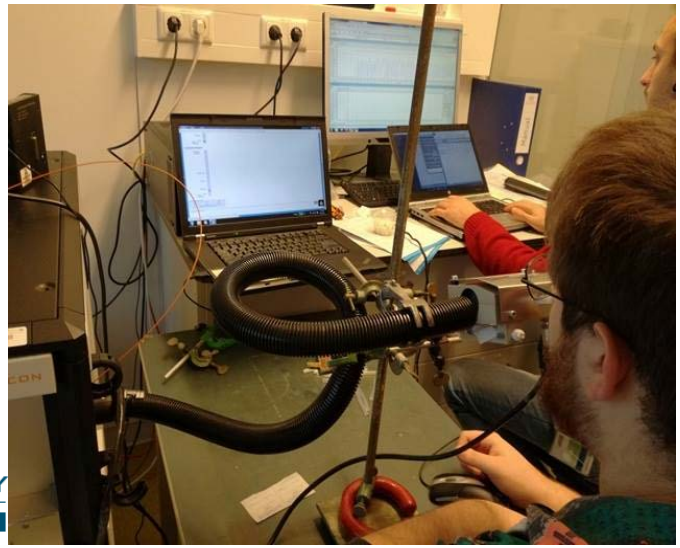
Flavour intensity and sweetness perception were evaluated at different time intervals during consumption

HOW DO WE DO THAT?

Panelists chew the gum and at the same time perform sensory analysis



PTR-MS *in vivo, in-nose* space analysis



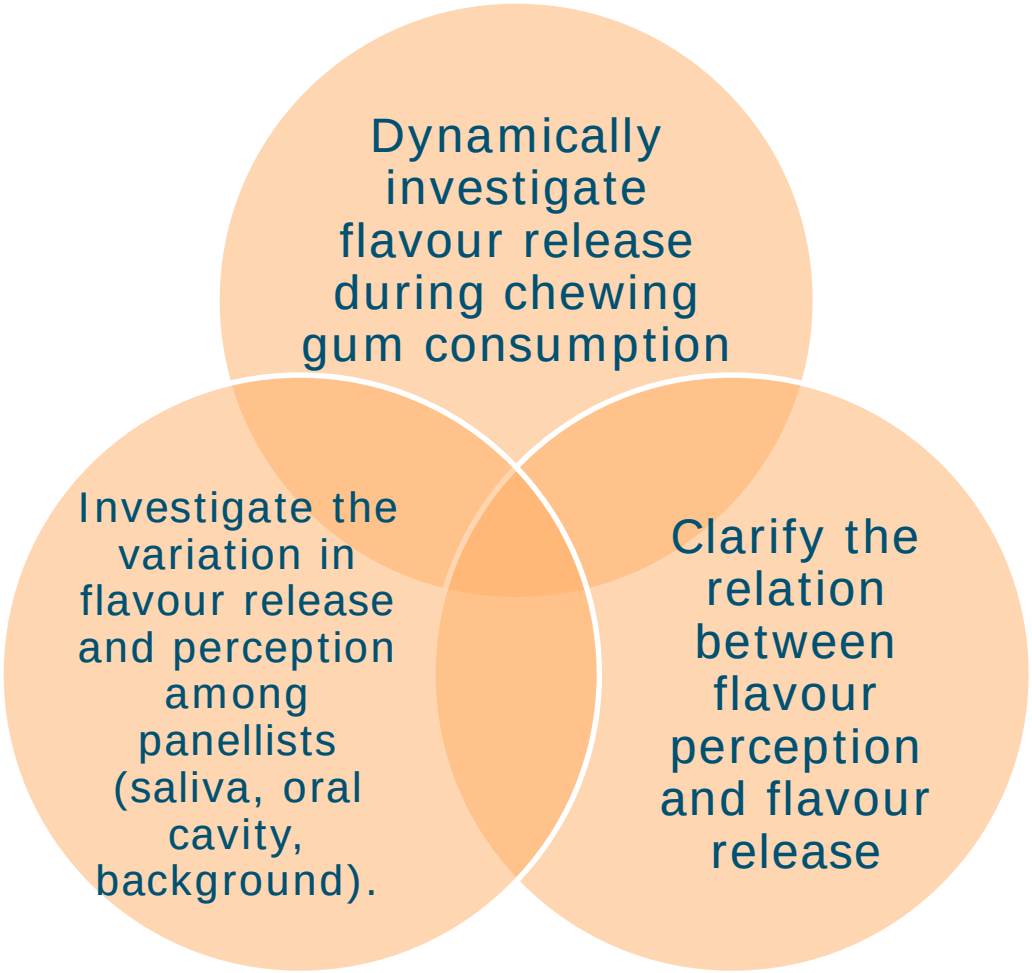
Dynamic Sensory evaluation of Flavour perception

Machine settings: a closer look at what's going on in your nose

The air coming out of the nose is continuously sampled by two heated (90°C) nose tubes.

Concentration of VOCs can be followed throughout the product consumption.

Aim of the study?



Maize volatile and consumer preference: a consumer driven approach to maize breeding program in Africa

PhD Onu Ekpa

BSc Aniek de Vos

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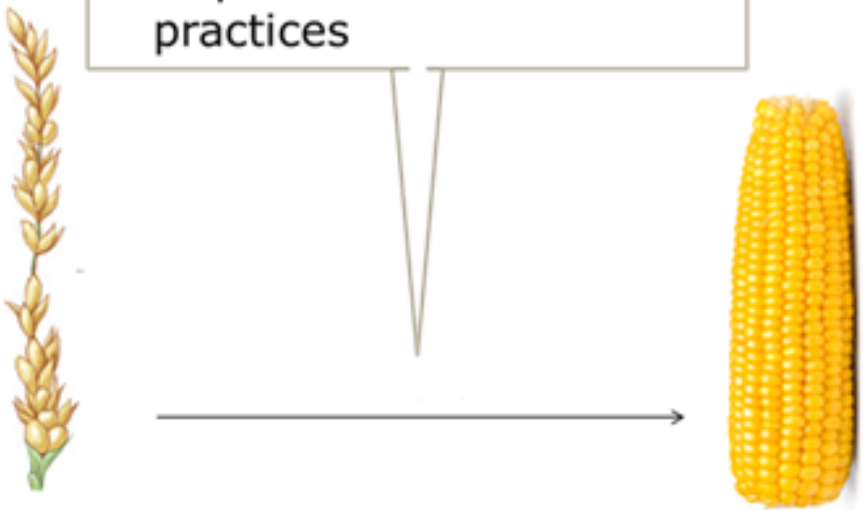
Background: Maize value chain

- Nutritious maize varieties
- Pest and disease resistance
- High yield
- Improved cultivation practices



Breeding & Cultivation

Mostly neglected:

The farther maize breeders deviate from preferred and accustomed sensory profile, the more difficult!

Research Objectives

- Determine the volatile profiles of maize kernels of the commonly used varieties and their respective porridges.

- Link back the differences in the volatiles to the consumers preferences by connecting research results and sensory tests.

Association of maize VOC and consumer perception

Maize Varieties

- White
- Yellow
- Pro vit. A
- QPM
- Zinc

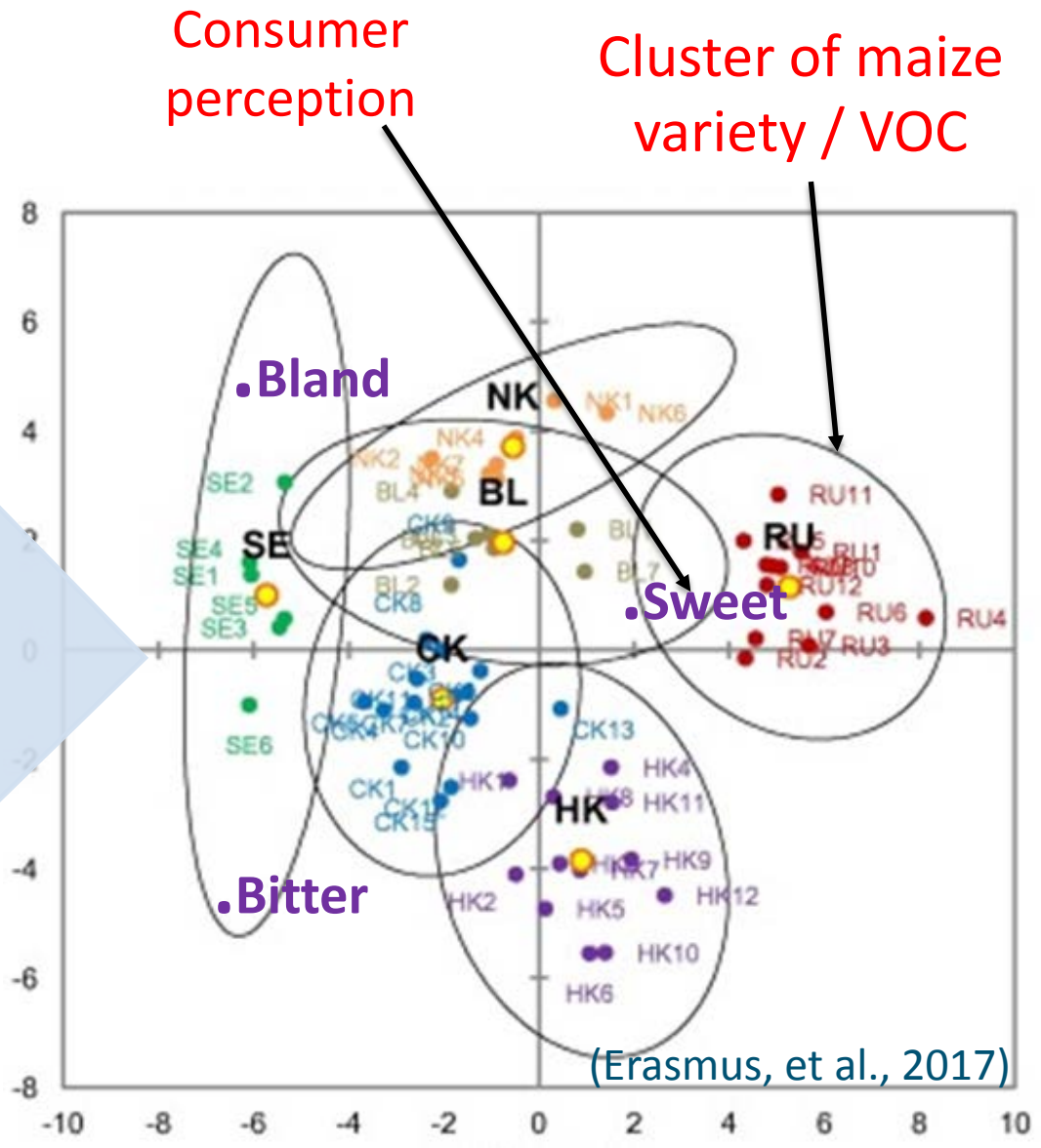
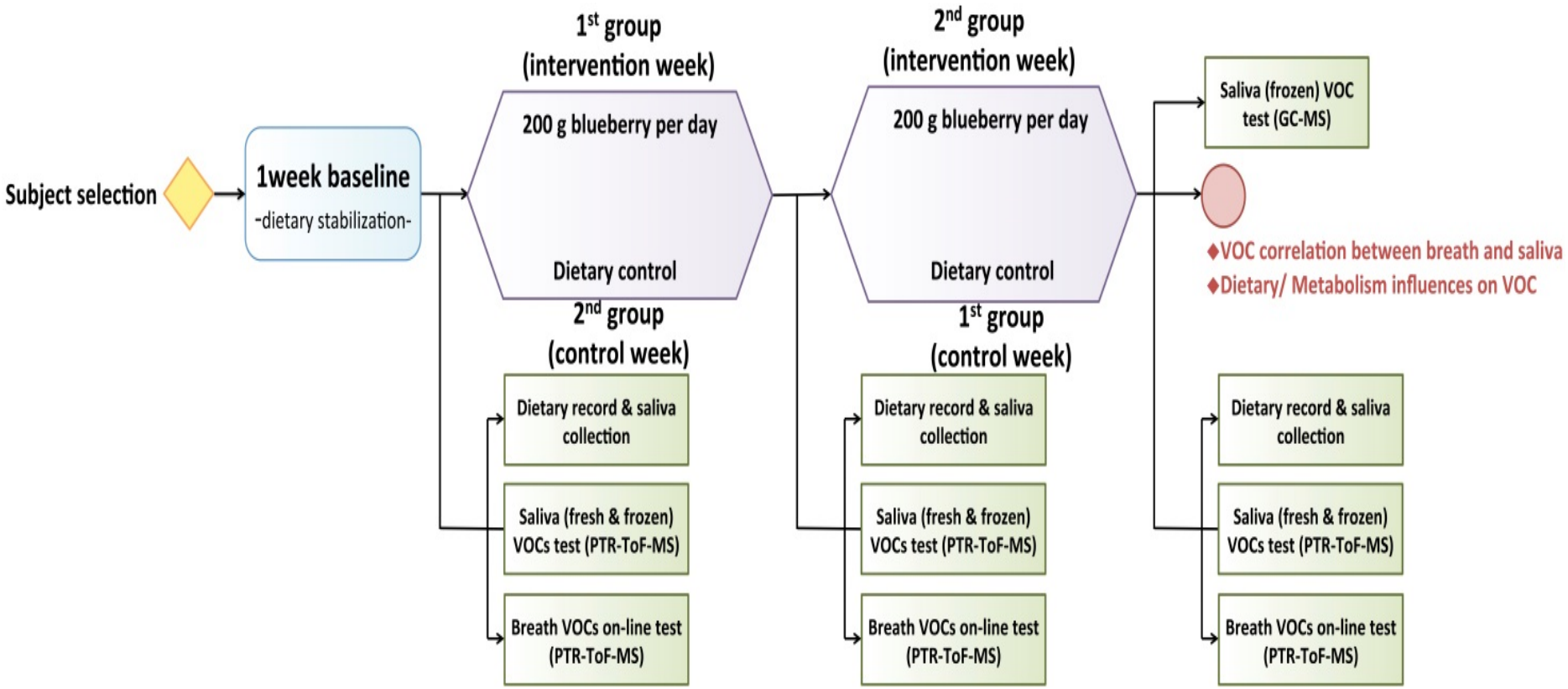


Figure 1: Association of maize VOC and consumer perception

Impact of blueberry consumption on volatile organic compounds of human breath and saliva: a pilot study



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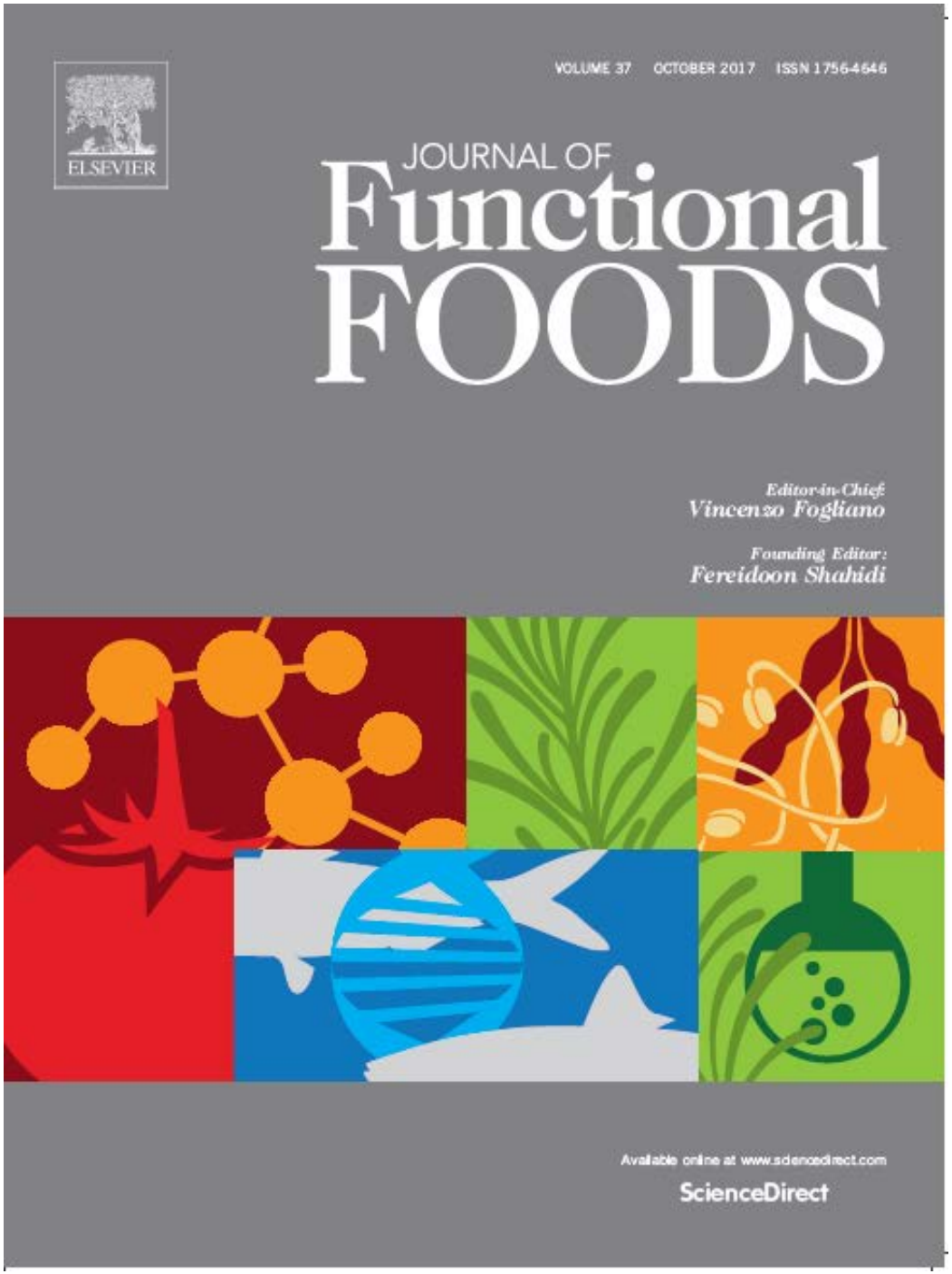
PhD Xianghui Kong

Sample	Measured mass (m/z)	Tentative identification	BL	INT	CT	p-Value
Saliva VOC	33.0338	Methanol	99.3 ± 9.1^{b}	163.9 ± 34.8^{a}	153.2 ± 25.7^{a}	0.030
	47.0130	Formic acid	8.89 ± 0.23^{a}	5.79 ± 0.54^{b}	5.07 ± 0.53^{b}	$<10^{-3}$
	59.0490	Acetone	297 ± 52.9^{b}	343 ± 70.3^{b}	775 ± 273.5^{a}	0.008
	69.0703	Isoprene	4.35 ± 0.48^{a}	2.93 ± 0.33^{b}	2.93 ± 0.39^{b}	0.001
	87.0813	Pentanal/ 3-methyl-3-buten-1-ol (t)	1.35 ± 0.16^{a}	0.87 ± 0.13^{b}	1.01 ± 0.17^{ab}	0.006
	103.0780	Ethyl propanoate/ Methyl isobutyrate (t)	3.83 ± 1.32^{a}	1.02 ± 0.31^{b}	1.57 ± 0.74^{b}	0.005
Breath VOC	31.0189	Formaldehyde	0.69 ± 0.06^{b}	1.17 ± 0.15^{a}	1.48 ± 0.25^{a}	$<10^{-3}$
	47.0143	Formic acid	5.21 ± 0.35^{b}	6.76 ± 0.55^{a}	6.67 ± 0.67^{a}	0.007
	59.0475	Acetone	1497 ± 206^{b}	1439 ± 171^{b}	2896 ± 821^{a}	0.006
	63.0279	Dimethyl sulphide	7.04 ± 0.79^{b}	12.63 ± 2.44^{a}	8.76 ± 1.28^{ab}	0.004
	69.0713	Isoprene	91.1 ± 4.26^{b}	178 ± 31.7^{a}	181 ± 19.4^{a}	$<10^{-3}$
	87.0477	2,3-butanedione	1.32 ± 0.06^{b}	1.56 ± 0.09^{ab}	1.73 ± 0.18^{a}	0.004

Several significant differences after the week of blueberry consumption.

- Inter-individual differences very high
- Physiological meaning?



WUR FQD staff

Anita Linnemann
Geert Meijer
Sine Yener
Onu Ekpa
Michele Pedrotti

Franco Biasioli (FEM), Italy

vincenzo.fogliano@wur.nl

Thank you for your attention