4th International Scientific and Professional Conference /
4. međunarodni znanstveno-stručni skup

FOOD INDUSTRY BY-PRODUCTS

BOOK OF ABSTRACTS / KNJIGA SAŽETAKA

6th and 7th June 2024
Osijek, Croatia

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Faculty of Tourism and Rural Development in Požega / Fakultet turizma i ruralnog razvoja u Požegi
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CHEMICAL COMPOSITION OF BLACK RASPBERRY (*Rubus occidentalis* L.) FRUITS AND POMACE: COMPARATIVE ANALYSIS

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The industrial processing of various fruits left behind a large amount of unutilized by-products. Since waste management represents a key element of the circular economy, a cross-sectoral strategic concept based on the sustainable use of resources and energy, the assessment of fruit by-products in terms of their chemical composition or medicinal properties seems to be a useful solution to address the environmental and financial challenges involved. Black raspberry (*Rubus occidentalis* L., Rosaceae), a deciduous shrub native to eastern North America and now cultivated in a number of countries around the world, is considered a rich source of phenolic flavonoids, particularly anthocyanins (cyanidin derivatives), along with ellagitannins, which provide a range of health benefits including antioxidant, anti-inflammatory, hypoglycemic and antiproliferative activities. The aim of this study was to comparatively analyse the fruits and pomace of black raspberry for their chemical composition using HPLC technique. For these purposes, ultrasound-assisted extraction was used to produce hydroethanolic extracts (1:10, w/v) from the fruit collected in western Serbia (F) and the pomace (P) obtained by pressing the fresh berries in a commercial juicer. The results of HPLC analysis showed the same chemical profile of the analysed extracts, although the amount of active compounds was significantly different. The main secondary metabolites identified and quantified in F and P extracts included anthocyanins (cyanidin-3-sambubioside: 4.39 vs. 5.59 mg/g; cyanidin-3-glucoside: 2.01 vs. 2.73 and cyanidin-3-rutinoside: 22.58 vs. 28.39 mg/g), flavonols (rutin: 1.36 vs 1.60 and isoquercitrin: 0.26 vs. 0.31 mg/g) and phenolic acids (protocatechuic acid: 0.13 vs. 0.16 and ellagic acid: 0.26 vs. 0.24 mg/g). The present study showed that the content of the main phenolic compounds in black raspberry pomace was higher in comparison to fruits, suggesting that this by-product is an even better source of phytochemicals than fruits, with a promising potential to be used in the food or pharmaceutical industry.

Keywords: black raspberry, *Rubus occidentalis* L., pomace, anthocyanins, ultrasound-assisted extraction