NIZO food research B.V.
Kernhemseweg 2, 6718 ZB Ede, The Netherlands
P.O. Box 20, 6710 BA Ede, The Netherlands **T** +31 (0)318 65 95 11
F +31 (0)318 65 04 00 **E** info@nizo.nl **W** www.nizo.com

From flavour composition to perception

Flavour is key in liking of foods. It is composed of taste, aroma and texture attributes that interact with each other on a physical and perceptual level. The design of great tasting foods requires not only an understanding of physicochemical interactions between ingredients. Integrative processing of sensory information within in the brain also plays an important role.
NIZO works with state-of-the-art flavour tools to understand, predict and optimize flavour perception of your product.

In the NIZO flavour optimization approach we relate flavour perception to the actual concentration of flavour compounds in the food ánd at receptors in the mouth and nose. This is essential information to help our clients in developing innovative, tailor-made flavour solutions.

1. Flavour composition

The release and transport of flavour components from the food to sensory receptors is strongly influenced by the food structure and human physiology (e.g. mastication pattern, saliva flow). The determination of the flavour composition by *in-vitro* analysis is important to link *in-vivo* flavour release with the food's physical properties.

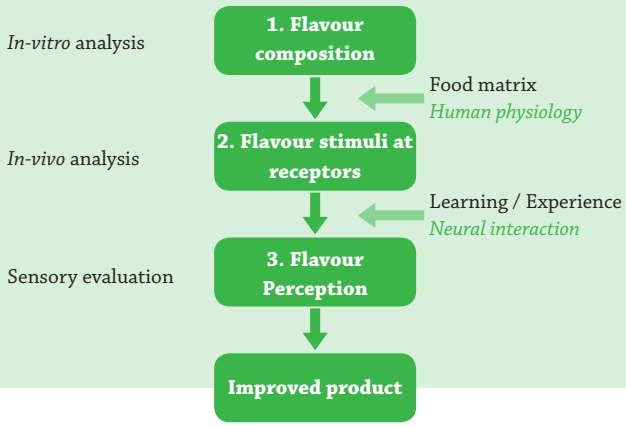
2. Flavour stimuli at receptors

The amount of flavour stimuli at taste and olfactory receptors are determined by *in-vivo* analysis, i.e. during consumption. This is a crucial step in understanding how subtle changes in the food matrix, such as reducing the fat level, can alter the flavour release (without change in flavour composition).

3. Flavour Perception

Flavour perception is the integrated output of sensory signals evoked by flavour stimuli at the receptors. These signals interact in multi-modal areas within the brain to enhance or suppress each other's intensity. At NIZO, flavour perception is evaluated by sensory experts and/or consumers.

From flavour composition to perception



For more information, please contact:

NIZO food research,
Dr. Kerstin M.M. Burseg
E: kerstin.burseg@nizo.nl
T: +31 318 65 96 32

Together to the next level

NIZO
YOUR FOOD RESEARCHERS

From flavour composition to perception

In vitro flavour tools

Analysis of *tastant composition* (HPLC)

- sugars, sweeteners
- salts, acids, nucleotides
- bitter compounds

Analysis of *aroma composition* (GC)

- reaction compounds
- degradation compounds
- GC-O: aroma key-compounds

In vivo flavour tools

Tastant composition in-saliva (HPLC / electrodes)

- textural / viscosity changes
- fat level variations
- mastication, saliva
- in-mouth breakdown

flavour release in-saliva / in-nose

Aroma composition in-nose (PTR MS/ MS Nose)

Sensory evaluation

Expert panel & consumer studies to link *in-vitro* and *in-vivo* data with perception

Flavour optimization tools

Taste profile modulation (Gustometer)

- temporal changes
- intensity changes
- taste-taste interactions
- taste-aroma interactions
- off-taste masking

Aroma profile modulation (Olfactometer)

- temporal changes
- intensity changes
- aroma-aroma interactions
- taste-aroma interactions
- volatile off-flavour masking

42-0212