Insights into sensory changes in elderly people

"SENPAN" - Swiss panel of elderly people

J. Rudorf, J. Kinner, A. Bongartz

ZHAW - Zurich University of Applied Sciences, Institute of Food and Beverage Innovation, Wädenswil, Switzerland

Introduction

A multidisciplinary long-term study that was initiated by the Zurich University of Applied Sciences in Wadenswil (Switzerland) studies the relationships between sensory decline, liking, food intake, physiology and social aspects in a consumer panel with people over 65 years (Swiss panel of elderly people "senpan"). Within that framework the Sensory group within the Institute of Food and Beverage Innovation designed a set of eight tests suitable to study the change in sensory abilities of elderly people over the course of time. All tests, with exception of mouthfeel were preceded by a self-evaluation test.

Materials and Methods

Eight sensory tests were designed to study vision, taste, smell, kinaesthetic and acoustic abilities. Table 1 gives an overview of the test methods for smell, taste and mouthfeel. The concentrations of Linalool and the taste agents were determined during preliminary tests. Before each taste recognition test the participants received a test sample for each substance to ensure that they were familiar with each taste. The Triangle Test and the A-not A Test were evaluated according to DIN EN ISO 4120:2007 and 10972:2003-08:2003 (α=0.05). Participants were 65-84 years old (24 women, 28 men), lived at home and did not need nursing or care services.

Results

Figure 1 illustrates the percentage of correctly solved Triangle Tests for each aroma concentration. Aroma solutions that contained 5 µg Linalool/L could not be significantly distinguished from water. All other aroma concentrations were recognized as significantly different from water. The average sensing threshold was 725 µg/L thus between the samples 3 (100 µg/L) and 4 (1000 µg/L). In two persons the threshold was beyond the tested intensities.

Discussion

Eight sensory tests were designed to monitor the sensory abilities of people over 65 in a long-term study. The results illustrated the prevailing taste (n=56), smell (n=56) and mouthfeel (n=55) abilities of 56 members of the "senpan". Even though high sucrose, sodium chloride, citric acid and caffeine concentrations were used in the taste recognition test, the sensing and recognition thresholds in some people were beyond those levels. Future evaluations will identify whether taste thresholds can be determined more reliably when higher concentrations are used. They will also generate more data and give an insight in the changes of sensory abilities with increasing age in the "senpan".

Abbreviations

sodium c. = sodium chloride, citric a. = citric acid