Title Volatile dynamics during maturation, ripening and cold storage of three Japanese plum cultivars (*Prunus salicina* Lindl.)

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Abstract

The volatile compounds of three commercial Japanese plum cultivars ('Pioneer', 'Laetitia' and 'Angeleno') were determined for a seven week period including samples from three different maturity stages (immature, harvest and tree-ripe) over two fruiting seasons. At commercial harvest, samples were also cold-stored and ripened, mimicking the South African export protocols. HS-SPME was used for extraction coupled with GCTOF/MS for separation and identification. A total of 35 compounds was found with 10 of the compounds classified as generic amongst the three cultivars, viz. hexanal, 2-hexenal, hotrienol, linalool, *trans*-linalool oxide, *cis*-linalool oxide, p-menth-1-en-9-al, β-damascenone, 2-bornene and α-terpineol. Each cultivar had five unique compounds resulting in different volatile profiles for each of the functional groups and distinct separation patterns using discriminant analysis. The compounds contributing most to the distinctness of the groups within a cultivar were identified and found to be different from the compounds identified as important for separating the cultivars. For all the cultivars the cold-stored plums had volatile profiles distinctly different to those of the immature, harvested and tree-ripened fruit.