

Title Influence of harvest maturity on cut-edge browning of ‘Granny Smith’ fresh apple slices treated with anti-browning solution after cutting

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Abstract

Over several years, many fresh-cut apple processors have complained about browning of slices made from ‘Granny Smith’ apples during the harvest season, before fruit have been stored for any length of time. ‘Granny Smith’ apples are a late harvest apples and quite often, at higher latitudes, they are harvested to avoid frost injury and may not always be physiologically mature. It was postulated that immature fruit would have greater susceptibility to browning, despite the application of anti-browning solution after cutting. Fruits were harvested from selected trees beginning five weeks before anticipated commercial harvest and continued weekly until two weeks after commercial harvest. The maturity indicators internal ethylene and starch clearing indices were measured. Ten fruits were sliced, dipped in 7 g L⁻¹ NatureSeal® and then packaged in zip-loc bags and held at 5 °C. Slices made from apples that were harvested two weeks early or earlier than the optimal maturity, as determined by the maturity measures, had significant levels of cut-edge browning despite the post-cutting application of anti-browning dip. These results clearly indicate that ‘Granny Smith’ apples harvested two weeks or earlier before induction of climacteric ethylene production (when starch index is less than 2.5) should be avoided for use in fresh slicing.