



Gesellschaft für Pflanzenbauwissenschaften e.V.



Meeting of the  
Working Group Seed Science and Certification (GPZ/GPW)  
Arbeitsgemeinschaft Saatgut- und Sortenwesen (GPZ/GPW)  
&  
Section IV Seeds (VDLUFA)  
Fachgruppe IV Saatgut (VDLUFA)

Topic of the Scientific Seed Symposium:

**“Seed Production in Times of Climate Change”  
„Saatgutproduktion in Zeiten des Klimawandels“**

**March 9-11, 2021  
Online**

**Book of Abstracts**

Ulrike Lohwasser & Andreas Börner

## PROGRAM

**March 09, 2021**

12:30-12:45	Andreas Börner Germany	Opening Remarks
	<b>Chair:</b> Andreas Börner	
12:45-13:30	Hugh W. Pritchard United Kingdom	Climate and seed functional traits
13:30-13:45	Andreas Wais Switzerland	International Seed Testing Association – The way forward in seed testing
13:45-14:00	Einav Mayzlish Gati Israel	The role of the Israel Gene Bank in genetic diversity conservation in times of climate change
14:00-14:15	Maraeva Gianella Italy	Seed longevity of maize conserved under germplasm bank conditions for up to 60 years
14:15-14:30	Filippo Guzzon Mexico	Enhancing seed conservation in tropical areas by implementing the dry chain
14:30-14:45	Ibrahim Olaleye Germany	The relationship between estimates of fluorescence lifetime and seed viability and vigour of wheat ( <i>Triticum aestivum</i> )
14:45-15:00	Jayaraman Aravind Germany	Delayed fluorescence for monitoring seed deterioration in selected <i>Brassica</i> species
15:00-15:15	Erwann Arc Austria	Metabolite profiling of germinating <i>Brassica oleracea</i> seeds
15:15-15:30	Jennifer Zur Germany	The AVATARS Project – An interdisciplinary approach introducing new digital technologies for seed quality analysis in oilseed rape ( <i>Brassica napus</i> L.)
15:30-15:45		<b>Break</b>
	<b>Chair:</b> Ilse Kranner	
15:45-16:00	Marcus Jansen Germany	Image processing for new perspectives in seed quality testing
16:00-16:15	Antje Wolff Germany	Phenotyping seeds and seedlings to objectively measure the impact of climatic conditions on seed quality, germination and vigour
16:15-16:30	Hardy Rolletschek Germany	Seed phenotyping <i>in vivo</i> : concept and developments at IPK
16:30-16:45	Lénia Rodrigues Portugal	The applicability of calorespirometry on seed phenotyping – A focus on seed resilience upon abiotic stress factors

16:45-17:00	Daljrit Virk United Kingdom	Facilitating seed production through pollination control tent technology in the changing climate
17:00-17:15	Sebastian Bathiany Germany	Tailoring climate projections to the needs of agricultural stakeholders - insights from ADAPTER
17:15-17:30	Peter Zubay Hungary	Allelopathic effects of <i>Juglans regia</i> L., <i>Populus tremula</i> L. and juglone on seed germination of medicinal and aromatic plants

## March 10, 2021

08:10-08:15	Manuela Nagel Germany	Opening
	<b>Chair:</b> Manuela Nagel	
08:15-09:00	Ilse Kranner Austria	Abiotic stress factors experienced during seed maturation affect redox signalling and seed phenotype
09:00-09:15	Manuela Nagel Germany	Longevity of seeds and the impact of the maternal environment
09:15-09:30	Olha Zadorozhna Ukraine	Seed storage of different wheat species
09:30-09:45	Hela Chikh-Rouhou Tunisia	Efficiency of three selection methods in improving onion seed yield
09:45-10:00	Annette Büttner-Mainik Switzerland	Tiger nut from seeds: From germination to tuber formation
10:00-10:15	Biljana Kiprovska, Serbia	Nutritional value of underutilised oil crop <i>Carthamus tinctorius</i> L.
10:15-10:30	Ines Fhima, Tunisia	Seed performance of Tunisian bottle gourd landraces
10:30-10:45		<b>Break</b>
	<b>Chair:</b> Andreas Börner	
10:45-11:00	Rouxlene Van der Merwe South Africa	Drought tolerance indices and their correlation with seed yield in vegetable-type soybean
11:00-11:15	Andrea Pagano Italy	Post-priming desiccation tolerance as a key determinant of seed priming efficiency in <i>Medicago truncatula</i>
11:15-11:30	Johann Huber Germany	Improvement of the seed quality of faba beans ( <i>Vicia faba</i> ) to ensure domestic seed production

11:30-11:45	Alex Kröper Germany	Identification of lentil ( <i>Lens culinaris</i> ) genotypes for sustainable cropping systems in temperate climate
11:45-12:00	Ulrike Lohwasser Germany	Sainfoin ( <i>Onobrychis viciifolia</i> Scop., legume family) – The future star in sustainable crop cultivation strategies?
12:00-12:15	Andreas Börner Germany	Closing Remarks
12:15-14:00		<b>Lunch Break</b>
14:00-17:00		<b>VDLUFA Workshop</b>

## **March 11, 2021**

09:00-13:00		<b>VDLUFA Spring Meeting</b>
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## Nutritional value of underutilised oil crop *Carthamus tinctorius* L.

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Seeds of seven different genotypes of underutilised oil crop *Carthamus tinctorius* L. (Asteraceae) were analysed for their protein, oil, fatty acids, tocopherols and total phenolics contents, with a view to test their diversity and potential as an alternative source of these valuable compounds. Seeds of tested safflower genotypes had total protein content from 11.5 to 16.0%, while total oil content were from 16.8 to 24.5% of dry matter, on average. Two main unsaturated fatty acids in safflower seeds, oleic and linoleic acids, represent approximately 90% of the total fatty acid content. Linoleic acid was dominant fatty acid in all genotypes (61.2-80.2%), while oleic acid was in a negative correlation with linolenic acid content and was in a range from 9.6 to 29.5%. The amount of saturated fatty acids ranged from 5.5 to 6.05% for palmitic, and 2.1 to 3.5% for stearic acid. Safflower seed is a source of  $\alpha$ -tocopherol and its amount ranged from 358.8 to 461.8 mg/L of oil. The content of total phenolics ranged from 4.0 to 6.0 mg of gallic acid equivalents/g. This comprehensive screening of valuable chemical compounds of safflower seeds shows the importance of this alternative oil seed crop as a good source of important nutrients and bioactive constituents.

This research was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia, grant number: 451-03-68/2020-14/200032.