

**Title** Effect of high oxygen atmospheres on fruit decay and quality in Chinese bayberries, strawberries and blueberries

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**Citation** Food Control, Volume 19, Issue 5, May 2008, Pages 470-474

**Keywords** Chinese bayberry; Strawberry; Blueberry; High oxygen; Decay control; Quality parameters

#### **Abstract**

The effects of high oxygen atmospheres on postharvest decay and quality of Chinese bayberry (*Myrica rubra* Seib & Zucc. cv. Wumei), strawberry (*Fragaria ananassa* Duch. cv. Fengxiang) and blueberry (*Vaccinium corymbosum* L. cv. Duke) fruit were assessed. Freshly harvested Chinese bayberries, strawberries and blueberries were placed in jars continuously ventilated with air or with 40%, 60%, 80% or 100% O<sub>2</sub> at 5 °C for 9, 14 and 35 days. While the quality parameters of titratable acidity, total soluble solids and surface color measurements were only slightly affected by the superatmospheric O<sub>2</sub> concentrations in all the three berries, treatments with 60–100% O<sub>2</sub> significantly inhibited fruit decay. The severity of decay decreased with increasing O<sub>2</sub> concentration. The 100% O<sub>2</sub> treatment was the most effective in controlling fruit decay on all the three berries during storage at 5 °C. When the berries were removed from the high oxygen atmospheres and held for an additional 2 days in air at 20 °C, fruit treated with 60–100% O<sub>2</sub> also exhibited significantly less decay rate, suggesting that high oxygen atmospheres had residual effect on decay control. The 40% O<sub>2</sub> treatment was ineffective in controlling fruit decay on all the three berries. These data suggest that high oxygen atmospheres may provide a potential alternative for postharvest decay control on these berry fruit.