

Title Effect of salicylic acid and SO₂ generator pad on storage life and phenolic contents of grape (*Vitis vinifera* L.) cvs. Thompson Seedless and Bidaneh Ghermez

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Abstract

Postharvest life of table grapes is usually shortened by berry softening, berry drop, stem browning and its desiccation and also fungal decay. In present study, effects of salicylic acid (SA) and SO₂ generator pad on grape postharvest storage life and its phenolic composition were studied. Harvested clusters of Thompson Seedless and Bidaneh Ghermez were treated by salicylic acid (SA) at four concentrations, 0, 1, 2 and 4 mmol/L and stored at 0 °C up to two months with or without SO₂ generator pad. SA treatment significantly increased both cultivars storage life. SA at all three concentrations effectively reduced water loss and fungal decay and increased berry firmness. Furthermore, SA at 2 mmol/L significantly reduced rachis browning. In contrast, 4 mmol/L SA slightly increased rachis browning than 1 or 2 mmol/L. SO₂ generator pad effectively reduced fungal decay and rachis browning than control. In both SA and SO₂ generator pad treatment total soluble solids, titratable acidity and pH of berries were not different from the control. However, results showed that SA treatment followed by SO₂ generator pad treatment significantly enhanced both cultivars storage life and their overall quality. In addition, total phenolic contents were increased by SA treatment during storage. The highest contents were obtained in 4 mmol/l, 40 mg/kg. However, SO₂ generator pad had no effect on total phenols. The concentrations of quercetin, resveratrol and catechin were higher in SA treated berries. These results demonstrate that SA treatment and SO₂ generator pad together have better potential for increasing table grapes storage life and quality.