

Title Postharvest research programs on citrus at the USDA/ARS Citrus and Subtropical Products Laboratory

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Abstract

The USDA/ARS Citrus & Subtropical Products Laboratory is a postharvest research facility. The majority of the work, about 70%, is on citrus. There are four projects including quality of fruit and juice, and by-product research. The first project involves work on citrus juice and fresh fruit flavor. Sensory panes (such as trained and consumer panels), analytical measurements (such as GC, HPLC and wet chemistry), and artificial intelligence (such as electronic nose) as well as GC-olfactory are integratively utilize for evaluation of new citrus breeding lines, and early detection of greening disease on juice flavor and chemistry. The second project is to develop and evaluate edible coatings and other surface treatments to reduce decay, water loss and to improve of the appearance of fresh or fresh-cut citrus fruits. New approaches are developed, such as cuticle removal to reduce microbial population and extend storage life of intact and fresh-cut fruits; using postharvest natural essential oils and high carbon dioxide treatments to prevent canker. The two by-product projects aim to develop products from citrus processing waste. One project mines citrus waste for edible fiber, nutraceuticals and compounds in grapefruit that enhance uptake of certain drugs. The other by-product project seeks to develop industrial products from the carbohydrates in citrus peel such as suspension aids and fuel ethanol.