

Research says boiling broccoli ruins its anti-cancer properties

May 15 2007

Researchers at the University of Warwick have found that the standard British cooking habit of boiling vegetables severely damages the anticancer properties of many Brassica vegetables such as broccoli, Brussel sprouts, cauliflower and green cabbage.

Past studies have shown that consumption of Brassica vegetables decreases the risk of cancer. This is because of the high concentration in Brassicas of substances known as glucosinolates which are metabolized to cancer preventive substances known as isothiocyanates. However before this research it was not known how the glucosinolates and isothiocyanates were influenced by storage and cooking of Brassica vegetables.

The researchers, Prof Paul Thornalley from Warwick Medical School at the University of Warwick and Dr Lijiang Song from the University of Warwick's Department of Chemistry bought Brassica vegetables, (broccoli, Brussel sprouts, cauliflower and green cabbage) from a local store and transported them to the laboratory within 30 minutes of purchasing. The effect of cooking on the glucosinolate content of vegetables was then studied by investigating the effects of cooking by boiling, steaming, microwave cooking and stir-fry.

Boiling appeared to have a serious impact on the retention of those important glucosinolate within the vegetables. The loss of total glucosinolate content after boiling for 30 minutes was: broccoli 77%, Brussel sprouts 58%, cauliflower 75% and green cabbage 65%.

The effects of other cooking methods were investigated: steaming for 0–20 min, microwave cooking for 0–3 min and stir-fry cooking for 0–5 min. All three methods gave no significant loss of total glucosinolate analyte contents over these cooking periods.

Domestic storage of the vegetables at ambient temperature and in a domestic refrigerator showed no significant difference with only minor loss of glucosinolate levels over 7 days.

However the researchers found that storage of fresh vegetables at much lower temperatures such as 85 °C (much higher than for storage in a refrigerator at 4–8 °C) may cause significant loss of glucosinolates up to 33% by fracture of vegetable material during thawing.

The researchers found that preparation of Brassica vegetables had caused only minor reductions in glucosinolate except when they were shredded finely which showed a marked decline of glucosinolate levels with a loss of up to 75% over 6 hours after shredding.

Source: University of Warwick

Citation: Research says boiling broccoli ruins its anti-cancer properties (2007, May 15) retrieved 2 May 2024 from <https://medicalxpress.com/news/2007-05-broccoli-anti-cancer-properties.html>

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