

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	

Wednesday, 22 June

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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
12.00-13.30	Lunch	
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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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FEATURE SELECTION AND PERFORMANCE ASSESSMENT OF MACHINE LEARNING ALGORITHMS FOR SUNFLOWER OIL YIELD PREDICTION

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Abstract

Rapid innovation and liberalized market economy in agriculture require a fast and accurate Sunflower Oil Yield Prediction (SOYP). SOYP is a complex task since it depends on multiple factors. Machine Learning (ML) algorithms and the selection of important features could play a significant role in an accurate oil yield prediction. In this study, we developed ML models to predict oil yield by using two different sets of features. Moreover, we evaluated the most relevant features for accurate SOYP. ML algorithms that were used and compared, were Artificial Neural Network, Support Vector Regression, K-Nearest Neighbour, and Random Forest Regressor (RFR). The dataset consisted of 1250 samples of which 70% were randomly selected and were used to train the model and 30% were used to test the model and assess its performance. The results show that the RFR algorithm achieved the highest accuracy for both feature subsets. These research results indicate that ML has great potential for application as an alternative method for genotypic selection.

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