

**Title** 'Blanquilla' pear ACC oxidase. Effect of CO<sub>2</sub> on in vivo activity  
**Authors** B. Vioque, J.M. Castellano  
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#### **Abstract**

High levels of carbon dioxide have been used to prolong the storage life of fruits and vegetables because they reduce ethylene biosynthesis and perception. The precise mode of CO<sub>2</sub> action is still not fully understood. ACC oxidase, the last enzyme in the ethylene biosynthesis pathway, has been pointed to as a possible action site. In this study, the effect of CO<sub>2</sub> on in vivo ACC oxidase activity in 'Blanquilla' pear (*Pyrus communis*) was investigated. We report experiments where CO<sub>2</sub> reduces, promotes or has no effect on in vivo ACC oxidase activity. The enzyme is differentially affected by CO<sub>2</sub> depending on the applied gas concentration, ripening stage of the tissue and on the conditions in which the activity is assayed. This study also shows that pH plays a key role in the regulation of ACC oxidase activity by CO<sub>2</sub>.