PROCEEDINGS OF THE

20th INTERNATIONAL SUNFLOWER CONFERENCE

ISA

Novi Sad, Serbia

June 20-23, 2022

Proceedings of the

20th International Sunflower Conference

Novi Sad, Vojvodina, Serbia
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Sponsored by

The International Sunflower Association, Paris, France,

In cooperation with

The Institute of Field and Vegetable Crops, National Institute of Republic of Serbia, Novi Sad, Serbia

Proceedings of the 20th International Sunflower Conference
Novi sad, Serbia, June 20-23, 2022

Editors: Sreten Terzić, Dragana Miladinović

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The proceedings or the 20th International Sunflower Conference contain 153 contributions from scientists of 30 countries. They include plenary lectures, oral talks and regular communications presented with posters, among which, selected contributions were emphasized with short oral talks. The manuscripts are classified by research areas in ten separate sections. They offer a thorough review of the current state of the art of sunflower research and production around the world. The Organizing Committee is grateful to Tanja Vunjak and Aleksandar Vojisavljević for their excellent editorial assistance in the preparation of these Proceedings.

ISC2022 Organizing committee

Conference program

Sunday, 19 June

16.00-21.00	Registration
19.00-21.00	Welcome Reception

Monday, 20 June

8.00-17.00	Registration	
9.00-9.30	Opening Ceremony	
9.30- 10.15	**Invited talk** Section 1: Dr. Felicity Vear (France)	
10.15-11.00	Coffee break	
11.00-12.00	**Section 1:** *Breeding – New/old breeding goals and challenges*	**Section 2:** *Oils and proteins - Innovations for increased quality and feedstock supply*
	Oral and short oral presentations	**Oral and short oral presentations**
12.00-13.30	Lunch	
13.30-14.30	**Invited talks** Section 3: Dr. C.C. Jan (China) Section 4: Dr. Sreten Terzić (IFVCNS, Serbia)	
14.30-15.00	Coffee break	
15.00-16.00	**Section 3:** *Confectionery sunflower – Emerging crop*	**Section 4:** *Genetic resources – Investment for the future*
	Oral and short oral presentations	**Oral and short oral presentations**
16.00-17.00	**Poster session** – Sections 1, 2, 3, 4	
18.00-21.00	Novi Sad and Petrovaradin fortress tour	

Tuesday, 21 June

8.30-17.00	Registration	
9.30-10.30	**Invited talks** Section 5: Dr. Leire Molinero Ruiz (CISC, Spain) Section 6: Dr. Philippe Debaeke (INRAE, France)	
10.30-11.00	Coffee break	
11.00-12.00	**Section 5:** *Biotic stress resistance – New and emerging pests and diseases*	**Section 6:** *Crop production and modeling – Yield stability in changing environment*
	Oral and short oral presentations	**Oral and short oral presentations**
12.00-13.30	Lunch	
13.30-14.30	**Invited talks** Section 7: Dr. Nicolas Langlade (INRAE, France) Section 8: Etienne Pilorgé (Terres Inovia, France)	
14.30-15.00	Coffee break	
15.00-16.00	**Section 7:** *Abiotic stress resistance – Challenges of changing environment*	**Section 8:** *Economy and market – Trends and prospects*
	Oral and short oral presentations	**Oral and short oral presentations**
16.00-17.00	**Poster session** – Sections 5, 6, 7, 8	

Wednesday, 22 June

8.30-17.00	Registration	
9.30-10.30	**Invited talks** Section 9: Dr. Stéphane Muños (INRAE, France) Section 10: Dr. Nicole Creux (FABI, South Africa)	
10.30-11.00	Coffee break	
11.00-12.00	**Section 9:** Broomrape – *Constant challenge*	**Section 10:** *Bees and seeds – Exploring new venues for increased yield and seed production*
	Oral and short oral presentations	**Oral and short oral presentations**
12.00-13.30	Lunch	
13.30-14.30	**Panel:** *Sunflower in a changing environment – Trends and prospects*	
14.30-15.00	Coffee break	
14.30-15.30	**Poster session** – Sections 9, 10	
15.00-16.30	ISA Assembly	
16.30-17.00	Closing ceremony	
20.00-24.00	Gala Dinner Pustavoit Award Presentation Ceremony IFVCNS Best Poster Award Presentation	

Thursday, 23 June

9.00-15.00	Field day

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SHORT ORAL TALKS

MINING ROOT TRAITS FOR SUNFLOWER DROUGHT TOLERANCE IMPROVEMENT BY USE OF AN AUTOMATED PHENOTYPING PLATFORM

Aleksandra Radanović[1*], Anna Galinski[2], Milan Jocković[1], Sandra Cvejić[1], Sreten Terzić[1], Siniša Jocić[1], Dragana Miladinović[1], Fabio Fiorani[2] & Kerstin A. Nagel[2]

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Abstract

Drought is a major limiting abiotic factor in production of sunflower (*Helianthus annuus* L.), one of the main oil crops, worldwide. Consequently, breeders are always in search of drought tolerant genotypes and getting more insight into mechanisms underlying drought tolerance. With the global environmental changes occurring, drought stress gained even more on its significance. Different and significant changes in plant morphology and metabolism occur in response to drought stress. Analysis of the root as a main plant organ for water uptake, was mainly neglected, mostly due to the difficulties of reaching and examining it. Development of modern automated phenotyping platforms enable overcoming this problem. For the purpose of analyzing response of sunflower root system to water deprivation conditions, cultivated and wild sunflower genotypes were chosen from a vast sunflower collection located at the Institute of Field and Vegetable Crops (IFVCNS). Sunflower root architecture was analyzed by the use of the automated phenotyping platform GROWSCREEN-Rhizo located at the institute IBG-2: Plant Sciences at Forschungszentrum Jülich GmbH (FZJ). The aim of this study was to analyze the responses of different genotypes and genotypic constitutions to water deficiency conditions and to identify root trait(s) that could be used as a discriminant between genotypes that are tolerant and sensitive to low water availability.

Keywords: *Helianthus annuus* L., drought tolerance, root phenotyping, GROWSCREEN-Rhizo

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