

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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THE PHOTOSYNTHETIC EFFICIENCY IN SUNFLOWER PLANTS AT STRESSFUL GROWTH CONDITIONS

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Lately, we are witnessing climate crisis that are disrupting the cultivation and production of agricultural crops. Consequently, the conducted study's objective is to clarify the influence of climate changes on the photosynthetic efficiency of sunflower plants (*Helianthus annuus* L). The investigation focuses on the influence of heat and light stress during the flowering of two selected sunflowers genotypes. The analysis of variance shows statistically significant differences between genotypes for all tested parameters of photosynthesis, as well as between treatments except for parameter variable fluorescence at step J. Based on the results, genotype 1 was less sensitive to the changes in the photosynthetic apparatus caused by stressors than genotype 2. The heat and light stress caused the difference between treatments in genotype 2 for the parameter initial intensity of the fluorescence to be larger. The inhibition of the oxygen-evolving centre was stronger in genotype 2 as well, and this resulted in lower values of the maximum fluorescence intensity. The genotype 2 had a larger increase in the re-oxidation of the plastoquinone than genotype 1, i.e. the values of the variable fluorescence at step J were higher for genotype 2. The plants adapted to stressful conditions by lowering the values of the maximum quantum yield of photosystem II, but its values in the genotype 2 decreased below 0.75 relative units indicating damage to the photosynthetic apparatus' functioning. At the same time, performance index on absorption basis, which gives insight into the plant's vitality, as well as the parameters from which the index was calculated, confirmed a larger impact of stress on genotype 2.

HELIANTHUS ANNUUS, HEAT STRESS, LIGHT STRESS, PIABS, FV/FM

ADAPTIVE VALUE OF CONVENTIONAL RAPESEED CULTIVARS IN ORGANIC AND CONVENTIONAL CULTIVATION ENVIRONMENTS

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Rapeseed is one of the major oil crops, grown in various environments. Interest in organic rapeseed is rising, with increasing importance to breeders to determine the need for specific organic breeding programs. The objective of this study was to determine the adaptive value of conventionally developed rapeseed cultivars in organic cultivation environments.

Five winter rapeseed cultivars were grown in conventional and organic plots, each with three sowing dates and four replications. The trials were organized in a randomized block design and the effect of cultivar and farming system on emergence, survival rate, yield, oil and protein content was evaluated. Locally recommended agricultural practices were used to keep the fields free from weeds, insects and diseases. In organic field, weeds were removed mechanically while insects were treated with an insecticide used for organic production. The seed samples for analysis of oil and protein content were taken during harvest.

Considering agricultural practices, it was found that rapeseed can be successfully grown in organic agriculture, but further improvements are needed to increase stability of production. The cultivars had higher oil content in the conventional environment, while there was no significant effect on protein content. Cultivar Slavica reacted to organic cultivation with largest increase of yield, while cultivars Banačanka and Nena had high yield in both environments. The results suggest that some of the conventional cultivars can be successfully used in organic cultivation and that the existing breeding material can be used as a good starting point for further specific trait improvements.

RAPESEED, ORGANIC, CONVENTIONAL, YIELD, OIL, PROTEIN