

PAG XXXI: 2024

15 International Phytomedomics and Nutriomics Consortium (ICPN) 1

Details

Location: Pacific E

Date: Tuesday, Jan 16 10:30 AM

Duration: 2 hours 10 minutes

About

The International Phytomedomics and Nutriomics Consortium (IPNC, erstwhile known as ICPN) was established in 2010 and its first international workshop was organized in 2011 during the International Conference on the Status of Plant and Animal Genome Research (PAG) at San Diego, CA, USA. The main theme of the workshop was to discuss and improve the spectrum of research on medicinal plants and nutraceutical crops for the development of plant-based medicines for various diseases and to combat malnutrition. In this regard, IPCN successfully organized 14 workshops during the International Conference on the Status of Plant and Animal Genome Research during 2011-2023. In the previous workshops, the speakers have deliberated on the concepts, strategies, tools and techniques of genomics for depiction of the genomes of medicinal plants and nutraceutical crops, the genes underlying the production of phytomedicines and nutraceuticals, and utilization of these information for the enhancement of quantity and quality of the nutraceuticals in the plant system. The 15th and 16th ICPN workshops will be focusing on application of gene editing techniques and omics tools for breeding of medicinal plants and nutraceutical food crops. Comprehensive discussions during the interaction meetings among the participants will emphasize on the development of a roadmap for collaborative research including formulation of the precise plan of actions for future research at global level on the IPCN platform and drafting of a white paper for that purpose.

Presentation

10:30 AM Advancing Cassava Breeding for Industrial Innovation: Integrating Molecular-Assisted Techniques for Enhanced Root Quality

I. S. Kayondo

10:45 AM Nutraceutomics for Health and Nutrition Security

Chittaranjan Kole

The Neotia University

11:00 AM Plant Molecular Farming to Produce Animal Proteins for the Food Industry

Kathleen Hefferon

University of Toronto

11:15 AM Towards the Development of Genome Edition for the Improvement of Grape Cultivars
Flavonoids

Patrice This

INRAE AGAP Institute

11:30 AM Subtropical and Tropical Ornamental Medicinal Plants: Management, Characterization,
and Genetic Improvement

MN Rao

Citrus Research and Education Center

11:45 AM Deciphering the Pan-Genome of Cynanchum Species: Implications for Breeding and
Species Delimitation of Non-Domesticated Medicinal Plants

Tae-Jin Yang

Department of Agriculture, Forestry and Bioresources, Plant Genomics & Breeding Institute,
Research Institute of Agriculture and Life Sciences, College of Agriculture & Life Sciences, Seoul
National University

12:00 PM Virus-Mediated Gene Editing to Study Capsaicinoid Biosynthesis in Pepper

Byoung-Cheorl Kang

Department of Agriculture, Forestry and Bioresources, Research Institute of Agriculture and Life
Sciences, Plant Genomics Breeding Institute, College of Agriculture and Life Sciences, Seoul
National University

12:15 PM Advancing Cassava Breeding for Industrial Innovation: Integrating Molecular-Assisted
Techniques for Enhanced Root Quality

Ismail Siraj Kayondo

International Institute of Tropical Agriculture (IITA/IBADAN)

Chair, Organizer

Chittaranjan Kole

The Neotia University

Co-organizers

Yong Pyo Lim

Human Friendly Agricultural Research Institute

Co-organizers

Phullara Kole

Prof. Chittaranjan Koley Foundation for Science and Society

PAG XXXI: 2024

16 International Phytomedomics and Nutriomics Consortium (ICPN) 2

Details

Location: Pacific E

Date: Tuesday, Jan 16 1:30 PM

Duration: 2 hours 10 minutes

About

The global food system is rapidly getting adversely impacted due to climate change that is posing consistent threat to global food security. The unpredictable intensity and frequency of stresses due to changing climate are making research and finding solutions through genetics, genomics and breeding even more challenging. Therefore, the foremost challenge before the research community is to optimize phenotyping protocols for different production and quality traits under unpredictable climate change scenarios. Development and deployment of high-throughput phenotyping methods are required to capture genetic control and the interaction with environment, soil and even microbes. The affordable sequencing cost and modern computational methods are available to establish the connect between genetics and genomics leading to the discovery of genes, and superior haplotypes for climate change related traits. The high-throughput phenotyping and genotyping for larger sets of diverse germplasms from distant gene pools may strengthen the efforts towards generating genetic diversity for climate change related traits. Integration of modern technologies such as genomic selection, haplotype-based breeding and genome editing together with rapid-generation advancement and strong decision making for plant selection may accelerate the process of breeding next-generation climate resilient crop varieties. The ICRCGC workshops provide a platform to facilitate sharing of knowledge and technologies along with discussions on finding solution to many of the major climate change related problems. During PAG 31, the ICRCGC is organizing three workshops for deliberation on developing climate smart crop varieties across crop groups including cereals, oilseeds, pulses, fruits, vegetables and forest trees.

Presentation

1:30 PM Kazusa GP: Genome Project across All Orders of Angiosperm
Kenta Shirasawa

Kazusa DNA Research Institute

1:48 PM Designing Dioscorea Genomes for Improved Nutritional and Pharmaceutical Properties
Ranjana Bhattacharjee

International Institute of Tropical Agriculture

2:06 PM Integrating Omics and Gene Editing Strategies for the Improvement of Traditional Food Plants for Sustainable Food and Nutritional Security
Yong Pyo Lim

Human Friendly Agricultural Research Institute

2:24 PM Genetic Improvement in Banana: The Leading Nutrich Fruit Crop

Leena Tripathi

International Institute of Tropical Agriculture (IITA)

2:42 PM Deciphering the Allotetraploid Origin and Adaptation Strategies in Panax through

Comparative Genomics

Hyeonah Shim

Department of Agriculture, Forestry and Bioresources, Plant Genomics & Breeding Institute,
Research Institute of Agriculture and Life Sciences, College of Agriculture & Life Sciences, Seoul
National University

3:00 PM TBA

Amit Dhingra

Washington State University

Chair

Chittaranjan Kole

The Neotia University

Co-organizers

Yong Pyo Lim

Human Friendly Agricultural Research Institute

Co-organizers

Phullara Kole

Prof. Chittaranjan Kole Foundation for Science and Society