

Parallel Session RTD Line 5 / Consumer Responses to Food Products

Lecture 3: Food technology and perception: novel approaches to induce satiation via aroma in foods

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Abstract

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The epidemic of overweight and obesity is giving rise to the design of functional foods for durable suppression of appetite. Adopting a multidisciplinary approach that combines principles from the sensory science of flavours, gastrointestinal physiology, ingredient technology and texture design could bring the engineering of such food products within reach.

Sensory satiation is probably one of the most important factors in meal termination, and aromas play part in it. In this presentation the special focus is on the possibility of using aromas to induce satiation in food products.

Using a computer-controlled stimulator based on air dilution olfactometry, aroma stimuli can be administered separately from other stimuli, such as different ingredients, textures and tastes. Hence, the relative importance of aroma stimuli apart from other stimuli on satiation mechanisms can be investigated. Our studies showed that satiation can be influenced making use of differences in retro-nasal aroma release profiles. In a double-blind placebo-controlled randomised cross-over full factorial design, it was shown that perceived satiation can be increased by altering the extent of aroma release during consumption of a liquid food product. The beverage was perceived as more satiating when the retro-nasal aroma release profile coincided with the profile of a (soft) solid food (1). Complexity of the aroma stimulus and ingredient-related aroma cues are other aspects of aroma which might affect appetite regulation. In view of obesity, these are interesting concepts for the food industry, to develop products to decrease food intake without compromising on palatability.

(1) Ruijschop RMAJ, Boelrijk AEM, de Ru JA, de Graaf, C, Westerterp-Plantenga, MS (2008). Effects of retro-nasal aroma release on satiation. *Br. J. Nutr.* 99, 1140-1148.

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