

**Title** Influence of maturity and ripening on aroma volatiles and flavor in 'Hass' avocado  
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### **Abstract**

Changes in aroma volatiles were determined using solid phase microextraction (SPME) and gas chromatography/mass spectrometry in ripe avocados (*Persea americana* Mill., cv. Hass) throughout an eight-month maturation period and related to the sensory properties of the fruit. As maturation progressed sensory panelists found the likeability of the fruit to increase, coinciding with the fruit becoming creamier and less watery in texture, and the flavor richer and less grassy. During this maturation time the concentration of hexanal, (E)-2-hexenal and 2,4-hexadienal, three of the most abundant volatiles, greatly declined in amount. These volatiles all have a grass-like aroma, and it is likely that the loss in amount was responsible for the decline in grassy flavor during maturation. Acetaldehyde, methyl acetate, pentanal, and  $\beta$ -myrcene were at higher concentrations in mature than non-mature fruit and may also have contributed to the overall flavor. Avocados of an intermediate maturity were ripened at 20 °C and fruit of different ripeness levels (firmnesses) measured for ethylene production, rate of respiration and aroma volatile content. A sharp increase in the rates of respiration and ethylene production marked a rapid increase in softening and the beginning of the climacteric. Twenty-five volatiles were identified in the ripening avocados of which three (pentanol, hexanol, and 2-nonenal) were not detectable in fully-ripe fruit. Of particular interest was an 85% decline in the amount of hexanal in a comparison of firm to fully ripe (4 N firmness) fruit. Aroma volatiles have in the past been little-studied in avocados but appear to have a role in determining the flavor of the fruit.