

Title	Quality attributes and control of fresh-cut produce
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Abstract

Purpose of the review: Fresh-cut produce undergo substantial mechanical injury caused by pre-preparations such as peeling, coring, cutting and slicing. These processing operations lead to biochemical deterioration, surface browning, development of off-flavour and texture breakdown. Changes in quality attributes that result from cutting can be minimised by using enzymatic browning inhibitors and applying modified atmosphere and low temperature. Good quality can be maintained by dipping, heating, coating, irradiating and selecting appropriate produce. By recognising and controlling factors that have a significant effect on quality, fresh-cut produce with good quality and sufficient shelf-life can be obtained. This article provides a brief overview of research published over the last 5 years on quality of fresh-cut produce, with emphasis on a quality control.

Main findings: General produce quality including appearance, firmness, texture and nutrition is affected by various factors. Recent investigation has explored the effect of controlled atmosphere and modified atmosphere packaging, heat treatment, chemical/natural antioxidants, browning inhibitors, edible coatings and gamma irradiation on quality maintenance of fresh-cut produce as related to reduced physiological activity, senescence processes, tissue browning and nutritional loss.

Limitations/implications: The individual contributions of method/technology and their combination on quality attributes of fresh-cut produce need to be determined for each horticultural crop. The effects of harvest maturity, cultivar, handling, storage temperature and shelf-life also need to be evaluated for quality shelf-life, which may be shorter than appearance shelf-life for many fresh-cut commodities.

Directions for future research: Future research should include developing new technology for maintaining nutritional value and the original sensory qualities of fresh-cut produce. More information on physio-biochemical changes in fresh-cut fruits and vegetables is needed. New cultivars need to be selected or hybrids adapted to meet the specific requirements of minimal processing. Natural preservatives, such as inhibitors produced by lactic acid bacteria, and appropriate processing methods need to be studied. Active-packaging systems and edible

coatings, as well as more-permeable plastic films that better match the respiration activity of fruits and vegetables need to be further developed.