

Abstract:

Fluorescence imaging is a non-invasive method which can be used to study stress and senescence in the photosynthetic apparatus. It is based on red light-induced chlorophyll fluorescence after excitation with UV or blue light (Lichtenthaler and Rinderle, 1988). Most portable fluorometers, which are point-source chlorophyll fluorescence techniques, have been used to indicate physiological disorders and as a quality assessment of apple fruit ripening and senescence (Song et al., 1997). A major limitation is the absence of spatial resolution and consequently its inability to detect local fruit surface differences. A fluorescence imaging system has been developed to overcome this problem. In this study fruit trees were exposed to different treatments, which affect the fruit ripening process. Apples were analysed by the fluorescence imaging technique in order to determine treatment differences in fruit quality and storage potential. This experiment showed that fluorescence images can detect physiological changes on fruit caused by different treatments in the orchard, thus allowing a better classification of apples according to storage potential and quality at harvest.