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Increasing Sulforaphane Formation in Broccoli Sprouts by Radish Sprouts Additions

Gi-Chang Kim, Mi Jang, Hab-Hwa Beak, In-Guk Hwang, Hae-Ju Kang, Byung-Soon Hwang, Ji-Young Kim, Chan-Mi Park

Department of Agrofood Resources, National Institute of Agricultural Sciences, Wanju-gun 55365, Korea

Cruciferous plants such as broccoli and radish contain glucosinolate, which is a bioactive precursor that is most often used in Korean foods and is unique as a food ingredient. In addition, it contains various other phytochemicals and is promising as a health-oriented food material. In particular, Sulforaphane is a hydrolyzate of the glucosinolate, which has a more beneficial effect on the human body. Glucosinolate may be hydrolyzed by enzymes called myrosinase, which is voluntarily possessed by cruciferous plants. However, the ESP(Epithiospecifier protein) in broccoli sprouts could acts competitively with myrosinase, and convert to the less bioactive sulforaphane nitrile form. Therefore, we improved the yielding of sulforaphane in broccoli sprouts with a new method. We induce inactivation of the ESP protein by heat treatment. At this time, a myrosinase was introduced from the radish sprout because myrosinase in broccoli sprouts is also denatured by heat treatment. According to the results, we have confirmed by GC / MS that formation of sulforaphane increases more than 7 fold using set heating and mixing conditions.

Key words: sulforaphane, broccoli sprouts

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