

BOOK OF ABSTRACTS



CONGRESS
OF THE SERBIAN GENETIC SOCIETY

2019 | October
13–17
VRNJAČKA BANJA • SERBIA





BOOK OF ABSTRACTS

Abstracts of the 6th CONGRESS OF THE SERBIAN GENETIC SOCIETY

Publisher
Serbian Genetic Society,
Belgrade, Serbia
www.dgsgenetika.org.rs

Editors
Branka Vasiljević
Aleksandra Patenković
Nađa Nikolić

Printing
Serbian Genetic Society,
Belgrade, Serbia

Number of copies printed
300

Design
Ivan Strahinić
Ana Kričko

ISBN
978-86-87109-15-5



2019 | October
2019

VRNJAČKA BANJA • SERBIA

SCIENTIFIC COMMITTEE

Branka Vasiljevic (Serbia) - CHAIR

Jelena Knežević Vukcevic (Serbia)	Ninoslav Djelic (Serbia)
Mihajla Djan (Serbia)	Ksenija Taski-Ajdukovic (Serbia)
Marija Savic Veselinovic (Serbia)	Jelica Gvozdanovic-Varga (Serbia)
Andjelkovic Violeta (Serbia)	Olivera Miljanovic (Montenegro)
Marina Stamenkovic-Radak (Serbia)	Vladan Popovic (Serbia)
Ander Matheu (Spain)	Dejan Sokolovic (Serbia)
Dragana Miladinovic (Serbia)	Milomirka Madic (Serbia)
Branka Vukovic Gacic (Serbia)	George Patrinos (Greece)
Snezana Mladenovic Drinic (Serbia)	Milena Stevanovic (Serbia)
Ana Cvejic (United Kingdom)	Sonja Pavlovic (Serbia)
Milorad Kojic (Serbia)	Dragica Radojkovic (Serbia)
Slavisa Stankovic (Serbia)	Jelena Milasin (Serbia)
Jelena Blagojevic (Serbia)	Vittorio Venturi (Italy)
Domagoj Simic (Croatia)	Ivana Kavecanc (Serbia)
Milan Mataruga (Bosnia and Herzegovina)	Ivana Novakovic (Serbia)
Michael Lisby (Denmark)	Bojana Zegura (Slovenia)
Jelena Srdic (Serbia)	Metka Filipič (Slovenia)
Ana Marjanovic Jeromela (Serbia)	Jose Perez-Martin (Spain)
Ivana Strahinic (Serbia)	Thomas Flatt (Switzerland)
Dusica Vujaklija (Croatia)	Vladimir Trifonov (Russia)

ORGANIZING COMMITTEE

Milena Jankovic - CHAIR

Mirjana Novkovic	Radovan Milicevic
Sanja Cirkovic	Nadja Nikolic
Ivana Aleksic	Ivica Dimkic
Vesna Kandic	Tanja Beric
Milan Stevanovic	Stoimir Kolarevic
Dusica Jovicic	Biljana Nikolic
Petar Canak	Jelena Aleksic
Aleksandra Patenkovic	Milica Keckarevic-Markovic
Milomir Stefanovic	

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 (SCS) has been founded in 1968 and the first Congress organized by the SCS 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



TABLE OF CONTENTS

PLENARY LECTURES

- SESSION 1** Human omics variation
- SESSION 2** Medical genetics
- SESSION 3** Genetic toxicology: from cell to ecosystem
- SESSION 4** Adaptation and ecological genetics
- SESSION 5** Genetic diversity, phylogeny and conservation
- SESSION 6** Breeding for changing environments
- SESSION 7** Microbial genetics
- SESSION 8** Bioinformatics and big data analysis
- SESSION 9** Miscellaneous topics
- WORKSHOP 1** Personalized medicine: promise and reality
- WORKSHOP 2** The truth is in wine and DNA
– applications of molecular methods in viticulture
- AUTHORS INDEX**



SESSION 6

Breeding for changing environments

VI CONGRESS OF THE SERBIAN GENETIC SOCIETY



06 – 19 Poster

ASSESSMENT OF DURUM WHEAT CULTIVARS BASED ON MORPHOLOGICAL TRAITS

Verica Takač, Sanja Mikić, Milan Miroslavljević, Vojislava Momčilović, Dragana Trkulja, Ankica Kondić-Špika, Ljiljana Brbaklić

Institute of Field and Vegetable Crops, Novi Sad, Serbia

verica.takac@ifvcns.ns.ac.rs

Understanding genetic diversity of durum wheat germplasm is essential for its identification and efficient use in breeding programs. The goal of this study was to assess genetic diversity of durum wheat cultivars from the Institute of Field and Vegetable Crops, Serbia, with 26 morphological characteristics based on International Union for Protection of New Varieties of Plants guidelines. The Shannon diversity index was used as an indicator of morphological diversity and it varies from 0.283, for glaucosity of lower side of the flag leaf blade and density of hairiness of uppermost node of the culm, to 0.950, for the ear color, with the mean value of 0.616, indicating a medium to high level of morphological diversity. On average, the diversity was higher for traits relating to generative organs than for those associated with vegetative organs. The 21 morphological characteristics were sufficient to distinguish unique profiles of all durum wheat varieties. The estimation of varietal diversity and identification of morphological characteristics with the highest discriminative power were done by multiple correspondence analysis. The traits that contributed the most to the distinction of varieties were the ear coloration, length of beak of the lower glume, lower glume shape ear length of awns at tip relative to ear length and color of awns. Morphological characterization using the traits with the highest discriminative power could be a useful complementary method for durum wheat germplasm classification and diversity analysis.

CATEGORICAL DATA, DIVERSITY, DISCRIMINATIVE POWER, MULTIPLE CORRESPONDENCE ANALYSIS, *TRITICUM TURGIDUM* SUBSP. *DURUM*

06 – 20 Poster

THE CHEMICAL AND PROTEIN COMPOSITION OF GRAINS OF TWELVE DIFFERENT SWEET MAIZE GENOTYPES (*ZEAMAYS L. SACCHARATA*)

Milica Radosavljević¹, Marija Milašinović-Šeremešić², Zorica Pajić¹, Jelena Srdić¹, Dušanka Terzić¹, Valentina Nikolić²

¹ *Maize Research Institute "Zemun Polje", Belgrade, Serbia*

² *Institute of Food Technology, Novi Sad, Serbia*

milica@mrizp.rs

Sweet maize grains are used in human nutrition in the endosperm milk stage. The quality of these tender, succulent and sweet grains is determined by genes which distinguish sweet maize from common maize. In recent years, the practice of using sweet maize has been increasing both in our country and worldwide, while its production has therefore been growing. The largest part of sweet maize produced in our country is processed and exported as frozen grains. The most important quality parameters of sweet maize grains are taste, composition of the endosperm, and tenderness of the pericarp.

The paper presents the results of chemical and protein compositions of grains of 12 different sweet maize genotypes in the endosperm milk stage. Since sweet maize grain is used for human consumption, this stage is also a stage of grain harvest maturity. The chemical composition of grains of selected sweet maize genotypes was analysed by determining the content of non-structural carbohydrates (NFC - Non-Fibre Carbohydrate), protein, oil, crude fibre, and NDF (Neutral Detergent Fibre - fibres insoluble in neutral detergent made of hemicellulose, cellulose and lignin). The protein composition of grains of selected sweet maize genotypes was analysed by determining the contents of albumin, globulin, α -zein and glutelin. The dry matter content was established refractometrically and it ranged from 20.1 to 26.0% in observed sweet maize genotypes. The results obtained on the chemical composition of grains of the selected sweet maize genotypes showed that contents of NFC, protein, oil, crude fibre, ash and NDF ranged from 69.64 to 77.29%; 10.26 to 11.98%; 3.81 to 6.89%; 1.36 to 2.28%; 1.73 to 2.39%, and from 6.75 to 9.32%, respectively. The contents of albumin, globulin, α -zein and glutelin ranged from 22.59 to 37.10%, 4.88 to 7.37%, 16.97 to 24.71%, and from 18.18 to 22.55%, respectively.

SWEET MAIZE, CHEMICAL AND PROTEIN COMPOSITION