

### Weather in Bengaluru

The weather will be pleasant with average temperature of 24 °C with cloud cover and intermittent rains during July month.

### How to reach College of Horticulture UHS campus

The College of Horticulture, UHS campus is situated on the western side of the University of Agricultural Sciences, Bengaluru (UAS-B), GKVK campus. It is about 14 km away from Bengaluru city railway station / central bus terminal (Majestic) and 21 km from Kempegowda International Airport, Bengaluru with two approach, one on Bengaluru-Hyderabad highway (NH-7) and another on Major Sandeep Unnikrishnan Road on the western side of the campus.

### Important dates

Last date for receiving applications : 20.06.2017

Intimation of selection : 21.06.2017

Training : 05.07.2017 to 25.07.2017

### ADDRESS FOR CORRESPONDENCE

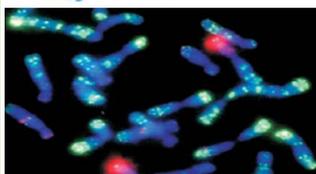
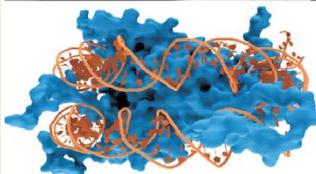
Course Director

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University of Horticultural Sciences, Bagalkot



ICAR Sponsored Summer School

on

Experimental Approaches in Utilization  
of Genomic Resources for the  
Improvement of Horticultural Crops

5 - 25<sup>th</sup> July, 2017



Course Director

**Prof. B. Fakrudin**

Course Coordinators

**Dr. G. K. Halesh & Dr. S. Mohan Kumar**

Organized by

**College of Horticulture**

UHS Campus, GKVK Post, Bengaluru - 560 065  
Karnataka, India

## Background

The complex and intricate relationship between plants and their environments is becoming less obscure, due in part to large-scale genome-sequencing projects and sophistication in field plot techniques. These studies build upon and are complemented by experimental approaches to define underlying mechanisms of plant-environment interactions in simplified model systems. Experimental studies now leverage the advances in high-throughput DNA sequencing that have driven the explosion of plant genome profiling projects and the loss-of-function and gain-of-function strategies long employed in model organisms are now being extended to crop plants.

Recent advances in DNA sequencing have enabled us to enumerate, compared, and grouped by sequence similarity into families, yet an understanding of their biochemical functions of genes is lacking. Genomics provides that rare opportunity in science where the boundaries of current knowledge can be clearly defined. This development is likely lead to new applications and new progress in agriculture, horticulture, environment and the healthcare, besides impacting many commercial enterprises including food and related industries.

The success in application of conventional pre-genomics scientific breeding methodologies in terms of developing modern cultivars with dramatic improvement in yields of major agri-horticultural crops is largely due to systematic experimental approach. Now, genomics provides crop breeders with a new set of tools and techniques that allow the study of the whole genome, which represents a paradigm shift, by facilitating the direct study of the genotype and its relationship with the phenotype. The combination of conventional breeding techniques with genomic tools and approaches is leading to new genomics-based crop improvement. There has been dramatic improvement in experimental approach using of application the science of genomics.

Experimental approaches involving high-throughput DNA sequencing and other technical revolutions provided genome-wide molecular tools in terms of large collections of markers, high-throughput genotyping strategies, high density genetic maps, new experimental populations etc. that can be incorporated into existing crop improvement methods. These developments are improving and accelerating the crop improvement process including assessment of genetic diversity, QTL mapping, association genetics, marker assisted selection, marker assisted backcross, gene/QTL pyramiding, genomic selection etc. Genomic approaches are particularly useful in dealing with complex traits. Availability of large-scale public genomic databases and bioinformatics tools has potential to benefit many horticultural crops. This training has been designed to gain both theoretical and practical hands-on experience of preparation nucleic acids; DNA marker systems; SSR, EST-SSR, SNP and haplotype discovery by leveraging EST and whole genome databases; transcriptome data analysis, candidate gene discovery and mapping; genotyping assays; development of linkage maps and QTL analysis; association mapping; gene/QTL introgression/pyramiding; gene expression assays and data analysis; QTLomics and validation of candidate genes; genetic engineering; miRNAs and their expression assays.

### About the course

There will be series of lectures covering above topics *vis-à-vis* hands-on practical sessions on related techniques. Various bioinformatics tools and statistical methods relevant to the topics will be covered with hands-on practical sessions. Guest faculty from UAS Bengaluru, IHR Bengaluru, UAS Dharwad, NCBS, C-CAMP, TDU and other institutions will be invited to deliver niche specific lectures and to have extended discussion.

### Date and venue

This summer school will be for 21 days from 5<sup>th</sup> to 25<sup>th</sup> July 2017 at the College of Horticulture, UHS campus, GKVK post, Bengaluru 560065, Karnataka, India.

### Eligibility

Participants from Sate Agriculture and Horticulture Universities/ICAR institutions are invited. The participants with Master's/Doctoral degrees in Biotechnology & Crop Improvement; Plant Biotechnology; Vegetable Science; Floriculture; Fruit Science; Plantation, Medicinal, Spices and Aromatic crops; Genetics and Plant Breeding, Seed Science and Technology, Crop Physiology, Microbiology, Plant Pathology and Entomology not below the rank of Assistant Professor.

### Registration

The interested candidates have to apply online through Capacity Building Programme (CBP) portal at the URL: <http://cbp.icar.gov.in/applyDetails.aspx>, Applicant has to pay non-refundable registration fee of Rs. 50/- in the form of a Demand Draft or Indian Postal Order drawn in favour of the 'Comptroller, UHS Bagalkot' payable at Bagalkot. The online filled application should be printed out and do respective competent authority of the organization approve the same. Duly approved application form along with registration fee should be sent to the Course Director before the closing date (20.06.2017). If required, an advanced copy of the application may be sent to the Course Director: however, their selection will be subjected to receiving approved application only. The selected candidates will be informed by e-mail and they should confirm the acceptance through return e-mail within two days.

### Travelling allowance and accommodation

The travel fare to and fro for journey will be provided as per ICAR norms. The reimbursement will be limited to AC II Tier / AC bus by the shortest route for attending the summer school. Travel by air is not permissible. Photocopy of train/bus tickets need to be produced for reimbursement. For out station participants the accommodation will be arranged on twin sharing basis. Meals and refreshments will be provided as per the ICAR rules of the summer course. The local participants will be provided with lunch and intersession tea only.