Title High-throughput flavor evaluation of strawberry cultivars: focus on aroma development during ripening

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Abstract

The cultivated strawberry (*Fragaria × ananassa* Duch.) is one of the world's most important soft fruits characterized by its typical flavor and nutritional value. Nevertheless, consumers often criticize the sensory quality of commercial cultivars. For that reason, present strawberry breeding programs focus on developing cultivars with enhanced flavor and, in addition, improved levels of health-related compounds. In order to meet this new trend, an instrumental platform was created for high-throughput quality analysis of new strawberry cultivars. This platform was used to monitor the intrinsic properties of strawberries during ripening and to identify differences in sensory quality among nine strawberry cultivars.

Through statistical analysis, 1-penten-3-ol was identified as a marker for unripe strawberries, whereas esters as methyl butanoate and methyl hexanoate distinguish ripe strawberries. Furthermore, ripe strawberries were characterized by higher sugar levels and decreased acidity and firmness.