



DEPARTMENT OF BOTANY

UNIVERSITY OF CALICUT

ERUDITE-Scholar-in-Residence Programme

Prof. Sergey Shabala from Tasmania University, Australia

Oct 26-Oct 29, 2022

REPORT

Department of Botany, University of Calicut conducted an ERUDITE-Scholar-in-Residence Programme with a focus on the topic physiological and molecular mechanisms/markers for abiotic stress tolerance in plants. A renowned expert in the particular field Prof. Sergey Shabala from Tasmania University, Australia was the resource person. A total of 450 participants including scientists, faculty, research scholars and students from various institutes attended the program conducted on four different days in four different venues.

Day 1 (26.10.22)

The program conducted in the EMS seminar hall was inaugurated by Hon'ble Vice Chancellor Prof. M.K. Jayraj. Prof. Sergey Shabala, Tasmania University, Australia delivered the Erudite lecture on the topic "Cell-based phenotyping for abiotic stress tolerance". In this he emphasized the need for a paradigm shift in crop breeding, focusing on the climate-resilience and the use of wild relatives in this process, to match with the predicted population growth in order to double the annual food production by 2050. He also suggested the cell based phenotyping may be more informative than whole plant based phenotyping to find out the key genes needed for stress tolerance and to increase the productivity. He also widened the prospective for scientific community by explaining about the novel electrophysiological and imaging techniques to discover the candidate genes or QTLs conferring abiotic tolerance traits. Afterwards he interacted with the scientists, faculty, research scholars and students, answered their questions and gave new insights for future research in this area.



ERUDITE-Scholar-in-Residence Programme



DEPARTMENT OF BOTANY
UNIVERSITY OF CALICUT



Prof. Sergey Shabala
Professor in Plant Physiology
Stress physiology laboratory
University of Tasmania, Hobart, TAS 7001,
Australia

Time
10 a.m.

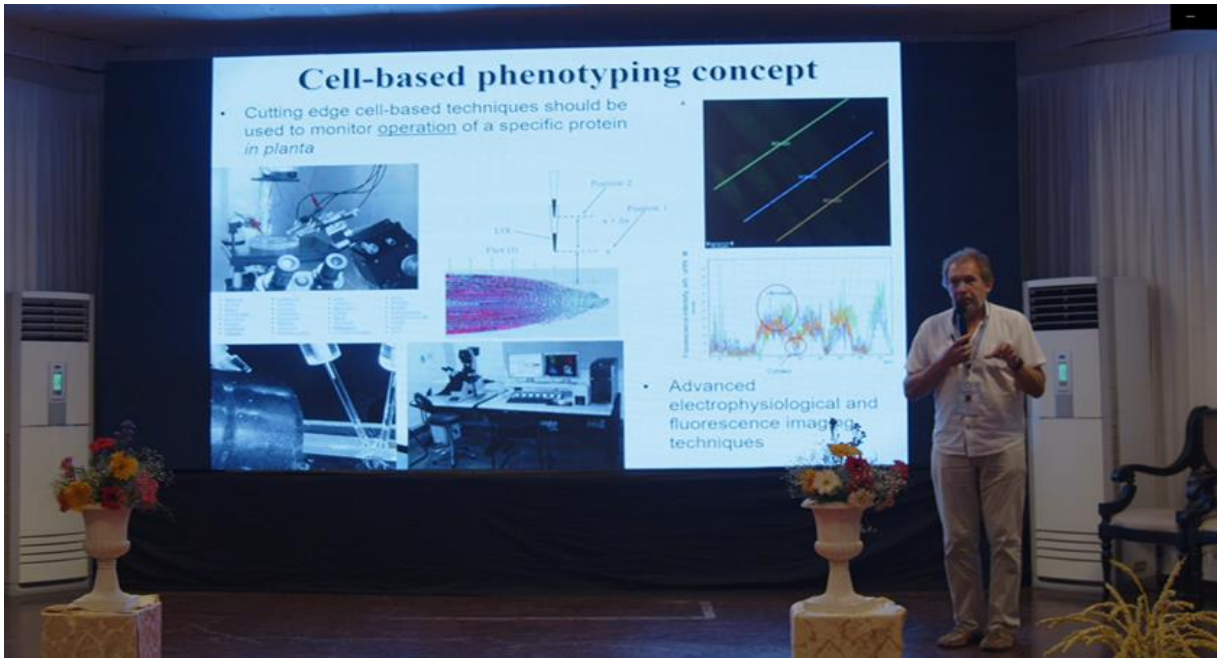


Sponsored by Kerala Higher Education Council

Venue
EM'S Seminar complex,
UOC

Talks on
**CELL BASED PHENOTYPING
FOR ABIOTIC STRESS
TOLERANCE**

26.10.22




Day 2 (27.10.22)

Prof. Sergey Shabala visited Korambayil Ahamed Haji Memorial Unity Women's College, Manjeri to deliver second Erudite lecture and to interact with students and faculty. The program started at 10 AM with the inaugural session and he was welcomed by Dr. Usman A., HOD, Department of Botany and the function was presided over by Dr. Muhammad Basheer U., Principal, KAHM Unity Women's College, Manjeri. The inaugural address and honouring of the resource person was made by Mr. O. Abdul Ali, Manager, KAHM Unity Women's College, Manjeri. Following the inaugural address, Prof. Sergey Shabala, Tasmania University, Australia interacted with the students and lectured on the topic 'Strategies and cost of plant osmotic adjustment'. He talked on salt stress responses in plants with a major focus on the role of specific ion transporters and sequestration in plants under salt stress. Dr. Abdul Salam, Former HOD, Department of Botany and Dr. Shahina Mol, IQAC Coordinator offered felicitations during the inaugural event. Vote of thanks was proposed by Dr. Faseela P, Assistant Professor, Department of Botany, KAHM Unity Women's College, Manjeri


ERUDITE SCHOLAR IN RESIDENCE PROGRAMME

Prof. Sergey Shabala


- ✓ Professor and Head, Stress physiology laboratory, University of Tasmania, Australia
- ✓ Distinguished Professor and Director, International centre for Environmental Membrane Biology, Foshan University, China
- ✓ Editor in Chief, Functional Plant Biology
- ✓ Citation 30748




In Association with
Department of Botany
University of Calicut



Sponsored by





2022 OCT 27 THU
10 am

Post Graduate Department of Botany
Korambayil Ahamed Haji Memorial
UNITY WOMEN'S COLLEGE, MANJERI P. O Narukara,
Malappuram Dist, Kerala-676122



Day 3 (28.10.22)

Prof Shabala delivered third Erudite lecture in the Department of Botany, St Joseph's College (Autonomous), Devagiri, Calicut, Kerala and it was conducted in the PTA Hall of the college. The functions was attended by the Principal of the College, Dr. Bobby Jose and the Head of the Department of Botany of the College, Dr Sateesh George. The interactive talk that started at 10AM, was followed by an interesting 'Q&A' session. He spoke to the Botany students (undergraduate, post graduate and PhD scholars) of St Joseph's College, Devagiri on the emerging field of Halophyte Agriculture. Salt concentration in the soil is continuing to increase globally owing to salt deposition from irrigation. In the context of this challenge, Prof Shabala discussed the scope and potential of the idea of halophyte agriculture. He discussed various studies that suggested halophyte alternatives to biofuel, fodder and food crops. Various recent studies on a popular halophyte Quinoa was also discussed. He also spoke about the various genetically modified crops with improved ability to manage salt, such as genetically induced formation of salt bladder. Halophytes alternatives for mixed farming of different halophytes seems to show promising results in terms of increased biomass output. He highlighted the need for policy based changes and government based initiatives as necessary to implement halophyte agricultural practices.

DEPARTMENT OF BOTANY
ST JOSEPH'S COLLEGE (AUTONOMOUS), DEVAGIRI,
CALICUT, INDIA

ERUDITE SCHOLAR-IN-RESIDENCE PROGRAMME
KERALA STATE HIGHER EDUCATION COUNCIL

In Association With
DEPARTMENT OF BOTANY, UNIVERSITY OF CALICUT

10 AM
28th-OCTOBER
2022
Venue: PTA Hall

TALK BY
Prof. Sergey SHABALA
University of Tasmania,
Australia; Co- Director,
Australia-China Research
Centre for PLant Stress
Biology

HALOPHYTE AGRICULTURE

UNIVERSITY OF CALICUT
For Kerala State Higher Education Council
Equity Excellence

ST. JOSEPH'S COLLEGE (AUTONOMOUS)
DEVAGIRI, CALICUT



Day 4 (29.10.22)

Field study trip of students and senior/junior scientists to the rich myriad of rice landraces (wayanadan nellinangal), the home of Padma Shri Cheruvayal Raman along with Prof. Shabala. The varieties cultivated by Raman differ in taste, duration (the time to get matured) and uses. There are different varieties of rice used for rituals, eaten during special occasions, fragrant, and medicinal values. Some rice varieties exhibit good adaptability to water scarcity, while others can withstand floods. He practices fully organic farming. He holds valuable indigenous knowledge of seed processing, seed storage, pest repellent plants that can be used to deter pests and uses of various medicinal plants in and around rice fields. He exhibited all

the rice germplasm, and discussed with the scientific community about the cultivation practices, the uniqueness and richness of each germplasm. The stress tolerance potential of certain wild varieties were also discussed. Some of the varieties were scented too. It was a great scientific forum in which enormous knowledge regarding the traditional way of cultivation, the potential of these landraces to meet food and nutritional security of nation were unravelled.



Major outcomes of the entire erudite programme

- All the participants were able to interact and some even discussed to have a collaborative work with an eminent scientist like him.
- Young scientists, faculty, research scholars, postgraduate and graduate students got a chance to interact with a scientist who did cutting edge research in stress physiology.

- The participants got the opportunity to learn more about various strategies and cost of plant osmotic adjustment.
- They got idea about using new techniques like cell based phenotyping in finding new candidate gene for abiotic stress tolerance in plants.
- The talk on salt stress responses in plants with a major focus on the role of specific ion transporters and sequestration in plants under salt stress by eminent scientist inspired the participants to explore novel research area in plant stress physiology.

Feedback from the participants

Majority of the participants expressed a high level of satisfaction with the structure and content of the programme, and they opined that the Erudite lecture was interesting and informative. As a whole, the programme widened the knowledge of all the participants in the area of photosynthesis. 90 % of the participants were very much satisfied with the content, 92 % of the participants have opinion that the lecture was very informative and very much relevant and as a whole, the participants opined that the technical session was interesting and increased their knowledge and skills in the area of plant salt stress physiology.