

**Title** TRS-measurements as a nondestructive method assessing stage of maturity and ripening in plum (*Prunus domestica* L.)

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### **Abstract**

In plum fruit with dark red or blue blush colour covering the whole fruit, the change in ground colour from green to yellow during maturation and ripening is masked. Hence, the maturity stage is difficult to judge. Time-resolved reflectance spectroscopy (TRS) has been used as a nondestructive method to assess changes in important internal quality factors in 'Jubileum' plums (*Prunus domestica* L.). Absorption coefficients ( $\mu_a$ ) and scattering coefficients ( $\mu_s$ ) were measured at both 670 and 758 nm during 5 days of storage. The changes in soluble solids content, titratable acidity and firmness were as expected. No change in soluble solids content was observed, while the plums became less acid and softer during storage. The TRS-measurements of plums indicated that TRS could give interesting information on internal quality factors in plums as the absorption at 670 nm was closely related to firmness, TA and TSS at the time of picking. Absorption at 758 nm was more closely related to the quality parameters after storage. The study did not indicate that scattering could be used in assessing maturity stage in plum.