

# SCIENCE ACADEMIES' LECTURE WORKSHOP

## The Extended Genotype: The role of microbial genome in plant growth and development

13-15 May 2024

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ORGANIZED BY



Kerala Agricultural University  
College of Agriculture  
Padannakkad Campus, Kasaragod  
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## **About Science Academies**

Indian Academy of Sciences was founded in 1934 by Sir C.V. Raman, Nobel Laureate with an aim to promote the progress and upholding the cause of science, both in pure and applied branches. The Science Education Panel of the Academy organizes programmes for teachers and students of science all over India, and facilitate establishing connections, with the Fellowship of the Academy. The key activities under this umbrella includes activities like organizing Summer Research Fellowships, Refresher courses, and Lecture workshops, conducting meetings for students and teachers, and publication of scientific journals. Indian National Science Academy (New Delhi) and The National Academy of Sciences India (Prayagraj) later joined with the Indian Academy of Sciences (Bangalore) in conducting Summer Research Fellowships, Refresher Courses, and Lecture Workshops, under the Science Academies' Education Program, to popularize science education in universities and colleges across the country. The Lecture workshops of 2-3 days are intended to enhance the quality of science education at the undergraduate and post-graduate levels.

## **About COA Padannakkad**

The College of Agriculture, Padannakkad commenced its operations in 1994 at the Regional Agricultural Research Station, Pilicode campus as the third Agricultural College of Kerala Agricultural University and was established at Padannakkad in 1999 with an objective to improve the quality of agricultural education in the State and to generate quality manpower, competent in theoretical and practical aspects of agriculture, environment, food and industry. The specific mission of the campus is to address the peculiar agro-climatic conditions, such as highly skewed distribution of rainfall leading to prolonged drought, the unconventional cropping systems in the zone and the insubstantial progress in the Malabar region. The institution presently offers under-graduate (B.Sc. Hons.), and post-graduate (P.G and Ph.D) programs in various disciplines of Agriculture.



## About the workshop

In the recent years, there has been a flood conceptual as well as empirical advances in the field of plant microbiome and their integral role in modulating plant growth and development that the microbial genome has been considered as an extended genotype of the plant. The workshop offers a collection of perspectives on the microbiome and hologenome concepts to undergraduate and graduate students, research scholars and young investigators that would a) evoke a sense of enthusiasm in the concepts and ideas, b) provide an insight into the science of hologenome and its importance and c) provide the participants with toolkits that can be used to ask and address interesting questions related to trait manipulation in crops using endophyte enrichment. The workshop would bring together very disparate fields of this emerging research frontier and their experts to interact with the student through lectures and hands-on-training sessions.

## Registration

The workshop is open to students at undergraduate and post graduate level, research scholars and faculty in the area of plant sciences and other related disciplines. There is no registration fee to attend the workshop. Tea, snacks and lunch will be provided to candidates. The last date for registration is 05.05.2024



### Registration link

<https://forms.gle/VQVvZSr3f7G9Ca7x8>

### Convenor

Prof. R Uma Shaanker  
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### Coordinator

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# PROGRAM SCHEDULE

Venue: PG Lecture Hall, COA Padannakkad

Time	Session/Event	Resource Person	Topic
<b>Day 1 - 13-05-2024</b>			
9.30 - 10.15 am	Inaugural program		
10.15 - 11.30 am	Lecture 1	<b>Prof. R Uma Shaanker</b> Senior Professor & Head Department of Bioscience and Biotechnology IIT Jammu	Holobiont: basic concepts and current understanding
11.45 - 1.00 pm	Lecture 2	<b>Dr. R Aswati Nair</b> Professor Dept. of Biochemistry & Molecular Biology Central University of Kerala, Kasaragod	Endophytes for bioprospecting novel metabolites
1.00 - 2.00 pm	LUNCH BREAK		
2.00 - 3.15 pm	Lecture 3	<b>Prof. R Uma Shaanker</b> Senior Professor & Head Department of Bioscience and Biotechnology IIT Jammu	Habitat Adapted Symbiosis by microbiome: An approach for enhancing plant productivity under changing climate
3.15 - 5.00 pm	Practical demonstration 1	<b>Dr. Sainamole Kurien P</b> Professor and Head Department of Plant Pathology College of Agriculture, Padannakkad Kerala Agricultural University	Isolation of endophytes from plant samples
<b>Day 2 - 14-05-2024</b>			
9.30 -11.00 am	Lecture 4	<b>Prof. Nataraja Karaba N</b> Professor and Head Department of Crop Physiology, UAS Bangalore	Endophytes as drivers to manipulate plant physiological traits
11.30 - 1.00 pm	Lecture 5	<b>Prof. T S Suryanarayanan</b> Director Vivekananda Institute of Tropical Mycology Chennai	Fungal endophytes: an integral part of plant endobiome
1.00 - 2.00 pm	LUNCH BREAK		
2.00 - 3.15 pm	Lecture 6	<b>Dr. K Surendra Gopal</b> Professor and Head Department of Microbiology College of Agriculture, Vellanikkara Kerala Agricultural University, Thrissur	Endophyte diversity in the cropping systems of Kerala
3.15 - 5.00 pm	Practical demonstration 2	<b>Dr. Sajeesh P K</b> Assistant Professor Department of Plant Pathology College of Agriculture, Padannakkad Kerala Agricultural University	Characterization of endophytes
<b>Day 3 - 15-05-2024</b>			
9.30 -11.00 am	Lecture 7	<b>Prof. T S Suryanarayanan</b> Director Vivekananda Institute of Tropical Mycology Chennai	Technological potential of fungal endophytes
11.15 - 1.00 pm	Practical demonstration 3	<b>Dr. K. Surendra Gopal</b> Professor and Head Department of Microbiology College of Agriculture, Vellanikkara Kerala Agricultural University, Thrissur	Methods of application of endophytes in select crops for trait activation
1.00 - 2.00 pm	LUNCH BREAK		
2.00 - 3.15 pm	Lecture 8	<b>Dr. R Aswati Nair</b> Professor Dept. of Biochemistry & Molecular Biology Central University of Kerala, Kasaragod	Endophytes for plant pathogen resistance
3.15 - 4.30 pm	Lecture 9	<b>Prof. Nataraja Karaba N</b> Professor and Head Department of Crop Physiology, UAS Bangalore	Molecular basis of plant-endophyte interactions
4.30 - 5.00 pm	Valedictory program		