

PROCEEDINGS OF THE

20th INTERNATIONAL SUNFLOWER CONFERENCE



Novi Sad, Serbia
June 20-23, 2022

Proceedings of the

20th International Sunflower Conference



Novi Sad, Vojvodina, Serbia
June 20-23, 2022

Sponsored by



The International Sunflower Association, Paris, France,

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**The Institute of Field and Vegetable Crops, National
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Proceedings of the 20th International Sunflower Conference
Novi sad, Serbia, June 20-23, 2022

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The proceedings of 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



20th International Sunflower Conference, Novi Sad

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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TOLERANCE OF NS-SUNFLOWER GENOTYPES TO CHARCOAL ROT

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Abstract

The most limiting factors in sunflowers production are weather conditions and plant diseases. Charcoal rot of sunflower is disease caused by soil-borne fungus *Macrophomina phaseolina* (Tassi) Goid. that gains importance in temperate regions. Control of charcoal rot is complicated due to pathogens long persistence in form of microsclerotia in the soil, often-delayed appearance of visible symptoms in plants and large number of host-plants. Due to that, development and use of resistant or tolerant sunflower genotypes is one of the most effective methods for charcoal rot management. The aim of this study was to determine variability of NS-sunflower inbred lines and hybrids in response to *M. phaseolina* infection and to detect tolerance within selected genotypes. Totally, 24 NS-sunflower commercial hybrids and 70 inbred lines were tested for tolerance to pathogen *M. phaseolina* at Rimski Šančevi, Novi Sad, during 2010 and 2011. For artificial inoculation two methods were used - Unwounded Stem Based Inoculation (USBI) which is close to natural infestation process and Toothpick Method which considers infestation by microsclerotia through wound in plants. Disease assessment for both methods was done in sunflower maturity stage (R-9), by cutting each plant longitudinally and measuring length of lesions with microsclerotia formed in stems. Disease severity was calculated according to McKinney's Index formula. Depending on the highest disease severity obtained in 2-year trial, sunflower genotypes were classified in six ranges: highly tolerant (HT, 0%), tolerant (T, 0.1-10%), moderately tolerant (MT, 11-30%), moderately susceptible (MS, 31-60%), susceptible (S, 61-80%), and highly susceptible (HS, 81-100%). According to the highest disease severity, 79% of tested hybrids, and 83% of inbred lines showed some level of susceptibility. The most susceptible genotypes belong to the early or medium early maturity group. The present study identified highly tolerant cultivars that mostly belong to medium late to late maturity group e.g. NS-H-111, Orion, NS-Romeo, NS-Novak and NS - Fantazija, and could be used widely to control charcoal rot, while inbred lines such as PH-BC2-64, PH-BC2-92, PR-ST-28, IMI-AB-6, IMI-AB-1, IMI-AB-12, UK-58-ST, SU-AB-6, OD-ST-Ž-10, AS-95, AS-87, and AS-92, should be used for breeding programs in order to improve future cultivars.

Keywords: *Macrophomina phaseolina*, sunflower hybrids, inbred lines

Acknowledgement: This research was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia, grant number: 451-03-68/2022-14/ 200032.

CIP - Каталогизација у публикацији
Библиотеке Матице српске, Нови Сад

633.854.78(082)

INTERNATIONAL Sunflower Conference (20 ; 2022 ; Novi Sad)
Proceedings of the 20th International Sunflower Conference, Novi Sad,
June 20-23, 2022 / [editors Sreten Terzić, Dragana Miladinović]. - Novi Sad :
The Institute of Field and Vegetable Crops ; Paris : The International Sunflower
Association, 2022 (Novi Sad : Atelje «Mudri»). - 306 str. : ilustr. ; 25 cm

Tiraž 400. - Bibliografija uz svaki rad.

ISBN 978-86-80417-89-9

a) Сунцокрет - Узгајање - Зборници

COBISS.SR-ID 68512521

Front page design: Aleksandar Vojisavljević
Photography: Goran Mulić – Petrovaradin fortress
