

Title Sodium hypochlorite: A promising agent for reducing *Botrytis cinerea* infection on rose flowers

Author Andrew J. Macnish, Kristy L. Morris, Annemarie de Theije, Manon G.J. Mensink, Henry A.M. Boerrigter, Michael S. Reid, Cai-Zhong Jiang and Ernst J. Woltering

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Abstract

Botrytis cinerea is a fungal pathogen that greatly reduces the postharvest quality of rose flowers. A postharvest dip in 200 $\mu\text{L L}^{-1}$ sodium hypochlorite (NaOCl) for 10 s at 20 °C provided the greatest control of *B. cinerea* on ‘Akito’ and ‘Gold Strike’ flowers. NaOCl derived from Clorox[®] Ultra household bleach solution was more effective than laboratory grade NaOCl in reducing disease symptoms. Lowering the pH of the NaOCl solution from pH 9.7 (unadjusted) to pH 7.0 greatly improved its efficacy. Treating ‘Gold Strike’ flowers in this pH-adjusted NaOCl solution was more effective in reducing the level of infection on petals than postharvest dips in the conventional fungicides Medallion[®], Phyton[®], Switch[®] and Vangard[®]. Applying NaOCl prior to a 3- or 10-d commercial shipment also provided the most consistent disease control for a wide range of rose cultivars as compared to conventional fungicides. Of particular interest, the efficacy of NaOCl and Phyton[®] was greatest when these compounds were applied to ‘Gold Strike’ flowers after incubation at 20 °C and 90% RH for 6–9 h. Our findings highlight NaOCl as a promising new candidate for the control of *B. cinerea* on rose flowers.