

**Title** Variability in waxing-induced ethanol and aroma volatile production among mandarin genotypes

**Author** D. Obenland and M.L. Arpaia

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#### **Abstract**

Mandarins often develop off-flavors during storage that impact consumer acceptance and it would be useful to develop mandarin cultivars that are less susceptible to postharvest flavor loss. Ethanol has long been identified as being a compound identified with flavor loss in citrus. A range of diverse mandarin genotypes were screened for their ability to produce ethanol in response to both waxing and storage or a 2-h exposure to nitrogen gas and were found to differ greatly in ethanol content both at harvest and after treatment. Headspace measurements of intact fruit were not predictive of internal juice ethanol concentrations and exposure to nitrogen did not accurately mimic the effect of waxing and storage on ethanol accumulation. High ethanol production was associated with enhanced accumulation of other alcohols and esters that likely influence flavor. Screening for ethanol production could potentially identify mandarin genotypes that differ in the propensity to produce off-flavor volatiles and aid in better understanding the relationship between ethanol production and aroma volatile accumulation.