

# BOOK OF ABSTRACTS

## 3rd International Conference on Plant Biology (22nd SPPS Meeting)



9-12 JUNE 2018  
BELGRADE

**Serbian Plant Physiology Society**

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

**Faculty of Biology, University of Belgrade**

**3<sup>rd</sup> International Conference  
on Plant Biology  
(22<sup>nd</sup> SPPS Meeting)**



9-12 June 2018, Belgrade

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CIP - Каталогизacija y rinfleksija - Напомена Сабносна Србија, Европал  
581(48)(0034.7)

INTERNATIONAL Conference on Plant Biology (1 ; 2018 ; Belgrade)

[Book of Abstracts] [Екстерносна вазап] / 3rd International Conference on Plant Biology [and] 32nd SPPS Meeting, 9-13 June 2018, Belgrade ; [organized by] Serbian Plant Physiology Society [and] Institute for Biological Research "Siniša Stanković", University of Belgrade [and] Faculty of Biology, University of Belgrade ; [editor Branka Urošić]. - Belgrade : Serbian Plant Physiology Society : University, Institute for Biological Research "Siniša Stanković" : University, Faculty of Biology, 2018 [Belograd : Друштво за физиологију биљака Србије]. - 1 USB flak memorija ; 1 x 3 x 8 cm

Тина: 330 - Регијал.

ISBN 978-86-912561-4-3 (SPPS)

1. Друштво за физиологију биљака Србије. Сабносна (27 ; 2018 ; Белград)

2. Институт за биолошка истраживања "Синиша Станковић" (Белград)

a) Издавача - Архивирање

COBISS.SR-ID 36407900

sition of vegetation). On the other hand, economic interest in these fungi is on the rise. In some countries, truffles are considered as an agricultural product, whereas in others they are considered a wild product. In the Republic of Serbia, some of the famous truffle sites are Obedska bara, Deliblatska peščara, Fruška gora, Kosmaj, Rudnik and Oplenac. The aim of this work was to determine the level of toxic elements absorption by two truffle species collected in Obedska bara area: the black truffle *T. melanosporum* (most common one) and the white truffle *T. magnatum* (rare and highly valued one). The bioaccumulation factor (BAF) which represents the ratio of the concentrations of toxic elements in the truffle and the soil was calculated. Quantitative analysis of As, Cd, Cr, Hg, Ni and Pb was performed using the analytical technique of inductively coupled plasma with optical emission spectroscopy (ICP-OES). Concentrations of As, Hg and Pb were below the limit of detection, whereas Cd had the highest concentration in both samples. Consequently, in both species the highest BAF was observed for Cd, 1.734 and 1.070 for black and white truffle, respectively. Bioaccumulation of Cr was higher in black (0.037) than in white truffle (0.025), whereas Ni was detected only in white truffle. Results indicated that truffles readily accumulated Cd.

**Keywords:** truffle, toxic elements, bioaccumulation, ICP-OES

*This work was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Grant No. 46009). Authors acknowledge MOL Institute for ICP analysis.*

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## Comparative evaluation of antimicrobial and antigenotoxic potential of two *Onosma* species from Turkey

PP5-37

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The methanolic extracts of aerial parts of two species from the genus *Onosma* L. (*Boraginaceae*), *Onosma sericea* Willd and *Onosma stenoloba* Hausskn. ex Riedl from Turkey, were tested for their biological potential. Antimicrobial activity of *Onosma* extracts was assessed by microdilution method using selected bacterial and fungal strains. The comet assay was performed to evaluate the *in vivo* genotoxic and protective effect of *Onosma* extracts at different concentrations (20, 40 and 80 mg mL<sup>-1</sup>) against the ethyl methanesulphonate-induced DNA damage in *Drosophila melanogaster*. The *in vitro* ability of extracts to protect DNA against hydroxyl radical was estimated. The contents of total phenolics and flavonoids in the extracts were also determined by spectrophotometrical measurements. Antimicrobial activity of tested extracts was moderately pronounced, with the lowest minimal inhibitory concentration values (MIC) of 2.5 mg mL<sup>-1</sup>. Extracts at higher concentrations showed the absence of genotoxicity. The antigenotoxic effect was evident after treatment with both extracts with percentage reduction over 80%. In concentration range from 25 to 400 µg mL<sup>-1</sup>, the protective effects of the extracts against hydroxyl radical-induced DNA damage were dose-dependent, increasing with higher dosages. The results showed much higher content of total phenolics in *O. sericea* than in *O. stenoloba* extract (69.79 and 32.46 mg GAE g<sup>-1</sup>, respectively).

Flavonoids were the dominant class of bioactive compounds in *O. sericeum* extract (52.62 mg RE g<sup>-1</sup>), while they were present in *O. stenoloba* extract in much lower quantity (8.36 mg RE g<sup>-1</sup>). Overall results indicate that tested *Onosma* extracts have a great potential for further biomedical investigations.

**Keywords:** *Onosma sericea*, *Onosma stenoloba*, phenolic content, antimicrobial activity, antigenotoxic potential

*This work was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia, Grant No. III43004.*

## ***Alchemilla vulgaris* L.: Phytochemical profile and ameliorating effect against cisplatin-induced oxidative damage**

PP5-38

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*Alchemilla vulgaris* L. (*Rosaceae*) is known in traditional medicine for its anti-inflammatory, diuretic and astringent properties. The aim of this study was to investigate the ameliorative effect of methanol extracts of aerial parts and roots of *A. vulgaris* (AVA and AVR, respectively) against cisplatin-induced hepatorenal and testicular toxicity. *In vivo* studies for the determination of protective effects of extracts were performed using male Wistar rats. Different groups of rats (n=5 per group) were treated orally with three doses of AVA and AVR (50, 100 and 200 mg kg<sup>-1</sup> b.w., respectively) for 10 consecutive days. The same protocol was applied for ellagic acid (100 mg kg<sup>-1</sup>) as a reference compound. Negative and positive (cisplatin) controls and extracts *per se* groups were also included. Toxicity was induced by intraperitoneal application of a single dose of cisplatin (7.5 mg kg<sup>-1</sup> b.w.) on the 5<sup>th</sup> day. Treatment with AVA and AVR caused a significant attenuation (p<0.05) of the levels of serum parameters of liver, kidney, and testicular injury, compared to the cisplatin group. A significant reduction in TBARS level and a marked increase in the levels of tissue oxidative parameters were observed in all groups treated with extracts. Histopathological study revealed marked