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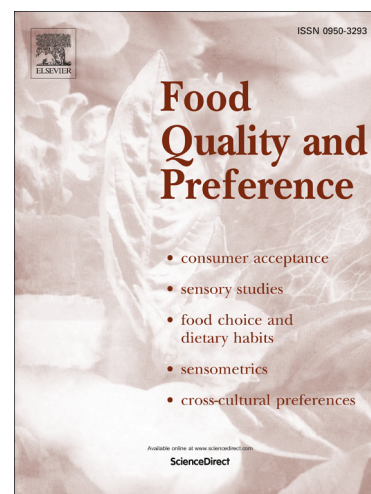
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Replicates in sensory profiling: quantification of the impact of moving from two to one assessments

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Abstract

Sensory descriptive profiling is a sensory method commonly used in the food industry to describe products' sensory characteristics. The usual recommendation is to use a panel of trained panelists, generally around twelve, and to assess the products at least in duplicate (ISO 13299:2016) to get robust average estimates. In practice, in order to optimize the use of the panels, the necessity of duplicates was challenged. This work presents a comparison of results obtained with one vs. two assessments, based on 15 studies featuring at least 8 products each, representing diverse product categories, diverse panels, a total of 309 attributes and 2836 comparisons of product pairs. It is shown that average estimates are very similar for one vs. two assessments: correlations are very high for all attributes that discriminate products. It is also shown that 89.4% of pairwise comparisons lead to the same conclusions for one and two assessments. The remaining 10.6% are misbalanced showing more significant comparisons with 2 assessments than with 1 (8.0%) more often than the reverse (2.6%). As a conclusion, one assessment is considered sufficient in most cases, provided that the sensory panel has been sufficiently well-trained.

Keywords: sensory descriptive profile, replicates, estimates, discrimination, food industry

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