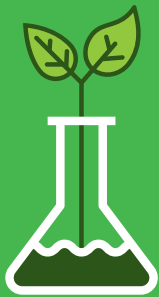




ICTPA

2019

February 14 - 16



**40TH MEETING OF
PLANT TISSUE CULTURE
ASSOCIATION - INDIA**



**INTERNATIONAL CONFERENCE ON
TRENDS IN PLANT SCIENCES AND
AGROBIOTECHNOLOGY 2019**



Organized by

Department of Biosciences & Bioengineering and
Centre for Rural Technology, IIT Guwahati

In association with

Plant Tissue Culture Association - India

Overview

Day 1 - February 14, 2019 (Thursday)

Welcome & Inauguration (9:00-10:30)

PTCA-I Memorial Lecture (11:15 - 13:00)

Prof. Gadgil Memorial Lecture 2018

Prof. H. C. Arya Memorial Lecture 2019

Prof. F.C. Steward Memorial Lecture 2019

Parallel Sessions 1 & 2 (14:00-16:00)

Sessions 1 : Best Practices in *In Vitro* Tissue Culture of Woody Plants

Session 2 : Elicitation of Secondary Metabolites

Parallel Sessions 3 & 4 (16:00-20:00)

Sessions 3 : Best Practices in Micropropagation of Herbaceous Plants

Session 4 : Plant Biotechnology and Precision Breeding

Day 2: February 15, 2019 (Friday)

Session 5 : Plant Hormone and Signal Transduction (9:30-11:00)

Parallel Sessions 6 & 7 (11:30-13:00)

Session 6 : Bioprocess Development, Reactor Design and Scale-Up Studies

Session 7 : Application of Flow Cytometry in Biological Research

Parallel Sessions 8 & 9 (13:50-16:05)

Session 8 : Plant-Omics

Session 9 : Plant Tissue Culture and Genetic Transformation

Parallel Interactive Poster Session : III & IV (15:20-16:00)

PTCA-I Membership Presentation (13:30-19:05)

Workshop - Best Practices in Research Publication, and PTCA-I Meeting (19:10-19:50)

Day 3 : February 16, 2019 (Saturday)

Parallel Sessions 10 & 11 (9:00-10:30)

Session 10 : Recent Advances in Genome Editing

Session 11 : Commercial Application of Micropropagation

Session 12 : Consumer Biotechnology (11:30-13:00)

Valedictory Function

ICTPA CONFERENCE - 2019

Details Technical Program

DAY 1: FEBRUARY 14, 2019 (THURSDAY)	
07:30-15:30	REGISTRATION
9:00-10:30	WELCOME & INAUGURATION
9:00-9:10	INVOCATION
9:10-9:15	Welcome Address by Convener Prof. Rakhi Chaturvedi, IIT Guwahati
9:15-9:20	Welcome Note Head, Centre for Rural Technology, IIT Guwahati
9:20-9:35	Inaugural Address by Chief Patron Prof. Gautam Biswas, Director, IIT Guwahati
9:35-9:50	Address by Patron and Secretary PTCA-I Prof. Pramod Tandon, Biotech Park, Lucknow
9:50-10:30	Session Chair: Prof. Sudhir K. Sopory, ICGEB, New Delhi, India Inaugural Plenary Lecture Prof. Sant Saran Bhojwani, DEI, Agra, UP, India
10:30-10:35	Vote of Thanks Head, Biosciences and Bioengineering Department, IIT Guwahati
10:35-11:10	HIGH TEA
11:15-13:00	PTCA-I MEMORIAL LECTURES
11:15-11:45	Prof. Gadgil Memorial Lecture 2018 Prof. Suresh Chand, Devi Ahilya University, Indore, India
11:45-12:15	Prof. H. C. Arya Memorial Lecture 2019 Prof. M. V. Rajam, University of Delhi - South Campus, Delhi, India
12:15-12:45	Prof. F. C. Steward Memorial Lecture 2019 Dr Sharmila Chattopadhyay, CSIR-Indian Institute of Chemical Biology (IICB) Kolkata, India
12:45-13:55	LUNCH BREAK

Time	Speaker	Title of Lecture	Pg. No.
14:00-16:00	SESSION - 1 : BEST PRACTICES IN IN VITRO TISSUE CULTURE OF WOODY PLANTS		
	Chairperson: Prof. Paramjit Khurana, University of Delhi - South Campus, Delhi, India		
	Co-Chairperson: Prof. Latha Rangan, IIT Guwahati, Assam, India		
14:00-14:30	Prof. Paramjit Khurana	The mulberry genomics landscape: a rendezvous on the lesser trodden path!	31
14.30-14.50	Prof Smitha Hegde	Cashew (<i>Anacardium occidentale</i> L.)	45
14.50-15.10	Dr Varsha Parasharami	Female plant production technology development using in vitro and <i>ex vitro</i> rooting techniques of <i>Garcinia indica</i> : an endangered tree species of Southern India	46
15.10-15.30	Dr. Naseem Ahmed	In vitro propagation of the "Pride of India" (<i>Lagerstroemia speciosa</i>)	47

Time	Speaker	Title of Lecture	Pg. No.
14:00-16:00			
SESSION - 2 : ELICITATION OF SECONDARY METABOLITES			
Chairperson: Dr Suchitra Banerjee , CSIR- CIMAP, Lucknow, UP, India			
Co-Chairperson: Prof. Vishal Trivedi , IIT Guwahati, Assam, India			
14:00-14:30	Dr Suchitra Banerjee	Emerging biotechnological trends for plant secondary metabolite production via “hairy root cultures”	32
14.30-14.50	Prof Adinpunya Mitra	An insight into the biology of scent volatiles emission in <i>Jasminum spp.</i> of horticultural importance	485
14.50-15.10	Prof Neelakantan Arumugam	Isolation and quantification of a pungent alkylamide spilanthol from vegetative parts and flower heads of tissue-culture-derived plants of <i>Spilanthes ciliata Kunth</i>	49
15.10-15.30	Dr K.V. Saritha	Exploring the unexplored <i>Gardenia latifolia</i> Ait. —an important multipurpose plant	50
TEA BREAK			
16:00-17:30			
SESSION - 3 : BEST PRACTICES IN MICROPROPAGATION OF HERBACEOUS PLANTS			
Chairperson: Prof Veena Agrawal , University of Delhi, Delhi, India			
Co-Chairperson: Dr Sarita Arya , Arid Forest Research Institute, Jodhpur, Rajasthan, India			
16:00-16:30	Prof Veena Agrawal	Micropropagation of herbal plant taxa and their role in biomedical applications	33
16.30-16.50	Dr Manab Gogoi	Optimization of in vitro regeneration protocol and induction of axillary shoots for mass multiplication in Bhimkol (<i>Musa balbisiana</i>)	51
16.50-17.10	Dr Govidugari Vijaya Laxmi	In vitro studies in purple vegetables: <i>Daucus carota</i> and <i>Brassica oleracea</i>	52
17.10-17.30	Dr Mithilesh Singh	In vitro propagation and phytochemical assessment of <i>Aconitum ferox</i> Wall: a threatened medicinal plant of Sikkim Himalaya	53
16:00-17:30			
SESSION - 4 : PLANT BIOTECHNOLOGY AND PRECISION BREEDING			
Chairperson: Prof. Satyawada Rama Rao , North-Eastern Hill University, Shillong, Meghalaya, India			
Co-Chairperson: Prof. Sadanand A. Dhekney , University of Maryland, Maryland, USA			
16:00-16:30	Prof. Sadanand A. Dhekney	Genetic improvement of wine and table grape cultivars using precision breeding and genome editing technology	34
16.30-16.50	Prof. Satyawada Rama Rao	Molecular characterization of horticultural genetic resources of North-East India	54
16.50-17.10	Prof. Shailendra Goel	Investigating the role of miRNAs in regulation of Apomixis in <i>Pennisetum glaucum</i> L	55
17.10-17.30	Dr Arun Kumar	Corroboration of inter-specific hybrids between <i>Brassica juncea</i> and <i>B. fruticulosa</i> (4x) using cytological, and molecular marker studies	56
17.35-17.50	Dr Anjana Rustagi	High-speed regeneration via somatic embryogenesis in elite Indian banana cv. Somrani monthan (ABB)	90
17.50-18.05	Sumitra K. Choudhary	In vitro studies of medicinally important <i>Momordica</i> species of family Cucurbitaceae	91
18.05-18.20	Ammana Sabitha Rani	Bioevaluation and high-performance liquid chromatography studies in three different species of <i>Coslus</i> : an important antidiabetic plant of India	92
18.20-18.35	Radhika Rajendran	Isolation, purification and quantification of N-alkylamides from flower head in vitro cell cultures of <i>Spilanthes paniculata</i> and its biological activity on <i>Plasmodium falciparum</i>	93

Time	Speaker	Title of Lecture	Pg. No.
18:35-20:00	CULTURAL PROGRAM		
20.00 Onwards	DINNER		
DAY 2: FEBRUARY 15, 2019 (FRIDAY)			
7:30-3:30	REGISTRATION		
9:00-9:30	Plenary Lecture Prof. Sudhir K. Sopory International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi, India		
9:30-11:00	SESSION - 5 : PLANT HORMONE AND SIGNAL TRANSDUCTION		
Chairperson: Prof. Sudhir K. Sopory, (ICGEB), New Delhi, India			
Co-Chairperson: Prof. Prakash Kumar, National University of Singapore, Singapore			
9:30-10:00	Prof. Prakash Kumar	How does plant hormone signaling regulate seed dormancy and abiotic stress response?	35
10:00-10:20	Dr Vivek Verma	SUMOylation: a new facet to plant immune responses	57
10:20-10:40	Dr Indu George	Rooted in tradition	58
10:40-10:55	Dr Smrutisanjita Behera	Cellular Ca ²⁺ signals generate defined pH signatures in plants	94
10:55-11:10	Dr Anchal Goel	In vitro studies of histological and Biochemical induction of rooting of <i>Bacopa monnieri</i> (L.) Wettst.	95
11:10-11:30	TEA BREAK		
11:30-13:00	SESSION - 6 : BIOPROCESS DEVELOPMENT, REACTOR DESIGN AND SCALE-UP STUDIES		
Chairperson: Prof. Virendra S. Bisaria, Indian Institute of Technology Delhi, Delhi, India			
Co-Chairperson: Dr Pradeep Agrawal, CSMCRI, Bhavnagar, India			
11:30-12:00	Prof. Virendra S. Bisaria	Bioprocess considerations in the design of reactors and scale-up operations for plant cell cultures	36
12:00-12:20	Dr Giridhar Parvatam	Plant cell cultures are a viable alternative for scale up of isoflavones	59
12:20-12:40	Dr Muralidharan E.M	Simple liquid culture systems for efficient multiplication of in vitro shoot cultures	60
12:40-13:00	Dr Sailendra Singh	Biotechnological interventions for capitalizing on the gainful bio-resource of mango ginger (<i>Curcuma amada Roxb.</i>) by chemo-profiling, bioreactor-based multiplication, conservation, and retrieval of its prized endophyte	61
11:30-13:00	SESSION - 7 : BIOPROCESS DEVELOPMENT, REACTOR DESIGN AND SCALE-UP STUDIES		
Chairperson: Dr Pon Samuel, Corteva AgroScience™, Agriculture Division of DowDuPont™, Johnston, USA			
Co-Chairperson: Prof. S. S. Ghosh, IIT Guwahati, Guwahati, Assam, India			
11:30-12:00	Dr Pon Samuel	Advanced applications of flow cytometry in plant biology	37
12:00-12:20	Ms Marcum Lori	Online monitoring of dissolved oxygen, pH, and biomass of crop and model plant cell suspension cultures using PreSens SFR Vario®	62
12:20-12:40	Prof. Vishal Trivedi	Enhanced macrophage survival during malaria contributes into host pathology	63
12:40-13:00	Prof. Biplab Bose	Looking beyond average: exploring cellular heterogeneity	64
13:00-13:45	LUNCH BREAK		
13:50-16:05	SESSION - 8 : PLANT-OMICS		
Chairperson: Prof. Akhilesh K. Tyagi, University of Delhi - South Campus, Delhi, India			
Co-Chairperson: Prof. Mohammad Anis, Aligarh Muslim University, Uttar Pradesh, India			
13:50-14:20	Prof. Akhilesh K. Tyagi	Analysis of rice gene function during development	38

Time	Speaker	Title of Lecture	Pg. No.
14:20-14:40	Prof Snehasish Dutta Gupta	Intelligent image analysis for retrieval of leaf chlorophyll content of rice from digital images of smartphone	65
14:40-15:00	Dr Sandip Das	Polyploidy, genome evolution and functional diversification: Insights from comparative analysis of regulatory elements	66
15:00-15:20	Dr Suneetha C	Status of DNA barcoding of pteridophytes in India	67
15:20-15:35	Dr Rani Singh	Cloning and characterization of myb gene isolated from <i>Withania somnifera</i>	96
15:35-15:50	Dr Siva P.K. Chetri	In vitro upregulation of anticancerous bioactive compounds in <i>Cassia angustifolia Vahl.</i> and cloning of isochorismate synthase, a key enzyme gene for sennoside biosynthesis	97
13:50-16:05 SESSION - 9 : PLANT-OMICS			
Chairperson: Prof. S.S. Bhojwani , Dayalbagh Educational Institute (DEI), Agra, India			
Co-Chairperson: Prof. Abha Agnihotri , Amity University, Noida, Uttar Pradesh, India			
13:50-14:20	Prof. Abha Agnihotri	In vitro approaches for crop improvement: rapeseed mustard	39
14:20-14:40	Prof. Lingaraj Sahoo	Field performance of RNAi-transgenic cowpea lines resistant to MYMIV	68
14:40-15:00	Dr Chandrama Prakash Upadhyaya	Overexpression of PDX II gene in potato (<i>Solanum tuberosum L.</i>) leads to the enhanced accumulation of vitamin B6 in tuber tissues and tolerance to abiotic stresses	69
15:00-15:20	Dr Deepak Kumar	Unraveling the role of aldose reductase gene from a resurrection plant for methylglyoxal detoxification and abiotic stress alleviation in blackgram	70
15:20-15:35	Dr Punam Kumari	Genetic engineering: an innovative approach for stress control towards next generation plants	98
15:35-15:50	Dr Pankaj Kumar	Agrobacterium-mediated insect resistance gene transfer in cabbage (<i>Brassica oleracea L. var. capitata cv. Pride of India</i>)	99
15:50-16:05	Dr Paras Pandey	Transgenic black gram with inherited expression of Tma12 and CryIEC to check infestation of chewing and sucking insect pests	100
16:00-16:30	TEA BREAK		
16:30-19:05 PTCA-I MEMBERSHIP PRESENTATIONS			
Chairperson: Prof. Pramod Tandon , CEO, Biotech Park, Lucknow, UP, India			
Co-Chairperson: Prof. Dinesh Srivastava , Dr. Y S Parmar University of Horticulture and Forestry, Nauni-Solan, India			
16:30-16:45	Dr Ajay Kumar Thakur	Biotechnological interventions in some economically important crops	84
16:50-17:05	Dr Anil Kumar Singh	Plant tissue culture and genetic transformation for crop improvement	87
17:10-17:25	Dr Anjanabha Bhattacharya	Tissue-culture-assisted technologies for plant improvement	81
17:30-17:45	Narayan Pandhure	Tissue culture: boon for regeneration and conservation of plant	88
17:50-18:05	Dr Narendran Madhavan Nair	Tissue culture-based production of insect resistant transgenic Bt vegetable crops and identification of marker-free plants	85
18:10-18:25	Prof. Patan Shaik Sha Valli Khan	Doubled haploid production from "Krishnapuram" onion (<i>Allium cepa L.</i>): haploid induction, plantlet regeneration, and chromosome doubling	83
18:30-18:45	Dr Pradeep K Agarwal	Tracking the scientific path for crop improvement by biotechnological interventions	82
18:50-19:05	Dr Soumendra Kumar Naik	Biotechnological intervention through plant tissue culture in some valuable medicinal plants for their conservation and sustainable utilization	86

Time	Speaker	Title of Lecture	Pg. No.
20:00-Onwards	DINNER		
DAY 3: FEBRUARY 16, 2019 (SATURDAY)			
9:00-11:30	SESSION - 10 : RECENT ADVANCES IN GENOME EDITING		
Chairperson: Dr Anjan K. Banerjee, IISER Puna, Maharashtra, India			
Co-Chairperson: Prof. Utpal Bora, IIT Guwahati, Assam, India			
9:00-9:30	Dr Anjan K. Banerjee	Recent advances in genome editing technologies- A short discussion	44
9:30-9:50	Dr Parul Sharma	Genome editing in horticulture crops: status and future	71
9:50-10:10	Dr Ila Mukul Tiwari	Effect of host-induced gene silencing on sheath blight disease progression	72
10:10-10:30	Dr Kanti Kiran	Genome wide identification of full length long terminal repeat elements in four individual pathotypes of <i>Puccinia graminis</i>	73
9:00-11:30	SESSION - 11 : COMMERCIAL APPLICATION OF MICROPROPAGATION		
Chairperson: Dr Dharam P. Sharma, Group Leader, Dry Creek Laboratories, Hughson, USA			
Co-Chairperson: Dr. Narendra M. Nayer , Mahyco Research Centre, Maharashtra, India			
9:00-9:30	Dr Dharam P. Sharma	A "clean" nut tree nursery production operation in California	41
9:30-9:50	Prof. Manju Modgil	Commercially feasible micropropagation technology of indigenous crab apple (<i>Malus baccata</i> (L.) Borkh var. Himalaica) biotypes	74
9:50-10:10	Dr Madhulika Singh	Production of bioactive secondary metabolites from in vitro regenerated plantlets of <i>Rumex dentatus</i> L.	75
10:10-10:30	Dr Rachana Dinesh	Studies on the counteracting role of ethylene biosynthesis inhibitors on in vitro growth induced by thidiazuron in <i>Cicer arietinum</i> seedlings	76
10:30-10:45	Ms Smitha Chandrasekharan	In vitro propagation of <i>Corymbia citriodora</i> for biomass and secondary metabolite production	101
10:45-11:00	Mr Vishal Sharma	Commercially feasible single-step procedure for in vitro propagation of ginger (<i>Zingiber officinale</i> Rosc.)	102
11:00-11:30	TEA BREAK		
11:30-13:00	SESSION - 12 : CONSUMER BIOTECHNOLOGY		
Chairperson: Dr I. D. Arya, Arid Forest Research Institute, Jodhpur, Rajasthan, India			
Co-Chairperson: Prof. Pranab Goswami, IIT Guwahati, Assam, India			
11:30-12:00	Ms Gayle Suttle	Turning science into business: a 40-year perspective	42
12:00-12:20	Dr Shweta Narasimhan	Consumer biotechnology: a road map toward awareness	77
12:20-12:40	Dr Sachin Sharma	Automatic detection and alert system for preventing weevil infestation in mango trees using acoustic emission sensor	78
12:40-13:00	Dr Manisha Thakur	Cost-effective in vitro propagation of Gisela 5 (<i>Prunus cerasus</i> x <i>Prunus canescens</i>): Clonal cherry rootstock ideal for high-density plantations	79
13:00-14:00	LUNCH BREAK		
14:00-15:30	VALEDICTORY FUNCTION		