

Abstract

The Effect of Post-Harvest Storage on the Physicochemical Properties and Phytochemical Content of Queen Garnet Plum [†]

Gethmini Kodagoda *, Michael E. Netzel, Yasmina Sultanbawa, Tim O'Hare and Hung T. Hong

Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, Coopers Plains, QLD 4108, Australia; m.netzel@uq.edu.au (M.E.N.); y.sultanbawa@uq.edu.au (Y.S.); t.ohare@uq.edu.au (T.O.); h.trieu@uq.edu.au (H.T.H.)

* Correspondence: k.kodagoda@uq.edu.au

[†] Presented at the third International Tropical Agriculture Conference (TROPAG 2019), Brisbane, Australia, 11–13 November 2019.

Published: 13 February 2020

Abstract: The Queen Garnet Plum (QGP), a cultivar of Japanese plum (*Prunus salicina* Lindl.), was developed as a high anthocyanin plum in a Queensland Government breeding programme. Anthocyanins have been associated with various health attributes, including diabetes control, cardiovascular disease prevention and anti-inflammatory activity. This study was aimed at identifying the changes in physicochemical properties and important phytochemicals of QGP when stored under two storage temperatures. QGP from two growers were stored at 4 and 23 °C for 0, 4, 7, 10 and 14 days. At the end of each storage period the peel, outer flesh (up to 7 mm from the peel) and inner flesh were separated and analysed for chroma, total soluble solids (TSS) and titratable acidity (TA). The grower source had a significant effect on the measured parameters when considered as a covariate. Chroma values of the peel, inner and outer flesh were significantly ($P < 0.05$) different at 4 and 23 °C, after 14 days. There was no significant difference in the inner flesh TSS (IF-TSS) and outer flesh TSS (OF-TSS) between the different storage temperatures, but compared to day 0, after 14 days IF-TSS and OF-TSS were significantly ($P < 0.05$) lower. TA of the inner and outer flesh were significantly ($P < 0.05$) different at the two storage temperatures, but only the inner flesh TA was significantly ($P < 0.05$) different after 14 days. Further analysis is in progress for anthocyanins, total phenolics, carotenoids, folates and vitamin C. The current study indicates that QGP is climacteric and grower source, storage temperature and time as well as tissue can significantly affect the studied physicochemical parameters.

Keywords: phytochemicals; Queen Garnet Plum (QGP); post-harvest storage; Vitamins

Funding: This research was funded by Hort Innovation project “Naturally Nutritious” (HN15001).

Acknowledgments: The authors would like to acknowledge Nutrafruit Pty Ltd, Yeerongpilly, QLD, Australia, for supplying Queen Garnet Plums.

Conflicts of Interest: The authors declare no conflict of interest.



© 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).