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Changes in the physical parameters of organic and conventional carrots during household storage

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Food storage technologies can contribute to the reduction of food wastes, which accounts for 670 million tons in developed countries annually. Studies show that the majority of wasted foods originates from households instead of industries, therefore storage practices have a key role in the reduction of discarded food. On household level, storageability can be influenced by controlling temperature and air humidity, however, cultivation technology fundamentally defines the shelf life of a product.

In this study, the impact of generally applied household storage practices on the physical parameters were compared, using commercial organic and conventional carrot samples. Two temperature settings (4°C, 12°C) were combined with two packaging (bulk, plastic bag) for both samples; storage was maintained for three weeks. According to the results, packaging had a very positive effect on the shelf-life of carrots in all measured parameters. In the case of the Sinclair IQ parameter, mass loss and average red color change, a significant difference was measured already on the third day of storage between packed and unpacked groups, independent of storage temperature and agricultural production method.

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The feasibility of an electronic tongue coupled with chemometrics in the taste-masking of polyphenolic dietary supplements

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The sensory properties of dietary supplements have become increasingly important in recent years to influence consumer choice. The applicability of an electronic tongue (E-tongue) coupled with chemometrics was investigated during the product development process of a polyphenolic dietary supplement powder blend. The masking of the negative organoleptic property (bitterness) of the active compound was attempted using 6 different flavor mixtures, with samples differing either in sweetener concentration, aroma or just colorant type used. Samples were evaluated by a professional sensory panel based on the effectiveness of the masking mixture. E-tongue measurements of the same sample set were evaluated using principal component analysis (PCA) and linear discriminant analysis (LDA) and were compared to panel results. The E-tongue method was able to discriminate certain samples with a 100% accuracy based on masking effectiveness, in agreement with the classic sensory evaluation. E-tongue results also revealed the subjective limitations of the classic sensory method by classifying samples only differing in colorant type to the same group, which were otherwise separated by the panel based on taste characteristics. Present study shows that an E-tongue coupled with chemometrics can support sensory panels during the product development of polyphenolic dietary supplement