

**Title** Gas treatments for increasing the phytochemical content of fruits and vegetables  
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### **Abstract**

**Purpose of review:** Although many physical treatments exist for treating fruits and vegetables, only a few are presently used for enhancing the photochemical content of fresh fruits and vegetables. This article aims to review the use of gas treatments to maintain the postharvest quality of horticultural produce and highlights preliminary results presented on the use of gas treatments to enhance fruit and vegetable quality and safety.

**Recent findings:** The research effort on gas treatments in postharvest storage of fruits and vegetables has shown an important change of direction. Many research teams have started work to try to demystify the internal mechanisms involved in the physiological response of the produce to environmental modification. Examples of physiological response to short- or long-term continuous gas concentration or shock gas treatment have been clearly demonstrated. Furthermore, increases in the phytochemical content of horticultural produce as a result of postharvest gas treatments have also been presented.

**Directions for future research:** Although gas treatments, such as controlled atmosphere storage, modified atmosphere packaging, ozone and ethylene flushing for maturation, have been used for many years to maintain the quality of fresh horticultural produce, very little is known about the physiological mechanisms involved in the process. Thus, many questions still exist. A better understanding of the physiological response and mechanisms involved in any gas treatment could accelerate the progress of research in this area by generating guidelines for choosing gas treatments to enhance the phytochemical content of fresh fruits and vegetables.