Title Soluble solids accumulation in 'Valencia' sweet orange as related to rootstock selection and fruit size.

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Abstract

Juice quality was evaluated for fruits of sweet orange (*Citrus sinensis*) cv. Valencia on *Carrizo citrange* (*C. sinensis x Poncirus trifoliata*) or rough lemon (*C. jambhiri*) rootstocks, harvested by canopy quadrant and separated into size categories, to ascertain the direct role of rootstock selection on juice soluble solids concentration (SSC) and soluble solid (SS) production per tree of citrus fruit. SS production per fruit and per tree for each size category was calculated. Juice quality was dependent on rootstock selection and fruit size, but independent of canopy quadrant. Fruits from trees on *Carrizo citrange* had higher SSCs (by >20%) than fruits from trees on rough lemon, even for fruit of the same size. Large fruits accumulated more SS per fruit than smaller fruits, despite the lower juice content and SSC. Within rootstocks, SS content per fruit decreased with decreasing fruit size, although SSC increased. Rootstock effect on juice quality was a direct rather than an indirect one mediated through differences in fruit size. The conventional interpretation of juice quality data that differences in SSC among treatments, rootstocks or irrigation levels, for example, or fruit size are due to the "dilution" of SS as a result of differences in fruit size and, hence, juice volume, is only partly supported by these data. Rather, the accumulation of SS was greater for fruits from trees on *Carrizo citrange* than on rough lemon by 25 to 30%.