**Title** Intact orange quality prediction with two portable NIR spectrometers

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**Abstract**

Two commercial portable spectrometers were compared for orange quality non-destructive predictions by developing partial least squares calibration models, reflectance mode spectra acquisition being used in both. One of them was a Vis/NIR spectrometer in which the radiation reflected by the fruit is collected and conducted by optic fiber to the three detectors (350–2500 nm) of the instrument. The other is an AOTF-NIR with a reflectance post-dispersive optical configuration and InGaAs (1100–2300 nm) detector. Four orange varieties were included in calibrations. The parameters studied were soluble solids content, acidity, titratable acidity, maturity index, flesh firmness, juice volume, fruit weight, rind weight, juice volume to fruit weight ratio, fruit colour index and juice colour index. The results indicate good performance of the predictive models, particularly for the direct NIR prediction of soluble solids content, and maturity index, the prediction of this last parameter being notable for its relevance and novelty. The RPD ratios for these parameters were in the range from 1.67 to 2.21 with the Labspec spectrometer, which showed better predictive performance, and from 1.03 to 2.33 with the Luminar instrument.