

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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DIALLEL ANALYSIS FOR MOST IMPORTANT TRAITS OF RED FESCUE (*FESTUCA RUBRA* L.)

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Phenotypic recurrent selection is the most used and successful method in perennial grasses breeding. Direct or polycross hybridization of chosen genotypes is quite often step within this method of selection. In general, most important goal in grass breeding is to find genotypes which will be superior in accumulation as much additive genetic components as it is possible within their inbreedings. Therefore, characteristics of genotypes after hybridization are extremely important. It could be evaluated by progeny testing of obtained hybrids, but plot trials of lot of genotypes could be laborious and expensive job. To reduce number of possible crossings and to make progeny testing cost efficient it is important to know in advance what are combining abilities of chosen genotypes. The information about effects of genes and traits genetic control, as well as general and specific combining ability heritability and heterotic and maternal effects can be provided by diallel analysis

Complete diallel analysis on 8 promising red fescue genotypes from 2013 to 2016 was performed. To obtain the F1 generation each cross was made under bag isolation of tillers from plants which are planted in pentagonal space plant design.

A spaced plant trial of obtained diallel hybrids (full sibs) was established in 2014. including 28 crosses in F1 (56 diallel hybrids with reciprocals). During two years of full plant development and utilization we analyzed 8 traits (time of heading, plant height, number, width and length of leaves, number of tillers, green mass and dry matter yield per plant). Data were computed with Griffing's method 3 without inbred parents. The results of the diallel analysis showed that most of analysed traits are determined by interaction of both additive genes (GCA effects) and non additive genes (SCA effects). There were some hybrid combinations with high-parent heterosis. Hybrid combinations with best combining ability were selected for future breeding of red fescue.

DIALLEL ANALYSIS, RED FESCUE, HYBRIDS, COMBINING ABILITY, HETEROSIS

06 – 08 Poster

GENETIC VARIABILITY AND ANTIOXIDANT RESPONSES OF WHEAT UNDER SALINITY STRESS *IN SITU*

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Unfavorable environment, for most cultivated plants is the soil, which is characterized by high concentrations of salt. Stress caused by high salt concentrations leads to disorders in the transport of electrons in certain cell organelles, creating reactive oxygen species that cause lipid peroxidation, oxidative protein degradation, and DNA mutations. Trial was set in Banat, locality Kumane, where the complex stress environment is caused by alkaline soil of solonetz type, soil of poorer productivity, represents a production environment that can be considered stressful for plants. The research included 12 genotypes, of which 10 varieties and one local population of hexaploid wheat and one variety of triticale. The enzymatic activity of the antioxidant system (SOD, GPx, PPx), PAL, non-enzymatic components of the antioxidative system (GSH, phenols, tannins, DPPH-test) as well as lipid peroxidation have been determined. From the standpoint of both groups of investigated components, genotypes of Banatka and Bankut 1205 were the most stress tolerant. The genotype Rapsodija has stood out according to a good reaction when the enzymatic component is observed and the genotype Renesansa when considering non-enzymatic activity. The most tolerant of stress. The genotype Rapsodija has separated with a good reaction when the enzymatic component is observed and the genotype Renesansa when considering non-enzymatic activity. The most intense lipid peroxidation was observed in the Bankut 1205 genotype and Odisej, and the slightest damage to cell membranes was the Nevesinjka genotype. Understanding the way in which oxygen radicals are formed in the plant tissue and disappearing from it contributes to the creation of new varieties of wheat, which will be more tolerant to stress. The selection of better-adapted genotypes to growing conditions at the solonetz may allow economically justified production of wheat and more intensive use of such soil in agricultural production.

WHEAT, SOLONETZ, STRESS, ANTIOXIDATIVE SYSTEM, VARIABILITY