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How does flavouring influence apple liking?

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Sensory attributes, extrinsic factors and product presentation are important drivers of product liking and consumer choice. It is therefore useful to investigate consumers' acceptability in the light of all these aspects for better supporting product development and marketing.

It is relatively simple to conceive experiments to investigate these aspects in the case of processed products. In this work we extend this investigations to the case of fresh unprocessed products such as fruits and vegetables. In a previous work, we studied the influence of two key sensory characteristics on acceptability by using selected apple cultivars with two different levels of crunchiness and sweetness confirming that higher crunchiness and sweetness lead to higher liking (1).

Here we propose to artificially modify the flavour of apples from the same cultivar (Golden Delicious), in order to keep constant other factors. We have developed two apple treatment variants: anise and flower flavoured (with anethol and linalool, respectively). The perception of flavour differences in apples was statistically significant as demonstrated by a triangle test performed by a panel of 29 judges. The volatile organic compounds analysis by two head-space techniques (SPME–GC–MS and PTR-MS) and the sensory profiling by a trained panel of 13 persons confirmed the effectiveness of the treatments in modifying headspace composition and sensory profile of apple variants.

The aim of this work is to study whether the variation of flavour (no added flavour, anise flavoured or flower flavoured) and of the different external information (apples were claimed to be a 'traditional' or 'chosen for their intense aroma') given just before tasting can influence apple acceptability. A complete factorial design was applied to evaluate the influence of all factors on the liking of 6 products evaluated by more than 100 consumers. A preliminary blind test was also performed in order to measure apple acceptability without other information.

Anise flavour significantly reduces the global liking of apple in both tests, whereas external information seems relevant only for specific groups of consumers, identified through additional data on fruit consumption, natural food interest, and demographic data.

Our finding suggest that also for fresh unprocessed products is possible to investigate the effects of intrinsic and extrinsic factors by conjoint analysis.

(1) Endrizzi I. , Corollaro M.L., Demattè M.L., Biasioli F., Romano R., Gasperi F., et al. (2011). Effects of sensory characteristics and health information on acceptability of apples. In: 9th Pangborn Sensory Science Symposium: Toronto, 4th-8th September 2011, Elsevier.

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