

Serbian Plant Physiology Society

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

19th SYMPOSIUM

of the Serbian Plant Physiology Society

Programme and Abstracts



Banja Vrujci, 13-15 June 2011

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PROGRAMME OF THE 19th SYMPOSIUM OF THE SERBIAN PLANT PHYSIOLOGY SOCIETY

Monday, June 13th 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 19th 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 *in vitro* 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

Section 3 - Plenary lectures

17.30 -18.00 Kalina Danova - Approaches for study of polyphenolics biosynthesis in the *Hypericum* genus *in vitro*
18.00 - 18.30 Sonja Gadzovska Simic - Effect of biotic elicitors on hypericin and pseudohypericin production in *Hypericum perforatum* 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 14th 2011

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

Section 4 - Plenary lectures

8.30 - 9.15 Avtar 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 (*Vicia faba* 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 *Centaurium erythraea* transcriptom

Section 5 - Plenary lectures

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 *Sphagnum palustre*

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)

Free afternoon - Excursion to Valjevo

20.00 Gala dinner

Wednesday June 15th 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 (*Asplenium ceterach* 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 *Iris pumila* clonal plant: Advantages of a good model system, obtained results and directions for further research

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

Biodiversity
and Conservation

Advances in morphological and cytogenetic characterisation of *Vavilovia formosa* (syn. *Pisum formosum*)

Jovanka Atlagić¹, Aleksandar Mikić¹, Sreten Terzić¹, Lana Zorić², Tijana Zeremski-Škorić¹, Vojislav Mihailović¹, Branko Čupina³

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Vavilovia formosa (Stev.) Fed. (syn. *Pisum formosum* (Stev.) Alef.) is a relict wild relative of peas (*Pisum* L.), vetches (*Vicia* L.), vetchlings (*Lathyrus* L.) and lentils (*Lens* Mill.). Its geographical distribution is limited to the altitudes of at least 1,000 m in Caucasus and adjacent regions extending from Turkey to Iran and from Russia to Lebanon. Unsuccessful attempts in its *ex situ* conservation led to rather limited availability of its research. The samples of stems, leaves and flowers of one *V. formosa* population of, growing at an altitude between 3305 and 3315 m asl at the Mount Ughtasar in southern Armenia, were collected on July 17, 2009 and fixed in Carnoy I, a 3:1 solution of ethanol and glacial acetic acid. The androecium in *V. formosa* was shown to be diadelphous, with nine filaments fused together and spherical wo-pieced anthers. In some fully developed flowers only one or two filaments had anthers, being a possible cause of the observed inability of this species to produce seeds every year. On the other hand, the average viability of the *V. formosa* pollen grains was rather high (93.29%). The ovary usually contained 7 or 8 spherical ovules, being more than the 3 to 5 seeds produced from an ordinary pod. Most of the *V. formosa* cells in the acetocarmine preparations were in interphase, while several were in metaphase and anaphase. It was confirmed that the *V. formosa* somatic cells had 14 chromosomes, as determined earlier by scarce cytogenetical research on this species. This opens a possibility for renewing attempts in developing *interspecies* hybrids between *V. formosa* and its closest, economically important, relatives such as pea (*Pisum sativum* L.), common vetch (*Vicia sativa* L.) or grass pea (*Lathyrus sativus* L.), where the former may act as a donor of various stress resistances or perenniality.

Variability of male inflorescences and pollen properties of *Corylus avellana* L. and *Corylus colurna* L.

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¹ Institute of Forestry, Kneza Višeslava 3, 11000 Belgrade, Serbia

For pollen analysis in laboratory, male inflorescences (catkins) from 5 trees of *Corylus avellana* and *C. colurna* were collected in parks of Belgrade in the beginning of March. Directly before ripening, the most of catkins are green, 6-10 cm long and 4 mm thick (*C. avellana*) or yellow-green, 7.5-12.5 cm long and up to 5 mm thick (*C. colurna*). Both species bloom early, with the highest peak in the first half of March. Turkish hazel usually blooms 4-5 days earlier. Elongated, riped male catkins which shade pollen grains are yellow-green, 7-11 cm long and about 7 mm thick (*C. avellana*) or yellow-brown, 9.5-15 cm long and about 8.5 mm thick (*C. colurna*). Moderately developed bush of Common hazel has about 2200 male inflorescences, 55 mg of pollen per inflorescence, and about 120 g of pollen per tree. On contrary, well developed tree of Turkish hazel has about 6000 male inflorescences, 100 mg of pollen per inflorescence, and about 600 g of pollen per tree. Pollen grains of both species are sub-triangular (polar view). Pollen grains of *C. avellana* have dimensions about 18 x 25 µm and 25 x 28 µm (polar and equatorial view, respectively). They are smaller (up to 20%) than ones of *C. colurna*. Percentages of non-vital pollen grains were 20% (*C. avellana*) and 5% (*C. colurna*). Germination of fresh pollen of *C. avellana* was lower than in *C. colurna* in pure water as well as in different nutritive media (water solution of sucrose, concentrations: 10, 20, 30, 40 and 50%). The best germination results were found for 30-40% of sucrose (85% and 95%, in *C. avellana* and *C. colurna*, respectively).

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