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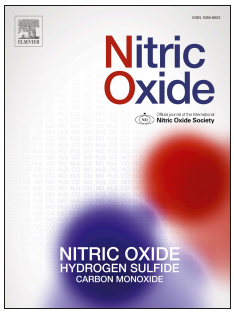

NO, hydrogen sulfide does not come first during tomato response to high salinity

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NO, hydrogen sulfide does not come first during tomato response to high salinity

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Abstract

High salinity greatly impact agriculture, particularly in tomato (*Solanum lycopersicum*), a crop that is a model to study this abiotic stress. This work investigated whether hydrogen sulfide (H_2S) acts upstream or downstream of nitric oxide (NO) in the signaling cascade during tomato response to salt stress. An NO-donor incremented H_2S levels by 12–18.9% while an H_2S-donor yielded 10% more NO in roots. The NO accumulated in roots one-hour after NaCl treatment while H_2S accumulation started two-hour later. The NO stimulated H_2S accumulation in roots/leaves, but not the opposite (*i.e* H_2S was unable to stimulate NO accumulation) two-hour post NaCl treatment. Also, NO accumulation was accompanied by an increment of transcript levels of genes that encode for H_2S-synthesizing enzymes. Our results indicate that H_2S acts downstream of NO in the mitigation of oxidative stress, which helps tomato plants to tolerate high salinity.

Keywords: Hydrogen sulfide, nitric oxide, oxidative stress, salt tolerance.