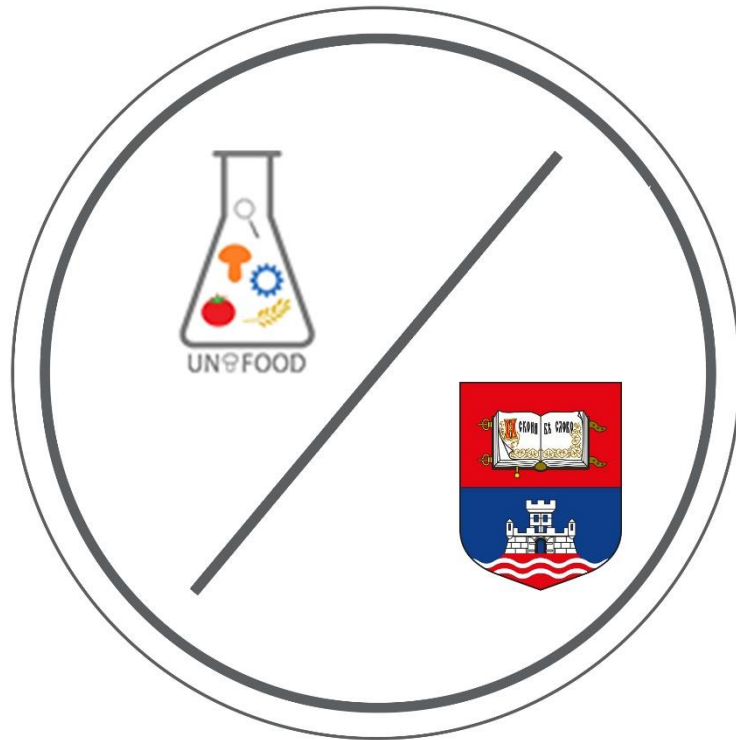


# UNIFOOD CONFERENCE



**University of Belgrade**

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## 2<sup>nd</sup> International UNIFood Conference



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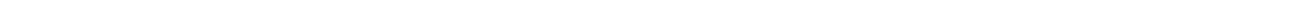
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## CHEMICAL AND PHENOLIC COMPOSITION OF FRUITS OF RASPBERRY AND BLACKBERRY PROPAGATED BY STANDARD AND *IN VITRO* TECHNIQUES

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Berry fruits are a valuable source of phytochemicals, primarily sugars, organic acids and phenolic compounds. Since sugars and organic acids are the most abundant soluble solids, they greatly determine fruit's taste, which is one of the most important parameters for consumers' acceptance. Due to the high content of naturally occurring antioxidants, particularly flavonoids, phenolic acids and anthocyanins, berries are considered as an important source of health-promoting compounds. The Republic of Serbia is one of the leading producers of raspberry and blackberry in Europe. Although high yield and satisfactory fruit quality largely depend on agroecological conditions, they cannot be reached without high-quality planting material. Raspberry and blackberry are mostly propagated vegetatively by conventional methods. However, micropropagation enables a year-round supply of physiologically uniform, true-to-type and disease-free planting material. Thus, we established the orchard using planting material propagated by standard technique (ST) and by *in vitro* tissue culture (TC). Three-year study evaluated the fruit quality of raspberry 'Meeker' and blackberry 'Čačanska Bestrna', considering the different origins of the planting material. Several chemical parameters of fruit quality (dry matter, content of sugars, total acids content, pH, total pectins) were analysed. High-performance liquid chromatography was used for the determination of phenolic acids (protocatechuic, 4-hydroxybenzoic, ellagic, gallic, *p*-coumaric, caffeic and ferulic acid), flavonols (quercetin) and anthocyanins (cyanidin and pelargonidin). No significant differences were observed between berries from the ST and TC plants in both fruit species regarding any analysed chemical parameter. As expected, the most abundant phenolic acid in all berry samples was ellagic acid. With exception of 4-hydroxybenzoic acid in blackberry, the type of planting material did not significantly affect the content of bioactive compounds in both blackberry and raspberry. On the other side, experimental year significantly influenced the abovementioned compounds, excluding the content of ellagic acid, 4-hydroxybenzoic acid and gallic acid in raspberry.

**Keywords:** *Rubus*, 'Meeker', 'Čačanska Bestrna', bioactive compounds, ellagic acid.

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