

**X International Scientific and Practical Conference on Biotechnology as an Instrument for Plant Biodiversity Conversation (physiological, biochemical, embryological, genetic and legal aspects) (BIOTECH 2024)**  
**November 19th to 21st, 2024, New Delhi, India**

*Technical Program*

**Day 1: 19.11.2024**

8.30-9.30 am     **Registration**

**TECHNICAL SESSION 1**

**Fundamental studies for ex situ plant conservation-morphological, physiological, biochemical, embryological and genetic aspects**

**Co-Chairs**     **Kanchit Thammasiri**, Department of Gardening and Horticulture, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Science, Menglun, Mengla, Yunnan

**Irina Mitrofanova**, Correspondent Member of the Russian Academy of Sciences, Head of the Department of Plant Physiology, Immunology and Protection, FSFIS N.V. Tsitsin Main Botanical Garden of the Russian Academy of Sciences, Moscow, Russian Federation

9.30-10 am     **Welcome of delegates & S1-Keynote Lecture**     **GP Singh**, Director, ICAR-National Bureau of Plant Genetic Resources, New Delhi, India

**Plant Genetic Resources Management in India: Achievements and Current Status**

**Invited Lectures**

10.10.30 am     **S2: The Power of Diversity: Role of Genebanks in Transforming Agrifood Systems**     **Sarada Krishnan**, Director of Programs, Global Crop Diversity Trust, Bonn, Germany

10.30-11am     **S3: CPR (Conservation, Preservation, and Restoration) Plants: An Integrated System for the Recovery of Plant Biodiversity**     **Praveen Saxena**, Director, GRIPP, Department of Plant Agriculture, University of Guelph, Guelph ON, Canada

11-11.30am     **Tea/Coffee**

**Oral presentations**

11.30-11.45am	S4: The value of Indian germplasm for global plant breeding initiatives: A case study of <i>Citrus latipes</i>	<b>Manjul Dutt</b> , Chair Citrus biotechnology working group at ISHS, Citrus Research and Education Center, 700 Experiment Station Rd, Lake Alfred, Florida 33850, United States of America
11.45-12noon	S5: Management of Indian Fruit Genetic Resources for Sustainable Utilization and Posterity: Current Status and Challenges	<b>Surendra Kumar Malik</b> , Principal Scientist, Division of Germplasm Conservation, ICAR-NBPGR, New Delhi, India
12-12.10pm	<b>Discussion and Chairperson remarks</b>	Kanchit Thammasiri, Irina Mitrofanova

## TECHNICAL SESSION 2

### PGR management: collection, Exploration, exchange, quarantine, biosafety, legal and policy issues

<b>Co-Chairs</b>	<b>Sarada Krishnan</b> , Director of Programs, Global Crop Diversity Trust, Bonn, Germany
	<b>Manjul Dutt</b> , Chair Citrus biotechnology working group at ISHS, Citrus Research and Education Center, 700 Experiment Station Rd, Lake Alfred, Florida 33850, United States of America

### Invited Lectures

12.15-12.45pm	<b>S6: Plant Quarantine Regulations and Diagnostics for Biosecurity against Transboundary Pests in Imported Planting Material</b>	<b>Celia Chalam Vasimalla</b> , Head Division of plant Quarantine, ICAR-NBPGR, New Delhi, New Delhi, India
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### Oral presentations

12.45-1pm	S7: Ratnagiri Mangoes and Basmati Rice Geographical Indication - A Case Study of Biodiversity Conservation	<b>Varshini R A</b> , 4235, Ambekar's Building, 18th main road, opp. Madduramma Temple, Subramanyanagar., Bengaluru Urban, India
1-1.15pm	S8: Exchange of fruit genetic resources: status and challenges in India	<b>Puran Chandra</b> , Senior Scientist, ICAR NBPGR, Pusa Campus, New Delhi, India
1.15-1.25pm	<b>Discussion and Chairperson remarks</b>	Sarada Krishnan, Manjul Dutt

1.25-2.25pm **LUNCH**

## INAUGURAL SESSION

<b>2.30-2.40pm</b>	<b>Welcome address</b>	<b>GP Singh</b> , Director, ICAR-National Bureau of Plant Genetic Resources, New Delhi, India
<b>2.40-2.45pm</b>	<b>Remarks by Guest of honour</b>	<b>DK Yadava</b> , ADG (Seed), ICAR, New Delhi, India
<b>2.45-2.50pm</b>	<b>Brief remarks of Co-organiser- Alliance of Bioversity International and CIAT</b>	<b>JC Rana</b> , Country Representative, Alliance of Bioversity International and CIAT-India Office, New Delhi, India
<b>2.50-3pm</b>	<b>Brief remarks of Co-organiser- CIMMYT &amp; Introduction to Keynote speaker</b>	<b>Arun K Joshi</b> , CIMMYT Asia Regional Representative & MD, BISA, New Delhi, India
<b>3-3.45pm</b>	<b><i>S9-Keynote Lecture</i> The Nexus Between Climate Change and Biodiversity, A Review of Where We Are</b>	<b>Thomas A. Lumpkin</b> , Emeritus Director General, Centro Internacional de Mejoramiento de Maize y Trigo, El Batan, Mexico and Chairman, The Borlaug Training Foundation, Fort Collins, Colorado, U.S.A.
<b>3.45-4pm</b>	<b>ISHS presentation</b>	<b>Patrícia Duarte de Oliveira Paiva</b> , ISHS-representative & Professor, Universidade Federal de Lavras, Depato de Agricultura, Lavras, Brazil
<b>4-4.20pm</b>	<b>Address by Chief Guest</b>	<b>Himanshu Pathak</b> , Director General (ICAR) & Secretary (DARE), New Delhi, India
<b>4.20-4.25pm</b>	<b>Vote of Thanks</b>	<b>Sandhya Gupta</b> , Conference Convener & Principal Scientist, ICAR-NBPGR, New Delhi, India

**4.25-5pm**      **Group Photograph & Tea/ Coffee**

**5-6.30pm**      **Poster Session (all themes)**

**7.00-8 pm**      **CULTURAL PROGRAMME & WELCOME DINNER**

**Day 2: 20.11.2024**

### **TECHNICAL SESSION 3**

#### **Micropropagation and in vitro conservation of plants**

**Co-Chairs**      **Jayanthi Nadarajan**, Plant and Food Research Institute, New Zealand

**Monika Höfer**, Julius Kühn-Institut, Institute for Breeding research on Fruit Crops, Dresden, Germany

**Invited Lecture**

9-9.30 am      **S10: Clonal Crop Collection Management in Africa: Update, constraints and Prospects**      **Badara Gueye**, In vitro propagation and conservation specialist  
IITA Nigeria & Co-founder and Coordinator PGR management network in West and Central Africa for climate-smart agriculture, food and nutrition security (WECAN-PGR)

9.30-10am      **S11: Liquid culture in Temporary Immersion System, an innovative approach for in vitro propagation, conservation and recovery of plant genetic resources**      **Claudia Ruta**, University of Bari Aldo Moro, Department of Soil, Plant and Food Sciences, Bari, Italy

**Oral presentations**

10-10.15am      S12: Development of an efficient micropropagation protocol for an important aquatic plant, *Anubias barteri* petite round using shoot tip explants      **Suphat Rittirat**, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Thailand

10.15-10.30am      S13: Biotechnological interventions in conservation of vegetatively propagated crops in the In vitro and cryo-genebank of ICAR-National Bureau of Plant Genetic Resources      **Sandhya Gupta**, Principal Scientist, Division of Germplasm Conservation, ICAR-NBPGR, New Delhi, India

10.30-10.40am      **Discussion and Chairperson remarks**      Jayanthi Nadarajan, Monika Höfer

10.45 -11am      **Tea/coffee**

**TECHNICAL SESSION 4**

**Cryopreservation: a way forward for conservation of plants**

**Co-Chairs**      **PK Saxena**, Director, GRIPP, Department of Plant Agriculture, University of Guelph, Guelph ON, Canada

**Badara Gueye**, In vitro propagation and conservation specialist  
IITA Nigeria & Co-founder and Coordinator, PGR management network in West and Central Africa for climate-smart agriculture, food and nutrition security (WECAN-PGR)

**Invited Lectures**

11-11.30am	<b>S14: The USDA-ARS National Plant Germplasm System: Critical importance and impacts of long-term ex situ conservation</b>	<b>Gayle Volk</b> , USDA-ARS, Detail as National Program Leader, Office of National Programs, National Laboratory for Genetic Resources Preservation, Fort Collins, CO, USA
11.30am-12noon	<b>S15: Development of Orchid Biotechnology in Thailand</b>	<b>Kanchit Thammasiri</b> , Department of Gardening and Horticulture, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Science, Menglun, Mengla, Yunnan
12-12.30pm	<b>S16: Cryopreservation as part of the conservation strategy of fruit germplasm in Germany</b>	<b>Monika Höfer</b> , Julius Kühn-Institut, Institute for Breeding research on Fruit Crops, Dresden, Germany
12.30-1pm	<b>S17: Plant cryopreservation – Stresses and preventions</b>	<b>Jayanthi Nadarajan</b> , Plant and Food Research Institute, New Zealand
1-1.10pm	<b>Discussion and Chairperson remarks</b>	PK Saxena, Badara Gueye

1.10 -2.15pm

**LUNCH**

#### TECHNICAL SESSION 5

**Diversity analysis and plant genomic research towards PGR management & Omics in plant genotyping/phenotyping and conservation**

**Co-Chairs:**

**Gayle Volk**, USDA-ARS, Detail as National Program Leader, Office of National Programs, National Laboratory for Genetic Resources Preservation, Fort Collins, CO, USA

**Claudia Ruta**, University of Bari Aldo Moro, Department of Soil, Plant and Food Sciences, Bari, Italy

#### Invited Lectures

2.15-2.45pm

**S18: Application of biotechnology and genomics to study of the Far Eastern *Actinidia* germplasm**

**Irina Mitrofanova**, Correspondent Member of the Russian Academy of Sciences, Head of the Department of Plant Physiology, Immunology and Protection, FSFIS N.V. Tsitsin Main Botanical Garden of the Russian Academy of Sciences, Moscow, Russian Federation

2.45-3.15pm	<b>S19: Diversity Analysis of lesser known horticultural crops of North-East India and approaches for their conservation</b>	<b>Tridip Kumar Hazarika</b> , Professor, Department of Horticulture, Mizoram University, Tanhril, Aizawl, Mizoram, India
3.15-3.45pm	<b>S20: Molecular analysis of intra-varietal heterogeneity in Dashehari mango (<i>Mangifera indica</i> L.)</b>	<b>Deepa H Dwivedi</b> , Dean, Department of Horticulture, School for Agric. Sci. and Technology, Babasaheb Bhimrao Ambedkar University, Rae Bareli Road, Lucknow, India
3.45-4.15pm	<b>S21: Genomics assisted Pre-breeding in tomato</b>	<b>Praveen Kumar Singh</b> , Head, DPGC&E, ICAR-NBPGR, National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
4.15-4.30pm	<b>Tea/Coffee</b>	
	<b>Oral presentations</b>	
4.30-4.45pm	S22: Genomic resources for genetic improvement of fruit traits in Bell pepper	<b>Padma Nimmakayala</b> , WVSU, Rt 25 Barron Drive, 221 Hamblin Hall, Institute, WV 25112, United States of America
4.45-5pm	S23: Identification and diversity analysis of interspecific citrus rootstock hybrids with combination of morphological traits and microsatellite markers	<b>Jagveer Singh</b> , Acharya Narendra Deva University, of Agriculture and Technology, Ayodhya, Uttar Pradesh, 224229, India
5.-5.15pm	S24: Morphological and molecular characterization of <i>Saccharum barberi</i> clones available in the field gene bank of sugarcane	<b>Nisha M Nisha</b> , ICAR-sugrcane breeding Institute RC Kannur, John mill road, near KIMST hospital, Civil station post, Kannur, 670002, India
5.15-5.30pm	S25: Marker assisted back-cross breeding for development for Tomato leaf curl disease resistant pre-breeding lines in tomato ( <i>Solanum lycopersicum</i> L.)	<b>Zakir Hussain</b> , Principal Scientist, CPCT, ICAR-IARI, New Delhi India, New Delhi, Delhi, 110012, India
5.30-5.40pm	<b>Discussion and Chairperson remarks</b>	Gayle Volk, Claudia Ruta

5.45-6.15pm	<b>BUSINESS MEETING</b>	<b>Chairperson: Patrícia Duarte de Oliveira Paiva</b> , ISHS-representative & Professor, Universidade Federal de Lavras, Depato de Agricultura, Lavras, Brazil
6.15-6.25pm	Concluding Remarks	<b>GP Singh</b> , Director, ICAR-NBPGR Bureau of Plant Genetic Resources, New Delhi, India
6.25-6.30pm	Vote of Thanks	<b>SK Malik</b> , Conference Convener ICAR-NBPGR, New Delhi, India

6.30pm onwards **GALA DINNER**

**DAY-3: 21 November 2024**

**Tour-Genebank, Museum**

**Date: 19.11.2024 (Day-1)**

**Time: 5.15-6.30 pm**

**POSTER PRESENTATIONS: 19 November 2024 (5-6.30 pm)**

S. No.	Title	Presenter
P1	Biotechnology features of propagation in <i>Actinidia arguta</i> promising cultivars	<b>Olga Molkanova</b> , Tsitsin Main Botanical Garden of the RAS, Moscow, Russian Federation
P2	How scarification, GA <sub>3</sub> and Graphene Oxide influence the in vitro establishment and development of <i>Strelitzia</i>	<b>Patrícia Duarte de Oliveira</b> , Universidade Federal de Lavras, Depato de Agricultura, campus universitario, Lavras, Brazil
P3	In vitro propagation of pomegranate ( <i>Punica granatum</i> L.) from cotyledonary nodes	<b>Sandhya Gupta, Manoj Sharma</b> , Division of Germplasm Conservation, ICAR-NBPGR, New Delhi, India
P4	Phenolic production and antioxidant activity in callus of <i>Amburana cearensis</i>	<b>Renato Paiva</b> , Federal University of Lavras, Department of Biology, Lavras - Minas Gerais, Brazil

P5	Plant biodiversity conservation of the genus <i>Mentha</i> L. in N.V. Tsitsin Main Botanical Garden of the RAS	<b>Irina Mitrofanova</b> , Correspondent Member of the Russian Academy of Sciences, Head of the Department of Plant Physiology, Immunology and Protection, FSFIS N.V. Tsitsin Main Botanical Garden of the Russian Academy of Sciences, Moscow, Russian Federation
P6	Cryopreservation of New Zealand <i>Humulus lupulus</i> (hop) shoot tips using conventional and vacuum infiltration vitrification	<b>Liya Methew</b> , Plant and Food Research Institute, New Zealand
P7	Rhizobacterial isolates from the native plant <i>Ceanothus velutinus</i> promote growth in two genotypes of Tall Fescue	<b>Amita Kaundal</b> , 4820 Old Main Hill, Logan Utah 84322, United States of America
P8	Hormonal changes occurring during fruit growth and ripening in olive	<b>María Carmen Gomez-Jimenez</b> , Fisiología Vegetal, Facultad de Ciencias, University of Extremadura, Avda de Elvas sn, 06071 Badajoz, Spain
P9	Endoreduplication on cell-size control in olive fruit	<b>María Carmen Gomez-Jimenez</b> , Fisiología Vegetal, Facultad de Ciencias, University of Extremadura, Avda de Elvas sn, 06071 Badajoz, Spain
P10	Breaking seed coat dormancy to aid conservation and utilization of wild Lathyrus species	<b>S. Gupta, Padmavati Gore et al.</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
P11	Morpho-biochemical characterization of loquat cultivars ( <i>Eriobotrya japonica</i> ) from parts of North-West states of India	<b>PK Singh, Pavan Kumar Malav et al.</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
P12	Collection, conservation and physico-chemical analysis of wild edible species from higher altitude areas of North Sikkim	<b>PK Singh, Pankaj Kumar Kannaujia et al.</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India



P13	Genetic Resources of Cultivated Vigna spp. in India: Current status, Diversity mapping and Gap analysis	<b>PK Singh, Dinesh Prasad Semwal et al.</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
P14	Genome-scale transcriptomic insights into fruit-set and early fruit growth in olive	<b>María Carmen Gomez-Jimenez</b> , Fisiología Vegetal, Facultad de Ciencias, University of Extremadura, Avda de Elvas sn, 06071 Badajoz, Spain
P15	Resequencing and phenotyping of an eggplant core collection capturing its worldwide genetic variation for GWA studies	<b>Sergio Lanteri</b> , DISAFA - University of Turin, Largo Braccini 2, 10095 Grugliasco, Torino , Italy
P16	Plant Genetic Resources of Tribal dominated Nandurbar district of Maharashtra: Status, Diversity mapping and Gap analysis	<b>PK Singh, Soyimchiten Longkumer et al.</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
P17	Wild Vegetable Diversity and their Ethnobotanical Uses in Akole Taluk of Maharashtra	<b>PK Singh, Monika Jha et al.</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
P18	Assessing on-farm agricultural crop diversity in hilly agro-ecosystem of Akole, Igatpuri and Shahada Taluks in Maharashtra, India	<b>PK Singh, Sudhir Pal Ahlawat et al.</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
P19	Diversity, Distribution and Collection Status of Plant Genetic Resources in India: Challenges and Future Prospects	<b>Praveen Kumar Singh</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
P20	Exchange of fodder genetic resources: Policy, procedures and impact in Indian scenario	<b>Puran Chandra</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India
P21	Diagnostics and disinfection protocols for nematode free international exchange of horticultural crops germplasm	<b>Celia Chalam, Bharat H. Gawade</b> , ICAR-National Bureau of Plant Genetic Resources, New Delhi, New Delhi, India

P22

Evaluation of leaf curl disease resistant backcross lines of tomato for agro-morphological and processing traits

**Balkrishna Nayak**, Vegetable Science, IARI, New Delhi, India

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