

BOOK OF ABSTRACTS



CONGRESS

OF THE SERBIAN GENETIC SOCIETY

2019 | October
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VRNJAČKA BANJA • SERBIA





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Abstracts of the 6th CONGRESS OF THE SERBIAN GENETIC SOCIETY



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VRNJAČKA BANJA • SERBIA

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WELCOME TO VI CONGRESS OF THE SERBIAN GENETIC SOCIETY!

Dear colleagues,

Welcome to the 6th Congress of the Serbian Genetic Society. The Serbian Genetic Society (SGS) has been founded in 1968 and the first Congress organized by the SGS was held in 1994 in Vrnjacka Banja. Since then, the Congress of Serbian Genetic Society is held every five years. Over the past years, the Congress has grown from a national to an international meeting.

The experience of the past meetings motivated our efforts to continue with this series with a clear tendency to strengthen the scientific connections among researchers from different European countries.

The Congress will focus on the most recent advances in genetics and on wide range of topics organized in 9 sessions and two workshops. Many of the presentations will be in lecture-like settings, but we hope that there will also be ample opportunities for informal interaction outside the scheduled sessions.

The successful organization of the Congress has required the talents, dedication and time of many members of the Scientific and Organizing committees and strong support from our sponsors. I hope that you will find the Congress both pleasant and valuable, and also enjoy the cultural and natural beauty of Vrnjacka Banja.

Yours sincerely,



Branka Vasiljevic
President of the Serbian Genetic Society



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EFFECT OF FOLIAR NUTRITION ON THE PRODUCTIVITY OF BUCKWHEAT - *FAGOPYRUM ESCULENTUM* MOENCH

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Buckwheat – *Fagopyrum esculentum* Moench is annual, monocarpus plant from the family *Polygonaceae*, the genus *Fagopyrum*, from the group of alternative cereals. Its origin is Central Asia. Buckwheat is a highly valued food in human nutrition, especially in countries where emphasis is placed on food that is health - safe. In the diet of humans and domestic animals, grain (fruit, nut) is used which has similar nutritious and nutritive value as grain cereals. Above-ground biomass buckwheat is used for feeding domestic animals and is the best quality when plants are in the end of blossom period. Buckwheat can be used as a siderate and is also suitable for bee pasture. Honey has medicinal properties.

On the parcels of the Institute of Field and Vegetable Crops in Backi Petrovac (φ N 45° 20', λ E 19° 40', 82 mls), the variety of buckwheat Novosadska in 2018 was tested in two variants: 1. control - variant without nutrition and 2. variant with foliar nutrition. The analysis of variance of the yield indicator showed that there was a significant variability for the studied properties of the buckwheat between the control variant and the variant with foliar nutrition. The variety of buckwheat Novosadska achieved statistically significantly higher yield (2,200 kg ha⁻¹), the height of the plants (150 cm) and the weight of 1000 grains (24.20 g) in the variant with foliar nutrition compared to the control variant (p <0.01).

Based on the results of the research, it is evident that foliar nutrition are desirable in the buckwheat crop, since in the variant with the nutrition, statistically significantly higher productivity of buckwheat was achieved.

Investigations necessary for this paper are part of the project TR 31025 financed by the Ministry of Education, Science and Technology Development of Republic of Serbia and bilateral projects (Montenegro and Serbia; 2019-2020): "Alternative cereals and oil crops as a source of healthcare food and an important raw material for the production of biofuel".

FAGOPYRUM ESCULENTUM, FOLIAR NUTRITION, 1000 GRAIN MASS, GRAIN YIELD

09 - 10 Poster (Plant molecular genetics)

ARABIDOPSIS DSS1(V) PROTEIN AS POTENTIAL PARTICIPANT IN RESPONSE TO OXIDATIVE STRESS

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DSS1 gene encodes small and conserved protein which belongs to intrinsically disordered protein class. This protein has unstructured 3D form, where as a partner associates with other protein complexes and play vital roles in various biological processes. It is known that the DSS1 protein is involved in maintenance of genomic integrity and protein homeostasis within the 26S proteasome system. Recent study has proposed another potentially new role which implies specific recognition and binding to the oxidized proteins. Thus marked damaged proteins further promote removal by the ubiquitin-protease system. The mechanism of action is not quite clear. Furthermore, two plant isoforms of DSS1 have been detected in *Arabidopsis thaliana*, AtDSS1(I) and AtDSS1(V). These homologs are generally expressed in all organs at all developmental stages. Of note, as the data related to the DSS1 function in plants is very limited, in this work we examined susceptibility of AtDSS1(V) homozygous line mutants with T-DNA insertion to oxidative stress induced by methyl viologen (MV). In order to demonstrate the role of AtDSS1 in overcoming the effects of oxidative stress, *dss1(V)* mutant and wild-type (WT) seedlings *Arabidopsis thaliana* were grown on solid medium containing MV. After treatment, increasing trend of lipid peroxidation (LPO) was detected in plants, as an indicator of oxidative stress. Elevated presence of oxidized proteins in *Atdss1(V)* mutants exposed to MV was shown by OxyBlot methodology. Also, total chlorophyll content in *dss1(V)* seedlings was lower than in WT *Arabidopsis*, grown with or without MV. Changes in the expression profile of total AtDSS1 proteins were analyzed by Western blot. The *Arabidopsis dss1(V)* mutants were slightly more sensitive to the stress and grow more slowly compared to WT. With regard to the new suggested function, the results indicate that AtDSS1(V) protein may have role in defense mechanisms against oxidative stress in plants exposed to abiotic stress.

ATDSS1, OXIDATIVE STRESS, *ARABIDOPSIS THALIANA*