

**Title** Spectral measurements in fruits and vegetables  
**Author** Neda Maftoonazad and Hosahalli S. Ramaswamy  
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### **Abstract**

**Purpose of review:** Colour is one of the major attributes that affect the consumer's perception of quality. The colour of foods is objectively measured by several techniques, with much of the early works concentrating on reflectance spectrophotometry which was followed by tristimulus colourimetry. Several tristimulus colourimeters are available today in the marketplace and are benefiting from developments in digital photography. More recently, spectral techniques have re-emerged as powerful tools with the advent of hyper-spectral measurements and support analytical methodology. This review details potential applications of techniques in colour measurement of fruits and vegetables.

**Main findings:** Computer vision employing image processing techniques has been developed rapidly and can quantitatively characterise the colour of foods. Application of hyper-spectral imaging is useful in characterising the colour of fruits and vegetables and can help in maturity grading. Correlation between instrumental colour measurements and quantification of the pigment responsible for the colour is gaining in popularity.

**Directions for future research:** Future research should focus on more accurate online instrumental techniques to replace manual colour evaluation which is tedious, laborious, costly and inherently unreliable. Modelling of colour parameters as a function of process parameters is also important.