

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

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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



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: <i>Biotic stress resistance – New and emerging pests and diseases</i>	Section 6: <i>Crop production and modeling – Yield stability in changing environment</i>
	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: <i>Abiotic stress resistance – Challenges of changing environment</i>	Section 8: <i>Economy and market – Trends and prospects</i>
	Oral and short oral presentations	Oral and short oral presentations
16.00-17.00	Poster session – Sections 5, 6, 7, 8	

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10.30-11.00	Coffee break	
11.00-12.00	Section 9: <i>Broomrape – Constant challenge</i>	Section 10: <i>Bees and seeds – Exploring new venues for increased yield and seed production</i>
	Oral and short oral presentations	Oral and short oral presentations
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15.00-16.30	ISA Assembly	
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20.00-24.00	Gala Dinner Pustavoit Award Presentation Ceremony IFVCNS Best Poster Award Presentation	

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THE DIFFERENT INVIGORATION TECHNIQUES FOR SUNFLOWER SEEDS

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Abstract

The effects of physical invigoration seed treatment are manifested in many ways, including morphological and structural aspects, changes in the gene expression and the accumulation of proteins and metabolites. To invigorate seed and to investigate the effects of different invigoration techniques on germination and growth seedling characteristics of sunflower, an experiment was conducted with sunflower hybrid Fantazija at the Laboratory for seed testing, Institute of Field and Vegetable Crops, Novi Sad, Serbia. The process of seed invigoration was performed after seeds were exposed to double stressful condition of high temperature and high humidity (72h at 41°C) (the accelerate aging test) by H₂O treatment (the seeds were soaked in water for 24 hours) and KH₂PO₄ treatment (the seeds were soaked in KH₂PO₄ solution for 24 hours), followed by washing and drying near to initial weight. Treatments with H₂O and KH₂PO₄ affected the decrease of germination, but they were effective in reducing mean germination time (MGT). After the accelerate aging test, the process of invigoration (both H₂O and KH₂PO₄) influenced a minor increase germination percentage, but MGT was prolonged. The SDS-PAGE profiles of seed proteins in the crude extracts showed a very similar number of protein bands in all treatments. The lowest molecular weight protein observed in the seed was 10 kDa, while the highest was 95 kDa. In the region of 2S albumins, some bands of proteins appear after the accelerated ageing followed with H₂O treatment. Furthermore, the difference in relative intensity between some treatments were noticed. Given the significantly lower percentage of germination percentage in this treatment, it is possible that the resulting protein degradation under these conditions adversely affected the germination process.

Key words: sunflower, seed vigor, invigoration, SDS-PAGE

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