

**Title** Effects of a pretreatment with nitric oxide on peach (*Prunus persica* L.) storage at room temperature

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### Abstract

Peach is characterised by a rapid senescence associated with a high production of autocatalytic ethylene at the beginning of ripening, a fact which reduces markedly its postharvest shelf-life. The application of antisenescence compounds after harvesting has been assayed to solve this problem. One of the newest and more promising compounds is the free radical gas nitric oxide (NO). In this work, peaches of cv. 'Rojo Rito' were treated with  $5 \mu\text{L L}^{-1}$  of NO for 4 h, at 20 °C, and then stored at the same temperature for 14 days. Untreated fruits stored under the same conditions were used as control fruits in the experiment. Key physiological parameters of senescence (ethylene production and respiratory rate) and quality parameters (firmness, titrable acidity, total soluble solids and colour) were analysed. A particular emphasis was placed on the analysis of the oxidative status and the antioxidant capacity during storage and as a response to the NO treatment. The ethylene production and respiratory rate of fruits treated with NO were lower than those of control fruits. Treated fruits underwent a lesser loss of firmness during storage. The degree of disintegration of cell membranes, assessed as the percentage of electrolyte leakage, was also lower in fruits treated with NO. NO did not seem to affect lipid peroxidation or LOX activity, but it did affect PPO activity. The treatment with NO stimulated POX activity and, especially, SOD and CAT activities. It seems that total carotenoids and free ASC were not influenced by the pretreatment; however, the oxidised form of ASC, DHA, showed a slight increase. NO seemed to have a beneficial effect on the oxidation equilibrium and the antioxidant capacity of peach fruit. A delay in the initiation of the senescence of fruits treated with NO, that extended the postharvest shelf-life, was observed.

<http://www.springerlink.com/content/662n3u581178j957/fulltext.pdf>