

**Title** Defense responses of tomato fruit to exogenous nitric oxide during postharvest storage  
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### **Abstract**

Nitric oxide (NO), an important signalling molecule, has shown diverse physiological functions in plants. We investigated physiological responses of harvested tomato fruit (*Solanum lycopersicum* cv. Ailsa Craig, AC) to NO treatment. NO released by 1 mM sodium nitroprusside (SNP) aqueous solution could effectively retard pericarp reddening of tomato fruit, suppress ethylene production, and influence quality parameters during storage. The activity of antioxidant enzymes in NO-treated tomato fruit was higher in the late storage period compared to the control. RT-PCR analysis showed that expression of six genes related to fruit ripening was regulated by NO treatment, resulting in an increase in resistance of tomato fruit to gray mold rot caused by *Botrytis cinerea*. Our results demonstrated that application of NO could be a potential method for treating harvested fruit in order to delay ripening, maintain quality and enhance resistance of fruit to fungal pathogens.