

**Title** Antioxidant enzyme activities in strawberry fruit exposed to high carbon dioxide atmospheres during cold storage

**Author** J. Pablo Fernández-Trujillo, Jacqueline F. Nock and Christopher B. Watkins

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#### **Abstract**

The effects of storage, in air or a 20% CO<sub>2</sub> in air (16.8% O<sub>2</sub>) atmosphere for 12 d at 2 °C, on antioxidant enzymes of strawberry fruit (*Fragaria x ananassa* Duch. cv. 'Jewel') were investigated. The concentrations of acetaldehyde, ethanol and ethyl acetate associated with fermentation were measured, and the activities of peroxidase (POX), catalase (CAT) and superoxide dismutase (SOD) assayed. Ethanol, acetaldehyde and ethyl acetate concentrations increased in CO<sub>2</sub>-treated fruit within a day of treatment, but more extensively after four days, while concentrations remained low in air-stored fruit. The total protein content extracted was not affected by CO<sub>2</sub> or storage time. Activities of POX were similar in air- and CO<sub>2</sub>-treated fruit, with an increase occurring only in air-treated fruit on day-12. Neither CAT nor SOD activities were affected by CO<sub>2</sub> treatment. In summary, a 20% CO<sub>2</sub> storage treatment induced fermentation but did not significantly affect total antioxidant enzyme activities.