

BOOK OF ABSTRACTS

3rd International Conference on Plant Biology

(22nd SPPS Meeting)



9-12 JUNE 2018
BELGRADE

Serbian Plant Physiology Society

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Institute for Biological Research "Siniša Stanković", University of Belgrade

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Faculty of Biology, University of Belgrade

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on Plant Biology
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SECTION 5

**Application in
Agriculture,
Pharmacy and
Food Industry**

The composition of fatty acids and tocopherols in wheat bran oil

PP5-2

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Wheat is a significant component in human diet. The health effects of whole kernel utilization have been associated with their unique phytochemical compounds distributed in the endosperm, germ and bran fractions. The wheat brans represent rich source of tocopherols and essential fatty acids, such as linoleic acid (18:2n6) and linolenic acid (18:3n3). The aim of this study was to analyse tocopherol and fatty acid contents in bran oil of 17 wheat cultivars in order to identify genotypes with higher nutritional value. The oil was extracted from wheat bran using classical Rushkovsky method. Normal phase high performance liquid chromatography (NP-HPLC) with fluorescence detection was used for identification and quantitation of tocopherols. Trimethylsilyl esters of fatty acids were determined from wheat bran oils by using gas chromatography with a flame ionisation detector (GC-FID). Total tocopherol content ranged from 40.86 mg kg⁻¹ (cv. NS rana 5) to 124.85 mg kg⁻¹ (cv. Partizanka), with average content of 22.9 mg kg⁻¹ α -tocopherols, 8 mg kg⁻¹ β -tocopherols and 47 mg kg⁻¹ γ -tocopherols. Cvs. Partizanka and NS 40S were identified as genotypes with significantly higher than average contents of all tocopherols. The content of 18:2n6, oleic and 18:3n3 acids were within the ranges of 55.85-73.05%, 9.09-24.82% and 3.63-7.81% of the total fatty acids, respectively. Our results showed that contents of both tocopherol and essential fatty acids (18:2n6 and 18:3n3) varied significantly in the investigated cultivars, suggesting that it is feasible to breed wheat cultivars with increased levels of beneficial phytochemicals for human health.

Keywords: wheat, bran oil, phytochemicals, nutritional value

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Antioxidant and antimicrobial activities of native and *in vitro* propagated *Micromeria croatica* (Pers.) Schott (*Lamiaceae*)

PP5-3

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The genus *Micromeria* Bentham (*Lamiaceae*) includes more than 70 species that are generally considered as aromatic since they produce considerable quantities of essential oils, which exhibit antimicrobial and antioxidant activities. *Micromeria croatica* (Pers.) Schott, an endemic Illyric-Balca-