

**Title** Effect of storage temperatures on fruit quality of various cranberry cultivars  
**Author** Chien Y. Wang and Shiow Y. Wang  
**Citation** ISHS Acta Horticulturae 810:853-862. 2009.  
**Keyword** cranberries; storage; chilling injury; quality; decay; antioxidants; fatty acids

### **Abstract**

Nine cultivars of cranberries (*Vaccinium macrocarpon* Aiton) were stored at four different temperatures (0, 5, 10, and 15°C) and were evaluated for decay, chilling injury, sugars, organic acids, fatty acids, total anthocyanins, total phenolics, antioxidant capacity, and individual flavonoids after 3 or 4 months of storage. Cranberries had high antioxidant activity (ORAC). ORAC values, anthocyanins and total phenolics content increased during storage. The highest increases occurred at 15°C storage. Peonidin 3-galactoside, cyanidin 3-galactoside, quercetin 3-galactoside and peonidin 3-arabinoside were the predominant flavonoids in cranberries. Susceptibility to chilling injury and decay varies with different cultivars. 'Ben Lear', 'Cropper', 'Early Black', and 'Stevens' showed severe symptoms of chilling injury and decay at the end of 3 or 4 months storage at 0°C. 'Crowley', 'Howes', and 'Pilgrim' were relatively resistant to chilling injury and decay, while 'Franklin' and 'Wilcox' were moderately susceptible. The susceptibility was found to be related to the fatty acid composition and ratio of unsaturated to saturated fatty acid in phospholipids and glycolipids, but was not associated with antioxidant activity, anthocyanins, phenolics, or individual flavonoids. Storage temperatures also affected content of glucose, fructose, sucrose, starch, citric acid, malic acid, and quinic acid. Storage at 5°C was found to be the optimum holding temperature with the least chilling injury symptom and decay for all cranberry cultivars evaluated.