Title Internal fruit quality: how to influence it, how to define it

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Citation ISHS Acta Horticulturae 712: 339-346. 2006

Keywords fruit quality; NIRs; e-nose; AD; 1-MCP

Abstract

Fruit quality is influenced by cultural management in field, by the fruit picking time and by the storage strategy. The choice of the best techniques and strategies to enhance fruit quality is difficult, and even more complicate is the definition of the internal fruit quality changes occurring in pre- and post-harvest conditions. In fact, internal fruit quality is strictly related to the changes occurring during the ripening and maturation syndrome. Define them with accuracy would allow to verify the techniques adopted validity, to monitor the evolution of the ripening in field and in storage and finally to offer a uniform fruit quality to the consumers. Fruit internal quality is represented by the fruit texture, the sugars and organic acids content, the flavour, etc. Although a precise definition of the quality would require equipped laboratory and knowledgeable personnel, the standard techniques for assessing fruit quality are quite simple (refractometer and penetrometer for flesh soluble solids content and flesh firmness; titration for acidity, etc). These determinations are carried out on samples of a limited number of fruit, often not representative of all the fruit, but give the possibility to have real-time information. However, recently, the availability of non-destructive techniques to assess fruit quality, also offer real-time information, allow to determine quality traits on a high number or even on all the fruit, to repeat the analyses on the same samples monitoring their physiological evolution, to determine with the same measurement a number of information on several fruit quality parameters. Here are reported examples on how the internal fruit quality can be influenced (harvest time, 1-MCP applications, storage strategy) and the possibility offered by NIRs (near infrared spectroscopy) and electronic-nose non-destructive devices to monitor and define fruit quality changes of some fruit specie in pre- and post-harvest situations.