

Harvest maturity stage and cold storage period influence lemon fruit quality

Yongdong Sun, Zora Singh, Vijay Yadav Tokala and Brett Heather

Scientia Horticulturae 249: 322-328. (2019)

Abstract

Lemon fruit is usually harvested at different maturity stages to suit the market requirements. The harvest maturity stage influence the postharvest quality of different fruits during storage. Therefore, the effects of three different maturity stages (green, green-yellow and yellow stages) and cold storage periods (30, 60 and 90 days) at 10 °C on Eureka lemon fruit quality were investigated. The quality parameters such as fruit weight loss, fruit colour parameters i.e., L^* , a^* , b^* , C^* (chroma) and h° (hue angle), soluble solids content (SSC), titratable acidity (TA), individual organic acids, vitamin C and total antioxidant capacity in the fruit juice were estimated. Mean fruit weight loss, SSC and TA in the juice of the cold stored fruit decreased significantly from green stage to yellow stage and increased significantly with the extension of cold storage periods. Mean L^* , a^* , b^* , C^* values in the cold stored fruit increased significantly from green stage to yellow stage and also with the extension of cold storage periods. However, mean h° in cold stored fruit decreased significantly from green stage to yellow stage or with the extension of cold storage periods. Citric acid was recorded to be a prominent individual organic acid in the juice of the lemon fruit. Means levels of citric acid, malic acid and fumaric acid in the juice of cold stored fruit decreased significantly from green to yellow stage. Whilst with the extension of cold storage period the mean citric acid and succinic acid levels in the fruit juice increased significantly and malic acid and fumaric acid levels decreased significantly. Vitamin C content in the juice of cold stored fruit was not significantly affected by the harvest maturity stages and cold storage periods. Mean total antioxidant capacity in the juice of cold stored fruit decreased significantly with the extension of storage period. In conclusion, the harvest maturity of Eureka lemon affects the cold storage life and fruit quality. Considering different fruit quality parameters, the lemon fruit harvested at yellow stage are suitable to store for 30 days and the fruit harvested at green stage can be stored up to 90 days at 10 °C.