Iranian Journal of Horticultural Science and Technology 18 (4):365-376 (2017)

Changes in Physicochemical and Bioactive Compounds of Blood Orange Fruit 'Sanguine' during Ripening

F. Habibi and A. Ramezanian[1*]

The red color due to anthocyanin improves the quality attributes of blood orange fruit. Monitoring of physicochemical and physiological changes such as anthocyanin content during blood orange fruit ripening can help to predict the best harvest time with the best quality. In order to investigate the changes of physicochemical and bioactive compounds in blood orange fruit 'Sanguine' during fruit ripening, a randomized complete block design with four replications was conducted at three harvesting times (255, 285 and 315 days after full bloom). The results showed that fruit firmness decreased at the third stage of sampling, which did not have a significant difference with the second stage of sampling (285 days after full bloom). Total anthocyanin content increased during experiment, and then decreased, indicating the onset of anthocyanin degradation in fruit stored on tree so that the total anthocyanin concentration decreased 37% at third stage compared to the second stage. Antioxidant activity, total phenol and ascorbic acid content of fruit increased significantly during three stages of sampling. Overall, by extending the maintenance of fruit on the tree, anthocyanin may degrade and decrease the fruit quality. Therefore, for harvesting blood orange fruit 'Sanguine' with the highest quality, it is necessary to consider physicochemical attributes and bioactive compounds especially anthocyanin other than flavor index.

Keywords: Anthocyanin, Antioxidant activity, Ascorbic acid, Firmness, Total phenol.

1. Ph.D. Student and Associate Professor of Horticulture Science, Department of Horticulture, School of Agriculture, Shiraz University, Shiraz, Iran.

* Corresponding author, Email: (ramezanian@shirazu.ac.ir).

[DOR: 20.1001.1.16807154.1396.18.4.7.6]