

Title Extended storage of 'Red Globe' grapes in modified SO₂ generating pads
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Abstract

Grapes intended for storage of a few weeks or longer are stored at 0 °C in boxes with a dual release SO₂ generating pad (quick release plus a slow release phase). This method can prevent decay caused by *Botrytis cinerea* for a number of weeks, but the level of SO₂ surrounding the grapes falls to below 1 μL L⁻¹ after 60–80 d [Lichter, A., Zutahy, Y., Kaplunov, T., Lurie, S., 2008]. Evaluation of table grape storage in boxes with sulfur dioxide releasing pads with either an internal plastic liner or external wrap. HortTechnology]. Therefore, other methods are needed for grapes, such as 'Red Globe' that can withstand storage for 4 months or longer without losing eating quality. The SO₂ generating pad was enclosed in a plastic laminate with macro-perforation. This additional barrier to water vapor penetration into the pad and SO₂ diffusion out of the pad decreased the initial SO₂ peak released by the pad and extended the lifetime of the pad threefold. The effect of different diameter of macro-perforation was examined from 3 to 9 mm, and the effect of varying the number of holes in the laminate. Grapes were stored for 3 and 6 months and their quality assessed after 3 d of shelf-life. The optimum laminate was found to be 32 perforations of 6 mm diameter. This pad was tested under commercial storage conditions and the quality of the grapes after storage from 92 to 116 d was assessed compared to storage with regular dual release SO₂ pads. Decay as well as SO₂ damage was greater in the grapes with dual release pads than the macro-perforated laminated pads. This modification of the SO₂ generating pad shows promise as a means of maintaining quality of grapes in extended storage