Accepted Manuscript

Physiological mechanisms explaining human differences in fat perception and liking in food spreads-a review

Elisabeth Guichard, Veronica Galindo-Cuspinera, Gilles Feron

PII: S0924-2244(17)30633-7

DOI: 10.1016/j.tifs.2018.01.010

Reference: TIFS 2152

To appear in: *Trends in Food Science & Technology*

Received Date: 28 September 2017

Revised Date: 29 December 2017

Accepted Date: 23 January 2018

Please cite this article as: Guichard, E., Galindo-Cuspinera, V., Feron, G., Physiological mechanisms explaining human differences in fat perception and liking in food spreads-a review, *Trends in Food Science & Technology* (2018), doi: 10.1016/j.tifs.2018.01.010.

Physiological mechanisms explaining human differences in fat perception and liking in food spreads-a review.

GUICHARD Elisabeth[1*], GALINDO-CUSPINERA Veronica[2], FERON Gilles[1]

[1]Centre des Sciences du Goût et de l'Alimentation, AgroSupDijon, CNRS, INRA, University Bourgogne Franche-Comté, F-21000 Dijon, France.

[2]Unilever R&D Vlaardingen, Olivier van Noortlaan 120, 3133 AT Vlaardingen, The Netherlands.

[*] corresponding author: Guichard Elisabeth: elisabeth.guichard@inra.fr

Abstract

Background

Fat perception and liking are the subjects of growing interest from industries and the scientific community to reduce the fat content in food products while maintaining consumers' liking.

Scope and Approach

In this review, the different physiological parameters involved in fat perception and fat liking for food emulsions are explored, focusing on spreads. A deeper analysis of the physiological mechanisms occurring during the melting and inversion phases, followed by bolus formation, mouth coating and oral clearance, allows an examination of the links between food composition, food structure, oral physiological parameters, fat perception and liking.

Key Findings and Conclusions

Fat perception is a multimodal sensation involving olfactory, gustatory and tactile cues. The main sensory descriptors associated with fat liking are creaminess, spreadability and aroma perception. During the melting and inversion phases, oral volume, saliva flow and tongue-palate compression contribute to the heat transfer and cooling effect, leading to the first sensory perception. Global acceptability is also driven by the mouthfeel sensation perceived