

Optimization of processing of broccoli and radish mixture sprouts for the obtaining high content of sulforaphane

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Sulforaphane has many positives - antibacterial, antioxidant, anti-inflammatory and anti-cancer; recent studies have also shown a positive effect in children with autism. Bound in the form of glucoraphanin, sulforaphane is a stable substance, non-toxic to the broccoli plant. It is released by the action of myrosinase, an enzyme which is readily available in white radish sprouts, where it is usually found in higher quantities compared with broccoli. The purpose of the present work was to experimentally verify different approaches to heat treatment of broccoli and radish sprouts to release sulforaphane. The main objective of the testing was to verify the effect of different combinations of sprout heat treatments and holding times on the amount of sulforaphane released in the resulting lyophilisate. Using appropriate thermal procedures and the addition of radish naturally containing myrosinase, up to 5-fold higher amounts of sulforaphane were obtained in the broccoli-radish mixture lyophilisate (8.51 ± 0.34 mg/g) when compared with the untreated broccoli lyophilisate (1.48 ± 0.04 mg/g). A correlation equation was obtained for calculating the content of sulforaphane in the sprout mixture lyophilisate based on the process parameters. The obtained broccoli-radish lyophilisate can be suitably incorporated into selected foods.