

Title Ice-temperature Storage Combined with Stage-wise SO₂ Releaser Treatment Extends Shelf Life of Longan Fruit

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Abstract

Longan fruit are highly perishable when stored at ambient temperature. Ice-temperature storage has the potential to maintain the quality of the fruit aril, but results in severe pericarp browning. SO₂ treatment has been widely used to inhibit pericarp browning of longan fruit, yet enrisks high SO₂ residue in aril. Our previous study indicated that stage-wise SO₂ Releaser treatment reduced SO₂ residue in aril of longan fruit. In the present study, Ice-temperature combined with stage-wise SO₂ Releaser treatment (ITS) was applied to storage of longan ("Shixia" cultivar) fruit. The pericarp colour, physiological change and fruit quality were investigated. Compared to control fruit in traditional 3°C storage, the pericarp colour of the ITS-treated fruit maintained a fresh-green appearance, which was represented by the high level of b, C, L value and high content of yellow pigments. SO₂ Releaser treatment remarkably inhibited the activity of PPO and POD, decreased pH value of fruit pericarp. After 48 days, a higher good fruit rate with 91.15% was achieved for ITS-treated fruit, when compared to the control fruit with 0% good fruit rate. A lower SO₂ residue with 29.2 mg/kg in aril was detected in ITS-treated fruit compared to SO₂-treated fruit. Taken together, these results suggested that ITS is a practical technique for extending shelf life of longan fruit.