

**Title** Temperature affects color and quality characteristics of 'Pink' wax apple fruit discs  
**Author** Hsiao-hua Pan and Zen-hong Shü  
**Citation** Scientia Horticulturae, Volume 112, Issue 3, 23 April 2007, Pages 290-296  
**Keywords** Temperature; Wax apple; Fruit; Color; Quality

### **Abstract**

Red color plays a very important role when wax apple fruits are purchased. Temperature is one of the key factors among those influencing red color development. We evaluated the effects of temperature on color formation and other quality characteristics of 'Pink' wax apple fruit discs by using constant, slow-increase, fast-increase, transient shifting to high temperature, shifting to high temperature for different length of time and different day/night temperature regimes. The results show temperature has pronounced effects on quality attributes of wax apple fruit discs. Anthocyanin and total soluble solid (TSS) were greatest in the 20 °C treated discs under constant temperatures. In the slow-increase and fast-increase treatments, quality attributes in disc were better in treatments with a final temperature of 25 °C than of 30 °C. The concentration of soluble sugars (SS), starch, total phenolic compounds (TPC), free amino acids (FAA) and soluble protein (SP) all decreased with increasing temperature. Transient shifting to high temperature of 30 °C for 1-day had no effect on pigmentation but treatment periods from 3- to 5-days had a substantial adverse effect. At 30 °C for 5-days, exposed discs had the lightest weight and shortest diameter as well. Both SS and TPC decreased in the 3- and 5-day treatments. When temperature was shifted from 20 to 30 °C for 2 to 11 days, the widest and heaviest discs were found in the 5-day treatment. Anthocyanin and TSS concentration decreased following increased length of exposure to high temperature. Pigmentation of discs exposed to high temperature treatment was worse than in uncultured controls. Both protein and FAA concentrations decreased after culture. Among the 5 different day/night temperature combinations, discs under 25/20 °C had the highest anthocyanin and TSS concentrations, while those under 30/15 °C had the worst.