Nitric oxide as a key gasotransmitter in fruit postharvest: an overview

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Abstract

Currently, the field of postharvest technology is a growing research area of particular interest since the increase in world population and the need to satisfy its nutritional requirements. These aspects establish a demand to produce fruits with high market quality while minimizing the losses from production to consumption stages. In the past few years, nitric oxide (NO) has emerged as a novel gasotransmitter to improve fruit postharvest shelf-life, owing to its influence on physiological processes (including fruit ripening) and on acclimation responses to stress conditions. In this review, we summarize some of the research related to the effects of NO exposure on different fruits with the aim to extend postharvest shelf-life and quality. The protection against chilling injury and postharvest diseases are addressed. The mechanisms of NO action and its interactions with other phytohormones are analyzed. Finally, the potential use of NO donors (and other strategies destined to enhance its levels) with a technological scope is also discussed.