

**Title** Effects of storage temperature on antioxidant composition and antioxidant activity of loquat fruit

**Authors** S.F. Cao, Y.H. Zheng, Z.F. Yang, N. Li, S.J. Ma, S.S. Tang, J.H. Zhang

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### Abstract

The changes in contents of total phenolics, total flavonoids, and total carotenoids and antioxidant activity against DPPH, superoxide and hydroxyl radicals in loquat fruit during storage at 1 and 20°C were investigated. The results showed that there was a decline in content of total phenolics and an increase in contents of flavonoids and carotenoids of loquat fruit during storage. Low temperature storage inhibited the decline in content of total phenolics and the increase in contents of total carotenoids but had no effect on flavonoid accumulation. In fruit stored at 20°C, DPPH radical scavenging activity decreased while the reducing power increased with storage time and superoxide and hydroxyl radicals scavenging activities increased rapidly at the early stage and then decreased dramatically after 4 days of storage. When stored at 1°C, DPPH, superoxide and hydroxyl radical scavenging activities decreased gradually throughout the whole storage period, while reducing power increased sharply at the initial 7 days and then decreased gradually after 14 days of storage. Fruit stored at 1°C exhibited significantly higher DPPH scavenging activity and reducing power but a lower superoxide radical scavenging activity, compared to those stored at 20°C. Statistical analysis showed a significant positive linear relationship between total phenolic content (x) and DPPH radical scavenging activity (y) ( $Y = 5.9256 x - 93.396$ ,  $r = 0.946$ ). However, no significant correlation among the contents of total phenolic, total flavonoids and total carotenoids, the scavenging activities against superoxide and hydroxyl radicals, and reducing power was found. Data obtained in this study suggested that low temperature storage maintained higher content of total phenolics and higher levels of DPPH radical scavenging activity and reducing power but promoted the decline in superoxide radical scavenging activity. Furthermore, the stronger DPPH radical scavenging activity in loquat fruit stored at 1°C may be attributed to the higher content of total phenolics.