

Title Quality measurement of intact and fresh-cut slices of 'Fuji', 'GoldRush', 'Granny Smith', and 'Pink Lady' apples

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Abstract

Fresh-cut apple slices are desired as a convenient snack for general consumers and as a component in food service establishments and school lunch programs. Development of fresh-cut apple products requires consideration of cultivars that store well as a fresh-cut and the development of processing and storage methods. The commercial marketing of fresh-cut apple slices has been hampered by the rapid oxidative browning of apple flesh, the risk of microbial development, and physiological deterioration during transport and storage. Our objectives were to determine fruit quality of apple cultivars during storage as intact and fresh-cut products and to compare in-house and commercial processing solutions for quality maintenance of fresh-cut slices. The firmness, titratable acidity (TA), soluble solids content (SSC), and quality-associated volatile levels were measured in intact 'Fuji', 'GoldRush', 'Granny Smith' and 'Pink Lady' fruit during 12 mo storage in air at 0 °C and during three weeks storage at 5 °C as their fresh-cut product. Apple slices were dipped for 1 min in a commercial solution containing primarily calcium ascorbate or an in-house solution (PQSL-2) containing isoascorbic acid, calcium chloride, calcium propionate, N-acetyl-L-cysteine adjusted to pH 2.0 with hydrochloric acid. During 12 months storage, 'GoldRush' apples maintained >80 N firmness, ~17% SSC, >0.5% TA, and had high volatile production, i.e., maintained quality better than 'Fuji', 'Granny Smith' and 'Pink Lady' apples. The shelf stability of 'GoldRush' slices was also as good as or better than slices from the other cultivars. Both the commercial and the PQSL-2 treatments maintained the surface color, firmness and volatile production of fresh-cut slices during storage, but only PQSL-2 treatment maintained microbial quality. These results indicate that 'GoldRush' is a promising cultivar for fresh-cut apple slices and that PQSL-2 processing solution is a microbially safe alternative to a commercial processing treatment for fresh-cut apple slices.