

# MADURAI KAMARAJ UNIVERSITY



## UGC-NRCBS Winter School on

### "Plant Tissue culture Applications"

August 8 - 22, 2011



#### SCHOOL OF BIOLOGICAL SCIENCES

Madurai Kamaraj University (MKU), established in 1966, has 18 schools comprising 73 Departments, 66 affiliated Colleges and 15 Institutions. University Grants Commission (UGC) has recognized MKU as a "University with Potential for Excellence". Founded by the late Prof. S. Krishnaswamy, the School of Biological Sciences (SBS) stands as an internationally reputed Centre of Excellence for research in modern biology. The SBS had pioneered in teaching Integrated Biology and Genomic Sciences. The focus of research in the school shifted in consonance with the contemporary developments. UGC has elevated the SBS as the "Centre for Advanced Studies in Functional Genomics". SBS recently received support from Department of Biotechnology (DBT) to establish Interdisciplinary Program in Life Sciences (DBT-IPLS). The UGC has also supported SBS to establish the "Centre for Excellence in Genomic Sciences".

#### UGC-NETWORKING RESOURCE CENTRE IN BIOLOGICAL SCIENCES

UGC, New Delhi has created Networking Resource Centres in various disciplines at leading University Departments/Research Institutions in India. The major objectives of the centres are to promote collaborative research, to provide access to advanced research facilities and to impart training to young researchers working in frontier areas of the respected subjects. SBS was recognized as a "Networking Resource Centre in Biological Sciences (NRCBS)" in the year 2008.

UGC-NRCBS, MKU, with its state-of-the-art infrastructure, is functioning as a resource centre for training and research collaborations. The activities of the UGC-NRCBS include: i) organizing summer and winter schools, ii) guidance of Ph.D students of other Institute on experimental trouble shooting and research methodology, iii) support for Ph.D students who are in need of equipment/laboratory facilities and iv) strengthening the collaborative research initiatives in Biological Sciences among universities and research Institutes. Researchers from various parts of the country are trained in the winter/summer schools. The theme of the proposed winter school is "Plant Tissue Culture Applications".

#### ABOUT THE WINTER SCHOOL

The increase in food demand worldwide, associated with unequal distribution and the disequilibrium in the distribution of wealth has caused an increasingly important pressure on food producers who, in parallel, have increased their requirements for new technologies that allowed greater yields and better quality of the products that they offer. During the second half of the last century the development of genetic engineering and molecular biology techniques allowed the appearance of improved and new agricultural products worldwide. However, these would not have been impossible without the development of tissue culture techniques, which provided the tools for the introduction of foreign genes into plant cells, the selection of agronomically superior plants, which carried the genes of interest and at the same time, the massive and rapid multiplication of the genotypes that finally could be introduced into the production systems. Plant tissue culture (PTC) involves the culture of all types of plant cells, tissues, organs also extends to the culture of excised embryos under aseptic conditions. In general, PTC techniques rest on two fundamental morphogenesis processes: organogenesis and somatic embryogenesis. Organogenesis is the formation of plant organs from a determined tissue in order to form

complete plants, whereas somatic embryogenesis is the production of embryos from somatic plant cells to obtain a complete plant.

Recently, plant tissue culture has direct commercial applications as well as in basic research in cell biology, genetics and biochemistry. For this reason, this winter school is aimed to train the young researchers to familiarize the fundamental and applied aspects of tissue culture techniques such as callus induction, membrane lipid analysis, and transformation of GFP/GUS into plant by using *Agrobacterium* and confirmation using PCR. The workshop will consist of both lectures and practical sessions by experts in this field so that the participants can get hands-on experience in plant tissue culture and molecular techniques. We will systematically explore each of the technologies in classic plant tissue culture from the basics to high tech applications and combine the lectures with practical laboratory experience whenever possible. After the completion of winter school, participants will be able to plan and execute plant tissue culture based experiments for wide range applications in their institution.

#### ORGANIZING TEAM

**Convener** : Prof. K. Manoharan  
**Organizing Secretaries** : Dr. K. Sujatha, NRCBS Faculty  
&  
Dr. T. Jebasingh, Assistant Professor,  
**Members** : Dr. A. Murugan, NRCBS Faculty,  
Dr. A. Mahalakshmi, NRCBS Faculty  
Dr. J. Sridhar, NRCBS Faculty  
Dr. J. Rajendhran, Assistant Professor,  
Dr. G. Kumaresan, Associate Professor  
Dr. Ganesan Gopalan, Associate Professor

#### ELIGIBILITY

Applications are invited from research scholars, young faculty members and scientists working in research Departments of colleges or Universities/Research Institutes in India. Preference will be given to the candidates working or intended to work in the area of Plant Tissue Culture Applications.

#### APPLICATION & SELECTION PROCEDURE

The application form can be downloaded from [www.nrcbsmkmu.org](http://www.nrcbsmkmu.org) or [www.genomicsmkmu.org](http://www.genomicsmkmu.org). Candidates should submit the filled in application form to Prof. K. Manoharan, Convener, UGC-NRCBS Winter School on "Plant Tissue Culture Applications", School of Biological Sciences, Madurai Kamaraj University, Madurai-625 021 on or before July 20th 2011. Applications should be forwarded by their research supervisors/Head of the Department or Head of the Institution. The candidates will be selected based on their qualification and research interests.

#### TA / DA & ACCOMMODATION

UGC-NRCBS, MKU will provide TA/DA to the participants as per Madurai Kamaraj University regulations. Participants should produce a certificate stating that they have not been provided with TA/DA by their Institute (Head of the Department / Institute) and the training period shall be considered as 'On Duty' by the participant's parent institution. Accommodation will be arranged at the faculty guest house in Madurai Kamaraj University campus.

#### Prof. K. MANOHARAN

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#### Prof. P. GUNASEKARAN

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