

Abstract

Glucosinolates are secondary plant metabolites that have been associated with anti-cancer potential. More than 120 glucosinolates have been identified, with their isothiocyanate derivatives ranging in potency from low to high anti-cancer potential. Glucosinolates are prevalent in members of the Brassica family, which contains many horticultural species. Generally, glucosinolate content is higher in the seed (or sprouted-seed) than in the mature vegetable. Consequently, there has been emphasis on the production of seed-sprouts for their health properties, particularly broccoli, which contains glucoraphanin, the precursor of an isothiocyanate with high anti-cancer potential. Although seed-sprouts usually contain high levels of glucosinolates, the postharvest stability of these compounds in sprouts is uncertain. Glucosinolates in themselves are relatively stable unless tissue disruption occurs, resulting in conversion to their less stable derivatives, isothiocyanates. In the case of seed-sprouts, which are normally refrigerated after purchase, tissue-disruption is most likely to occur through senescence, where tissue membranes become leaky with age. The current study investigated the change in glucosinolate levels in seed-sprouts stored under normal domestic refrigeration (4°C). Six types of sprout which previously had been identified as having moderate to high anti-cancer potential were tested. The impact of domestic refrigeration on the potential potency of different sprout types will be discussed.