

Title Changes in carbohydrate and glucosinolate composition in white cabbage (*Brassica oleracea* var. *capitata*) during blanching and treatment with acetic acid

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Abstract

The effect of blanching and treatment with white vinegar containing acetic acid on dietary fibre, low-molecular-weight carbohydrates and glucosinolates was studied in two cultivars of white cabbage (Heckla and Predikant). The total content of dietary fibre and low-molecular-weight carbohydrates was similar in both cultivars (24 and 60 g/100 g DM, respectively), while the distribution between soluble and insoluble fibre differed (19% was soluble in Heckla versus 26% in Predikant, $P < 0.01$). Further, Heckla contained higher amounts of glucose and sucrose, while the content of fructose and total glucosinolates was lower than in Predikant. The content of individual glucosinolates differed between the two cultivars. During blanching there was a loss of dry substance (30–34 g/100 g DM), where low-molecular-weight carbohydrates primarily explained the loss (82–90%), but some of the loss was also dietary fibre (about 8%), both soluble fibre containing uronic acids (mainly Predikant) and insoluble ones containing glucose (mainly Heckla). The glucosinolate levels decreased substantially in both cultivars, although the total loss was higher in Predikant (74%) than in Heckla (50%). The individual glucosinolates were affected to different degrees (15–91%). During souring with acetic acid, the content of dietary fibre (primarily insoluble ones) decreased further, while the content of low-molecular-weight carbohydrates was less affected. The total content of glucosinolates was not affected in Heckla but was further reduced in Predikant. There was, however, a substantial increase in 4-methoxyglucobrassicin in both cultivars. It is concluded that blanching and souring decrease the content of carbohydrates and glucosinolates to a great extent and both cultivars behaved similarly. However, individual components were affected differently in the two cultivars.