

Serbian Plant Physiology Society

Institute for Biological Research „Siniša Stanković”, University of Belgrade

# 19<sup>th</sup> SYMPOSIUM

of the Serbian Plant Physiology Society

*Programme and Abstracts*



Banja Vrujci, 13-15 June 2011



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## Banja Vrujci, 13-15 June 2011

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# PROGRAMME OF THE 19<sup>th</sup> SYMPOSIUM OF THE SERBIAN PLANT PHYSIOLOGY SOCIETY

## Monday, June 13<sup>th</sup> 2011

**Presentations and events** Chair - Dragičević I., Maksimović I., Vinterhalter D.

Up to 12.00	The arrival of participants and registration
12.00-14.00	Poster setting Group I, Sections 1, 2, 3, 4
13.00-14.00	Lunch
14.00-14.30	Opening session of the 19 <sup>th</sup> SPPS Symposium

### Section 1 - Plenary lectures

14.30 - 15.00	Vaclav Motyka - In search for a conceivable function of cis- zeatin-type cytokinins in plants
15.00 - 15.30	Michael Blanke - Nanoparticles and sensor technology for sensitive ethylene detection
15.30 - 16.00	Judit Dobránszki - Signals and factors regulating potato tuberization <i>in vitro</i> on PGR- free medium
16.00 -17.00	Pause

### Section 2 - Plenary lecture

17.00 - 17.30	Željko Vučinić - The roles of organic acids in the apoplast of plants: Case study of malate
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### Section 3 - Plenary lectures

17.30 -18.00	Kalina Danova - Approaches for study of polyphenolics biosynthesis in the <i>Hypericum</i> genus <i>in vitro</i>
18.00 - 18.30	Sonja Gadzovska Simic - Effect of biotic elicitors on hypericin and pseudohypericin production in <i>Hypericum perforatum</i> L. cell suspensions
18.30 - 19.00	Angelos Kanellis - Exploring plant glandular trichomes machinery for fishing novel genes and compounds and mimicking their morphogenesis pattern

## Tuesday, June 14<sup>th</sup> 2011

**Presentations and events** Chair - Ninković S., Panković D., Ružić Đ.

### Section 4 - Plenary lectures

8.30 - 9.15	Autar K. Mattoo, Tahira Fatima, Anatoly Sobolev, Aref A. Abdul-Baki, Avtar K. Handa, John R. Teasdale - Integration of value-added transgenic plants into alternative cover crop mulch systems illustrates a paradigm for sustainable agriculture development and linkage of transgenic, high antioxidant tomatoes with eco friendly production systems
9.15 - 9.45	Borut Bohanec - Applications of haploid induction in plants, present status and future prospects
9.45 - 10.30	Jan J. Rybczyński - Present status of Gentian biotechnology in Poland
10.30 - 10.50	Pause
10.50 - 11.20	Zlatko Šatović, Belen Roman, Ramon Diaz, Carmen Avila, Diego Rubiales, Jose Ignacio Cubero, Ana Maria Torres - Genetic mapping and quantitative trait loci (QTL) analysis in faba bean ( <i>Vicia faba</i> L.)
11.20 - 11.50	Gajdosova Alena, Libiakova Gabriela, Ostrolucka Maria Gabriela, Moravcikova Jana, Lateckova Miroslava - Biotechnological methods in mass propagation and genetic improvement of small fruits



11.50 - 12.10	Malkov S, Simonović A - Shotgun assembly of <i>Centaurium erythraea</i> transcriptom
<b>Section 5 - Plenary lectures</b>	
12.10 - 12.40	Špela Baebler - Understanding potato – PVY interaction by systems biology approach
12.40 - 12.55	Marko Sabovljević, Aneta Sabovljević, Milorad Vujičić, Milica Ljaljević Grbić, Michelle Rodda and Mariangela Girlanda - Are there endobionts in bryophytes? The case study of peat-moss <i>Sphagnum palustre</i>
13.00-14.00	Lunch
14.00-15.00	Poster presentations Group I, Sections 1, 2, 3, 4
after 15.00	Poster setting Group II (Sections 5, 6, 7, 8)
<b>Free afternoon</b>	- Excursion to Valjevo
20.00	Gala dinner

### Wednesday June 15<sup>th</sup> 2011

**Presentations and events** Chair - Stikić R., Jovanović Z., Marjanović- Jeromela A., Tarasjev A.

### Section 6 - Plenary lectures

8.30 - 9.00	Dominik Vodnik, Mitja Ferlan, Klemen Eler, Giorgio Alberti, Alessandro Peressotti, Franco Miglietta, Primož Simončič, Nives Ogrinc, Franc Batič - Carbon cycling in karstic grasslands
9.00 - 9.15	Suzana Živković - Puzzle of vegetative desiccation tolerance in rustyback fern ( <i>Asplenium ceterach</i> L.): Role of antioxidant enzymes
9.15 - 9.30	Jelena Bogdanović Pristov, Aleksandra Mitrović, Ivan Spasojević - New physiological role of plant cell-wall pectin

### Section 7 - Plenary lectures

9.30 - 9.15	Marjanović Jeromela Ana, Marinković Radovan, Atlagić Jovanka, Zeremski Tijana, Đorđević Vuk, Terzić Sreten, Mikić Aleksandar - Energy potential of alternative oil plant species
9.15 - 9.30	Đuričković Milutin S., Mišić Danijela, Maksimović Vuk, Šiler Branislav, Giba Zlatko, Grubišić Dragoljub - Characterization of wild pears from Mt. Athos to improve breeding and conservation efforts
9.30 - 11.00	Poster presentation Group II, Sections 5, 6, 7, 8

### Section 8 - Plenary lecture

11.00-11.30	Aleksej Tarasjev - Three decades of evolutionary biology studies on <i>Iris pumila</i> clonal plant: Advantages of a good model system, obtained results and directions for further research
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### Section - Current research at ..

11.30 - 12.00	Current research at the Institute of Field and Vegetable Crops, Novi Sad Jovanka Atlagić, Ljiljana Brbaklić, Aleksandra Dimitrijević, Vuk Đorđević, Maja Ignjatov, Ivana Imerovski, Dušica Jovičić, Borislav Kobiljski, Ankica Kondić-Špika, Ana Marjanović-Jeromela, Aleksandar Mikić, Dragana Miladinović, Nevena Nagl, Dragana Petrović, Ksenija Taški-Ajduković, Sreten Terzić, Sanja Treskić, Dragana Trkulja
12.00-13.00	DFBS General Assembly
13.00-14.00	Lunch
15.00	Farewell, departure





VIII

# Evolutionary Plant Biology



## Anatomical leaf traits of *Paulownia elongata* S. Y. Hu and *Paulownia fortunei* Seem. Hemsl.: comparison sun and shade environments

Dragica Vilotić<sup>1</sup>, Danijela Miljković<sup>2</sup>, Mirjana Šijačić-Nikolić<sup>1</sup>, Suzana Mitrović<sup>3</sup>, Milorad Veselinović<sup>3</sup>

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The many plant species can inhabit a broad range of environmental conditions and that plants often exhibit differences in phenotype across environmental gradients. This paper presents the results of research on the effects of different light intensities on the number of stomata (stomatal density – SD) and the surface pore of stomata (stomatal pore surface – SPS). We analyzed two types of *P. elongata* and *P. fortunei*, which were grown under sun and shaded environment. The main hypothesis we wanted to test is: do the characteristics of stomata differ between and within treatments (open and shaded) for each of the analyzed species. According to the t-test mean values SD and SPS are significantly different for each of the analyzed species between the light treatments. Species were no significant differences in the mean of the analyzed characteristics of stomata in high light intensity, while in the low light intensity treatment they did. According to a three-way ANOVA, all sources of phenotypic variation effect of light treatments, species, were statistically significant. Also the interaction between light treatment and species was statistically significant, indicating a different response of *Paulownia sp.* under light environment. These results suggest that environmental differences (between sun and shaded environmental conditions) induced a variation in phenotypic response between these two species of *Paulownia*. Namely, the value of SPS was larger for *P. fortunei* in shaded environmental, while the pattern of species response was opposite for SD (*P. elongata* have larger value then *P. fortunei*). Observed statistically differences between species as responses to light intensity were detected for both traits SPS and SD (significant treatment x species interactions), provides evidence of an adaptive plastic response for analyzed anatomical leaf traits.

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## Evolutionary ecological studies on sexually dimorphic plants: *Mercurialis perennis* L. as a model system

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One of the most intriguing subjects in plant evolutionary biology is the evolution of diverse modes of reproduction and the transitions between hermaphrodite and unisexual flower state. Angiosperm genus *Mercurialis* is known for the diversity of sexual systems. We have chosen dioecious *M. perennis* as a model for evolutionary ecological research aimed to explore the consequences of having separate sexes, such as sexual dimorphism, affecting both morphological and physiological aspects of phenotype. During a 5-year period, we explored spatial (altitudinal) and temporal (interannual) patterns of variation in sex ratio (SR), sexual size dimorphism (SSD), and reproductive allocation (RA), as well as putative sexual niche differentiation with respect to light in populations from a wide variety of altitudes and habitats in Serbia. We found significantly biased SR along the altitudinal gradient: the direction of bias was correlated with altitude, lowland populations being male-biased. All populations (except the highest-altitude one) exhibited moderate values of male-biased SSD in height. Interannual variation was more prominent in montane populations. Patterns of altitudinal variation in RA differed significantly between sexes. We discuss these results in light of current hypotheses concerning sexual dimorphism in plants.



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