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The effect of processing and cooking on glucoraphanin and sulforaphane in brassica vegetables

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Abstract

Brassica vegetables are widely consumed mostly after processing and cooking. These processing and cooking methods not only can affect the taste, texture, flavor and nutrients of these vegetables, but also influence the levels of some important bioactive compounds, such as glucosinolates (GLSs). Glucoraphanin (GLR) is the most abundant GLSs and its hydrolyzed component, sulforaphane (SLR), is the most powerful anti-cancer compound in brassica vegetables. In this review, we find out that varied treatments impact the retention of GLR and the formation of SLR differently. Be specific, 1) freezing can avoid the losses of GLR while short-time microwaving, short-time steaming and fermentation promote the biotransformation from GLR to SLR; 2) Boiling and blanching cause the largest losses of GLR and SLR, while freezing significantly protect their losses.; 3) Stir-frying varies the levels of GLR and SLR in different cooking conditions.

Keywords: Cooking methods; Glucoraphanin; Loss; Processing; Sulforaphane.

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