

Sirilada Sittiwitchaporn 2012: Effect of Storage Temperature, Harvest Maturity and Modified Atmosphere Storage on Quality Changes, Phytochemicals and Antioxidant Capacity of Marian Plum. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Mrs. Sasitorn Tongchitpakdee, Ph.D. 139 pages.

Marian Plum (*Boucaberma Griff.*) is one of an exotic fruit of Thailand. Quality changes due to physiological changes, such as softening, often result in short shelf life (3 - 5 days at room temperature). The objective of this study were to investigate effect of storage temperature, harvest maturity and modified atmosphere packaging (MAP) on quality changes, phytochemicals and antioxidant capacity of marian plum. The results showed that storage of marian plum fruits (75 day after full bloom (DAFB)) at 10°C could delay softening as well as other quality changes (Total Soluble Solids and pH) and can be used to maintain the quality of marian plum nearby the fresh. The results also showed that marian plums harvested at 65 DAFB had acceptable quality with higher firmness, when compared to those harvested at 75 DAFB. The effect of MAP on quality changes and antioxidant capacity were also studied. Marian plums were packed into polypropylene (PP) tray, sealed with one layer of polyethylene (PE), biaxially oriented polypropylene-1 (BOPP-1), biaxially oriented polypropylene-2 (BOPP-2) and biaxially oriented polypropylene-3 (BOPP-3) films. The samples were stored at 10°C from 10 days (control) to 18 days (MAP). The result showed that MAP extended shelf life of marian plum two times by delaying color change, firmness loss, acidity and biochemical change. Equilibrium Modified Atmosphere (EMA) in package which sealed by PE, BOPP-1, BOPP-2, BOPP-3 film were CO₂ 5 % + O₂ 9 % (12 days), CO₂ 6 % + O₂ 8 % (14 days), CO₂ 4 % + O₂ 10 % (10 days) and CO₂ 3 % + O₂ 12 % (8 days), respectively. However, marian plums packed with BOPP-2 film had similar visual quality to fresh marian plums when compared to those packed with of PE, BOPP-1, and BOPP-3 film at the 18 days.

Student's signature

Thesis Advisor's signature