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Effects of sensory characteristics and health information on fresh unprocessed products: conjoint studies on apple acceptability

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Abstract

Sensory attributes and extrinsic factors associated with the 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 extended this approach to the case of fresh unprocessed products such as fruit and vegetables presenting two case studies on apple acceptability.

In a first study, we investigated whether the intensity of intrinsic sensory attributes and different information on fibre and antioxidant content, provided immediately before tasting, could affect the acceptability of four varieties of apple, characterised by four combinations of two levels (high and low) of crunchiness and sweetness. Higher crunchiness and sweetness increased the liking whereas the effect of nutritional information was not significant, at least for the mean of the population. Interesting results emerged when segmenting consumers and characterising them according to their age and their awareness of healthy aspects.

In a second study, the combined effect of flavour and different external information (apples claimed to be 'traditional' or 'chosen for their intense aroma') on acceptability was studied. For this purpose, the flavour of apples was artificially modified maintaining constant the other sensory attributes as checked by a sensory trained panel. Two apple treatment variants were developed: anise and flower flavoured. The concentration of 2 flavouring agents in treated apples and the related flavour profiles were statistically significant different from the reference untreated apple as demonstrated by instrumental head space analysis (SPME-GC-MS and PTR-MS) and by sensory analyses (discriminant and descriptive) respectively. Anise flavour significantly reduced the global liking of apple of the whole consumer panel, whereas external information seemed relevant only for specific groups of consumers, who are not interested in natural food.

Our findings suggest that also for fresh unprocessed products it is possible to investigate the effects of intrinsic and extrinsic factors by conjoint analysis. This work is a contribution to apple producers/distributors who gained a better understanding of the importance consumers give to sensory attributes and health information in order to support consumer-led breeding selections.