

Title Analysis of flavor volatile compounds by dynamic headspace in traditional and hybrid cultivars of Spanish tomatoes

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Abstract

A system specifically designed for the non-destructive analysis of volatile organic compounds in fresh tomatoes, based on a dynamic headspace technique, has been set up to quantify the volatile aroma constituents of tomato fruits. This system will reduce the high variability associated to sample selection in postharvest studies. Volatile compounds with a major contribution to aroma have been quantitatively determined in two traditional tomato cultivars and one commercial F1 hybrid. One of the traditional cultivars, "De la Pera," got the highest values of odor and aroma in sensory tests performed using a trained panel of 10 assessors. The same cultivar showed significantly higher contents of all eight volatile compounds studied (hexanal, *trans*-2-hexenal, *cis*-3-hexenol, 1-hexanol, 1-nitro-3-methylbutane, 6-methyl-5-hepten-2-one, 2-isobutylthiazole, and β -ionone). Significant differences among traditional and hybrid tomato cultivars can be detected for volatile compounds, thus allowing the use of volatile determination as a possible tool in tomato breeding programs.