

Effects of harvest time, fruit size and cultivar on the bulk optical properties of Satsuma mandarin

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Abstract

Nutrition-sensitive agriculture is a novel concept in the agri-food system, which considers the implementation of techniques able to guarantee the nutritional value of the produce, the sustainability of the production and, at the same time, to reduce the ecological impact of agricultural practices. These principles can be also introduced in the fresh-cut market with the aim of maintaining the produce quality during shelf life. In this context, the use of bio-based products is rapidly increasing for improving economic and environmental sustainability of cropping systems during cultivation and shelf life. The aim of this work was to evaluate the effects of three different bacterial-based formulations (*Paenibacillus pasadenensis*, *Bacillus amyloliquefaciens*, *Pseudomonas syringae*) applied during romaine lettuce cultivation by monitoring the changes of several quality indexes at harvest and during storage. Results showed that the application of microbial inoculants during romaine lettuce cultivation contributed to the maintenance of nutritional, functional and perceived quality attributes of leaves during shelf life. The microbial inoculants prevented the development of postharvest fungal pathogen *B. cinerea*. Moreover, the study evidenced different modes of action of the different inoculants and, in the case of *Pseudomonas syringae* 260-02 application, a direct involvement of ascorbic acid-mediated antioxidant mechanisms was observed.