

BOOK OF ABSTRACTS

3rd International Conference on Plant Biology (22nd SPSS 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

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



9-12 June 2018, Belgrade

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CIP - Каталогизacija у публикацији - Народна библиотека Србије, Београд
581(048)(0.034.2)

INTERNATIONAL Conference on Plant Biology (3 ; 2018 ; Belgrade)

[Book of Abstracts] [Електронски извор] / 3rd International Conference on Plant Biology [and] 22nd SPPS Meeting, 9-12 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 Uzelac]. - Belgrade : Serbian Plant Physiology Society : University, Institute for Biological Research "Siniša Stanković" : University, Faculty of Biology, 2018 (Beograd : Друштво за физиологију биљака Србије). - 1 USB fleš memorija ; 1 x 3 x 8 cm

Тираж 230. - Регистар.

ISBN 978-86-912591-4-3 (SPPS)

1. Друштво за физиологију биљака Србије. Састанак (22 ; 2018 ; Београд)

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

а) Ботаника - Апстрактни

COBISS.SR-ID 264421900

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<u>Publishers</u>	Serbian Plant Physiology Society Institute for Biological Research "Siniša Stanković", University of Belgrade Faculty of Biology, University of Belgrade
<u>Editor</u>	Branka Uzelac
<u>Graphic design</u>	Dejan Matekalo
<u>Prepress</u>	Marija G. Gray
<u>Electronic edition</u>	230 pcs

highest content of chlorophyll, carotenoids, SPAD index and the largest leaf area were established in the treatment red + blue LED illumination. The lowest values of leaf width and length were found in plants grown under red LED light, while the lowest plantlet height was obtained in plants grown under fluorescent lights. From these results we conclude that additional LED lighting with the combination of blue and red parts of the spectrum can stimulate growth and development of pepper seedlings.

Further research is required in order to find the most favourable ratio of before mentioned wavelengths of the spectrum in particular stage of growth and development, as well as genotype variability, because numerous studies confirm different responses to light quality among varieties of the same plant species.

Keywords: LED lights, pepper, pigments, phenols, SPAD index

Leaf glandular trichomes and secreted material of *in vitro*-grown tansy (*Tanacetum vulgare* L.): micromorphology, structure, histochemistry and essential oil analysis

PP1-25

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The morphology and structure of tansy glandular trichomes were characterized for the first time using scanning electron microscopy and light microscopy, and their secretion was analyzed by histochemical staining. Leaf indumentum of tansy was covered with non-glandular and glandular trichomes of biseriate type, distributed on both adaxial and abaxial surface. Both types of trichomes were also distributed along the stem, but with lower density. Light microscopy showed that biseriate glandular trichomes consisted of two broad basal cells embedded in the epidermis, a short single-celled stalk, and a large round multicellular head. The histochemical analysis of the glandular secretion, performed through several staining methods, revealed the complex nature of the secreted products, including lipids, terpenes, alkaloids and polysaccharides.

GC/MS phytochemical analysis of volatile compounds secreted by glandular trichomes, identified 42 compounds, representing >97% of the total volatiles in EO, obtained by hydrodistillation in a Clevenger-type apparatus. The monoterpene fraction was dominant, with the prevalence of oxygenated monoterpenes (38.5%), while the majority of sesquiterpene fraction referred to oxygenated sesquiterpenes (22.6%). Two dominant compounds, which determined the essential oil chemotype, were *trans*-thujone (22.7%) and neryl-isovalerate (20.6%).

The essential oil protects the aerial parts of the plant against herbivores and pathogens and the biological activity of the secreted products indicates their potential as pesticides or pharmaceuticals.

Keywords: *Tanacetum vulgare* L., *in vitro*, glandular trichomes, essential oil

This work is supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Grant No. 173015)