

SCIENTIFIC OUTREACH

- Undergraduate and post-graduate students from various academic institutions across the country carry out short-term research training towards partial fulfillment of their degree requirement.
- School students are provided an opportunity to tour the institute as it can motivate them to adopt science as a career.
- Faculties from various academic and research organizations in the country visit the institute as guest researchers under various schemes.
- NIPGR also trains students from various developing countries in cutting-edge plant molecular biology research.



INFRASTRUCTURE

- The institute is very well equipped to carry out advanced research on various aspects of plant biology.



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February, 2019

NIPGR is an autonomous research institute funded by the Department of Biotechnology, Government of India. NIPGR focuses on high-quality plant biology research and is also involved in training the next generation of plant biologists. Apart from engaging in basic research, the discoveries made in this institute have wider implication for crop improvement.

INSTITUTE MANDATES



- Undertaking high caliber scientific research in advanced areas of fundamental and applied plant molecular biology.
- Providing effective linkages between various scientific and research agencies in the country on plant genes and related areas.
- Utilizing molecular biology approaches along with tissue culture and genetic engineering technology to identify important genes and manipulate them for generating transgenic plants with improved agronomic characters and pathogen/stress resistance.
- Undertaking fundamental research work related to gene-regulation and mapping.
- Utilizing molecular breeding for genetic improvement of crops for important traits.
- Understanding molecular basis of plant microbe interactions.
- Imparting advance training in the field of plant genetic engineering and genome analysis.
- Undertaking collaborative programmes with various Universities/Institutes that are engaged in plant genome research.

RESEARCH AREAS

- Genome analysis and molecular breeding
- Development and signaling
- Plant responses to abiotic stresses
- Plant-microbe/insect interactions
- Computational biology
- Nutritional traits in crops

HIGHLIGHTS OF RESEARCH ACTIVITIES

- Genome sequencing of desi and wild relatives of chickpea. New chickpea lines that exhibit overall 13-20% enhancement of yield as well as a 15% increase in protein content have been developed utilizing the genome sequence information. These lines are currently undergoing national field trials that are conducted by ICAR.
- Molecular markers have been developed against *Aschochyta blight* (AB) resistance in chickpea that can be used in marker-assisted selection for developing AB tolerant cultivars.
- A broad-spectrum antifungal protein has been identified from a mycophagous bacterium. This protein has potential for application in controlling fungal diseases of plants.
- Novel transgenic rice lines expressing *OsPAP21b* gene have been generated that can utilize organic manure more efficiently and produce more yield under organic cultivation.
- Developed a transgenic rice line by overexpressing L-Isoaspartyl methyl transferase that leads to improved seed vigor and longevity.
- Indian mustard lines have high level of glucosinolates which are anti-nutritional. Transgenic mustard lines were developed by reducing the expression of a single regulatory gene that leads to reduced glucosinolate content in oil and oil-cake.

HUMAN RESOURCE DEVELOPMENT



The NIPGR a vibrant Ph.D. program in various areas of plant molecular biology. Besides this, the institute hosts various post-doctoral fellows and other researchers under different national and international schemes. NIPGR also trains students from Universities and other Institutions in cutting edge plant molecular biology research.