

Title Retaining the health benefits of vegetables after harvest

Author J.A. Heyes

Citation Book of Abstracts, Southeast Asia Symposium Quality and Safety of Fresh and Fresh Cut Produce Greater Mekong Subregion Conference on Postharvest Quality Management in Chains, August 3-5, 2009, Radisson Hotel, Bangkok, Thailand.

Keyword cardiovascular disease; vegetables; health

Abstract

A diet rich in fruit and vegetables is known to reduce the risk of cardiovascular disease. Leafy vegetables contribute significantly to vitamin intake: serves of many vegetables are rated a 'source' (contributing 10% of RDI) or a 'good source' (25% of RDI) of vitamin A, C, E, K and folate. Vegetables also have a very important role in delivering minerals such as potassium, calcium and iron; and dietary fibre. There is a growing awareness of the variability of vegetable composition depending on the germplasm and growing condition. As a generalization, growing vegetables in a high-fertility environment with abundant water tends to increase the size of vegetables but dilute the concentration of the phytochemicals within the plant. There is a lesser understanding of the effect of harvest maturity, postharvest storage and handling, minimal processing and final meal preparation on the concentration and bioavailability of phytochemicals. Knowledge of how these changes affect the health and wellness benefits conferred by vegetables is still in its infancy. Brassica vegetables (including broccoli, cauliflower, Brussels sprouts, cabbage, bok choy and water cress) are renowned for their distinctive sulphur-rich compounds, the glucosinolates, which are transformed into isothiocyanates during the final steps of cooking, chewing and digestion. These isothiocyanates have well-documented impacts on our physiology. Most notably, sulphoraphane, produced from glucoraphanin which is the major glucosinolate in broccoli, is the most potent known inducer of quinone reductase, which is one of the Phase II enzymes that aids in the body's natural defence against certain forms of cancer. This review summarises published information on the changes in content, composition and bioavailability of glucosinolates from the time of harvest to consumption and the likely impact on bioefficacy.