

CA-D*PLS-6714-RR- Postharvest Quality and Safety in Fresh-Cut Vegetables and Fruits

Progress Report:

The influences of processing and storage on the quality indices and nutritional content of fresh-cut fruits were evaluated in comparison to whole fruits stored for the same duration, but prepared on the day of sampling. Fresh-cut pineapples, mangoes, cantaloupes, watermelons, strawberries and kiwifruits and whole fruits were stored for up to 9 days in air at 5 °C. The postcutting life based on visual appearance was shorter than 6 days for fresh-cut kiwifruit and shorter than 9 days for fresh-cut pineapple, cantaloupe and strawberry. On the other hand, fresh-cut watermelon and mango pieces were still marketable after 9 days at 5°C. Losses in vitamin C after 6 days at 5 °C were 5% or less in mango, strawberry, and watermelon pieces, 10% in pineapple pieces, 12% in kiwifruit slices, and 25% in cantaloupe cubes. No losses in carotenoids were found in kiwifruit slices and watermelon cubes, while losses in pineapples were the highest at 25% followed by 10 to 15% in cantaloupe, mango, and strawberry pieces after 6 days at 5 °C. No significant losses in total phenolics were found in any of the fresh-cut fruit products tested after 6 days at 5 °C. Light exposure promoted browning in pineapple pieces and decreased vitamin C content in kiwifruit slices. Total carotenoids contents decreased in cantaloupe cubes and kiwifruit slices, but increased in mango and watermelon cubes in response to light exposure during storage at 5 °C for up to 9 days. There was no effect of exposure to light on the content of phenolics. In general, fresh-cut fruits visually spoil before any significant nutrient loss occurs

Impact Report:

The results of this research were communicated to the fresh-cut fruit industry to use for optimization of the quality and post-cutting-life of the fresh-cut fruit products.

Publications:

Gil, M.I., Aguayo, E., and Kader, A.A. 2006. Quality changes and nutrient retention in fresh-cut versus whole fruits during storage. *J. Agric. Food Chem.* 54: 4284-4296.

Vilas-Boas, E.V. and A.A.Kader. 2007. Effect of 1-methylcyclopropene (1-MCP) on softening of fresh-cut kiwifruit, mango and persimmon slices. *Postharv. Biol. Technol.* 43:238-244.

Artes-Hernandez, F., F. Rivera-Cabrera, and A.A.Kader. 2007. Quality retention and potential shelf-life of fresh-cut lemons as affected by cut type and temperature. *Postharv. Biol. Technol.* 43:245-254.