

Effect of Vacuum Evaporation on Chemical Composition and Physical Parameters of Fermented Cabbage Juice

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Fermentation of the cabbage results in approximately one third of its weight cabbage juice that is formed in the fermentation process. Although juice is recognized as by-product, it contains significant amounts of the bioactive compounds. In order to reduce food waste, innovative solutions are being developed for valorisation of by-products. The aim of the current study is to evaluate effect of vacuum evaporation on chemical composition and physical parameters of fermented cabbage juice.

In current study, freshly collected fermented cabbage juice from three different varieties ('Ramkila', 'Selma', 'Kilpatons') were used. Concentration was performed using vacuum evaporation and for products total phenol content, antiradical activity, titratable acids, pH, soluble solids, and microbial analyses (total plate and lactic acid bacteria count) were performed.

Freshly collected fermented cabbage juice with dry matter average 8 °Brix was concentrated on a vacuum evaporator at 45°C to a 30 °Brix to obtain strongly flavoured concentrate.

Concentration of the juice using vacuum evaporation preserves biologically active compounds like phenols and antiradical activity. There is no significant influence of evaporation process on total phenol content in varieties 'Ramkila' and 'Selma' samples. Both fermented juices and concentrates are a good source of lactic acid bacteria (LAB) but it is variety dependent. Variety 'Selma' samples showed sufficient amount of bacteria (fermented juice - $2,3 \times 10^5$ LAB count and concentrated fermented juice - $2,15 \times 10^5$ cfu g⁻¹ LAB count) to qualify it as source of probiotics. Variety 'Ramkila' fermented juice initially contains a smaller amount of total plate count bacteria ($2,6 \times 10^4$ cfu g⁻¹) and thus also lactic acid bacteria ranging from $2,3 \times 10^3$ in fermented juice to $5,5 \times 10^3$ cfu g⁻¹ in concentrate.

Concentrated fermented cabbage juice is a source of different biologically active compounds, as well as probiotics and can be used as a valuable raw material for innovative food products.

Key words: fermented cabbage juice, concentrate, vacuum evaporation.

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Biography:

Liene Jansone currently is an 3rd year PhD student in Latvia University of Life Science and Technologies, Faculty of Food Technologies.