FOOD FILES

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The sweet taste of distraction

Distracted eating can lead to overeating, but the exact reasons behind this phenomenon are not fully understood. Previous research has shown that when our minds are busy with cognitive tasks, the taste of food might not be as intense, causing us to eat more. To delve deeper into this concept, researchers conducted two experiments using brain scans (fMRI) and taste tests.

In the first experiment, participants were given sweet solutions to taste, ranging from weak to strong sweetness levels. At the same time, they were asked to perform a digit-span task to increase their cognitive load. The participants found the strong sweet solutions less intense when they were under high cognitive load, and this was linked to specific brain areas being less active. These brain areas are associated with taste perception and decision-making. The study also showed changes in brain connections related to reward and decision-making during this process.

The second experiment focused on participants' preferred level of sweetness while under varying cognitive load. Interestingly, the distraction didn't influence participants preference for sweetness levels.

Overall, the results suggest that when our minds are occupied, the perception of taste changes, especially for strongly sweet foods. This could mean that our brain's attention resources are more strained when dealing with highly sweet foods, potentially leading to overeating. The research sheds light on how our cognitive load affects our eating habits and highlights avenues for further exploration in this area.

van Meer, F., van Steenbergen, H., & van Dillen, L. F. (2023). The effect of cognitive load on preference and intensity processing of sweet taste in the brain. Appetite, 188, 106630.

Exploring off-odors in diverse recycled polypropylene for food ventures

Polypropylene (PP), a widely utilised polymer in the realm of food packaging, owes its popularity to its effective functionality and relatively modest expense. Despite these advantages, the use of disposable plastic packaging contributes to the burgeoning problem of plastic pollution, harming the environment and potentially impacting food aroma and flavour when recycled.

Paiva and co-authors analysed six polypropylene samples subjected to forced contamination and recycling in which they identified 45 compounds using headspace-solid-phase microextraction (HS-SPME) which were subsequently analysed using gas chromatography-olfactometry-mass spectrometry (GC-O-MS). Among these, nine compounds exhibited distinct off-odours, with descriptors indicative of apple vinegar, scented smell, hot oil, vinegar steam, burnt synthetic and plastic, as identified by the panellists.

Within this subset, two noteworthy markers emerged: diethyl phthalate, likely stemming from the catalyst employed during PP polymerisation as an intentionally added substance, and glycerine, indicative of non-intentionally added substances. Notably, plastic scents from benzophenone dominated, present in both forcibly contaminated and uncontaminated samples.

To summarise, the author's findings underscore the significance of pinpointing the compounds accountable for distinct off-odours within the samples. Additionally, the amalgamation of contaminants with elevated shear rates and temperatures inherent to extrusion recycling could yield new degradation compounds possessing odorous attributes impacting food aroma and flavour. This highlights the requirements for legislative bodies and businesses to formulate process strategies that mitigate the influence of these contaminants.

Paiva, R., Wrona, M., Nerin, C., Veroneze, I. B., Gavril, G.-L., & Cruz, S. A. (2021). Importance of profile of volatile and off-odors compounds from different recycled polypropylene used for food applications. *Food Chemistry*, 350, 129250.

Reducing fat and sugar in chocolate milk: effects on sensory attributes

Manufacturers are trying to find novel ways to reduce the sugar and fat content of food products to improve their health profile. However, there are interactions between the perception of fat and sugar and reducing one may affect the sensory properties of the other.

Researchers in Denmark assessed the sensory attributes of chocolate milk with varying levels of fat (0.1% and 4.5%), sucrose (0%, 2.5%, and 5%) and acesulfame-K (0% and 0.015%). The study involved sensory evaluation by eleven trained panellists who underwent three days of training on reference samples. The panellists evaluated aromas, tastes, flavours, textures and aftertastes.

The findings revealed that reducing the fat concentration resulted in a decrease in cream aroma, sweet taste intensity, cream flavour and viscosity. However, attributes like cocoa flavour, burnt and smoky flavours, and dusty sensation increased with decreased fat concentration. Decreasing sucrose levels led to lower sweet taste intensity and higher bitter taste intensity. Attributes such as chocolate flavour, cream flavour, fruity/lactic flavour, viscosity and mouth-watering all showed an increase with higher sucrose concentration, while bitter taste intensity, cocoa flavour, burnt and smoky flavour, dusty sensation, mouth-drying, sour aftertaste and bitter aftertaste decreased.

The addition of acesulfame-K did not significantly alter the sensory profile of the chocolate milk, except for an increase in sweet taste intensity. The study indicated that acesulfame-K could be a potential substitute for the sweetness of sucrose in chocolate milk with minimal impact on other sensory attributes.

Overall, the study highlights that changing fat and sucrose concentrations in chocolate milk has complex effects on various sensory attributes, including taste, flavour and texture. It emphasises the importance of considering both direct and indirect effects when reformulating food products to reduce sugar and fat content while maintaining desirable sensory qualities. The findings provide valuable insights for product development and reformulation strategies aimed at creating healthier food options without compromising consumer preferences.

Pedersen, L., Bertelsen, A. S., Byrne, D. V., & Kidmose, U. (2023). Sensory Interactions between Sweetness and Fat in a Chocolate Milk *Beverage. Foods*, 12(14), 2711.

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