Ensuring broccoli sprouts retain their cancer-fighting compounds

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Raw broccoli sprouts, a rich source of potential cancer-fighting compounds, have become a popular health food in recent years. But

conventional heat treatment used to kill bacteria on produce can reduce levels of the broccoli sprouts' helpful phytochemicals. Now researchers report in ACS' *Journal of Agricultural and Food Chemistry* that high pressure processing could wipe out harmful bacteria while maintaining high concentrations of its health-promoting ingredients.

Research has found that broccoli sprouts contain anywhere from 10 to 100 times more glucosinolates than their mature counterparts. Glucosinolates are the main compounds in broccoli and its sprouts that are transformed into isothiocyanates when chopped or chewed. Studies suggest that isothiocyanates have anti-cancer and anti-inflammatory activity. To help prevent bacterial contamination, the sprouts can be heated, but high temperatures can affect the conversion of glucosinolates to isothiocyanates. So Volker Böhm and colleagues wanted to explore an alternative method for getting rid of broccoli sprouts' microbial contamination.

The researchers treated sprouts with high pressure, a method that is sometimes used to ensure the safety of seeds, fruits and vegetables while preserving heat-sensitive nutrients. Results showed that processing broccoli sprouts at 400 to 600 megapascals increased the amount of glucosinolates that turned into isothiocyanates. Up to 85 percent of glucosinolates were converted under high pressure processing, boosting the plants' potential health-promoting compounds. The rate of conversion for mild heat treatment at 60 degrees Celsius was 69 percent. Isothiocyanate levels in boiled samples were undetectable or not quantifiable. Thus, the researchers say high pressure could be a preferred method over heating for processing broccoli sprouts.

More information: "High-Pressure Processing of Broccoli Sprouts: Influence on Bioactivation of Glucosinolates to Isothiocyanates" *Journal of Agricultural and Food Chemistry* (2017). pubs.acs.org/doi/abs/10.1021/acs.jafc.7b01380

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