

Study of the contents of indole glucosinolates in fresh and pickled cruciferous vegetables cultivated in

Taiwan

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Abstract

Increased consumption of cruciferous vegetable is associated with decreased incidence of cancers, and the high contents of glucosinolates in these vegetables contribute to these protective effects. There is few information regarding the glucosinolate contents from locally cultivated cruciferous vegetable in Taiwan, so this study was aimed at examining the contents of indole glucosinolates, including glucobrassicin, indole-3-carbinol (I3C), and indolo[3,2-b]carbazole (ICZ) in 8 kinds of cruciferous vegetables cultivated in Taiwan. Additionally, the indole glucosinolates contents in pickled cabbage were also evaluated. The results indicated that small Chinese cabbage has the highest contents of glucobrassicin and I3C (0.152 mmol) and Chinese kale has the highest ICZ (4.8 nmol), whereas cauliflower and broccoli have the lowest I3C and ICZ among the dried cruciferous vegetable we examined. Converting to the contents in each serving of fresh vegetable, Cabbage sprouts, small Chinese cabbage, and Chinese kale have the highest glucobrassicin, I3C, and ICZ, respectively. Neither spinach nor celery, two non-cruciferous vegetables, has detectable I3C and ICZ. Furthermore, the glucobrassicin contents in 24 h- or 96 h-picked cabbage were lower than that of 0 h. The I3C content in 0 h-picked cabbage is higher than that of 24 h- and 96 h-pickled as well as of non-pickled cabbages, but the ICZ content was not affected by the pickling process. In summary, among the locally cultivated cruciferous vegetables, small Chinese cabbage, cabbage sprouts, and Chinese kale possessed the highest contents of indole glucosinolates. Besides, the amounts of glucobrassicin and I3C in pickled cabbages decreased with the time of pickling process, but the amount of ICZ was not affected.