

Abstract

This paper focuses on relating consumer preference data of tomato cultivars to novel aroma profiling methods as a basis for fast screening of new cultivars with specific aroma characteristics. Cluster analysis was carried out to segment the 54 Flemish consumers into homogeneous groups. The analysis identified four consumer segments with different preference patterns. Internal preference mapping was then used to derive a preference space of tomatoes cultivars based on the overall liking by the consumer segments.

Tomato aroma profiles identified with gas chromatography–mass spectrometry (GC–MS), headspace fingerprint mass spectrometry and the electronic nose (E-nose) were regressed separately on the preference map to identify the most important aroma characteristics determining consumer acceptance. Although the consumers were asked to evaluate general acceptance of the tomato samples which encompasses not only aroma but also taste and texture, a high correlation between aroma profile and acceptance was obtained. The results demonstrate the value of internal preference mapping to integrate two data sets in a multidimensional map allowing the elucidation of consumer liking of tomatoes in relation to the aroma.