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Mandate

- ❖ To undertake, aid, promote, guide and coordinate research of high caliber in basic and applied plant molecular biology;
- ❖ To provide and promote effective linkages on a continuing basis between various scientific and research agencies/laboratories and other organizations working in the country on plant genes, development and related areas;
- ❖ To utilize molecular biology approaches along with tissue culture and genetic engineering technology to identify important genes and manipulate these for generating transgenic plants with improved agronomic characters and pathogen/stress resistance;
- ❖ To take up any fundamental work related to gene regulation and mapping that would aid in achieving the above mandate;
- ❖ Development of molecular markers for monitoring important traits;
- ❖ Production and testing of transgenic plants;
- ❖ Identification of genes that are vital for the survival of the pathogens, and to target them for pathogen combatment;
- ❖ To impart advance training modules in plant genetic engineering and genome analysis;
- ❖ To undertake collaborative programmes and develop close linkages with international institutes engaged in plant genome research.

Preamble

The National Institute of Plant Genome Research (NIPGR) has played an important role in the past 16 years in contributing to basic plant science and applied agricultural research in frontier areas of plant genomics. During the years 2014 & 2015, researchers at the Institute have contributed 142 publications in various reputed international and national journals/books. In addition to this, 3 patents were filed/granted. Many of our students and scientists have been recognized with various national/international honors, fellowships and awards. Overall, the Institute's motto has been to engage in research that has long term implication for the betterment of the society. In the past academic year, apart from core research, NIPGR has also made attempts to translate few of the technologies developed through basic research activities for their application in agriculture. I would like to enumerate some of the important findings covering research done in important crops namely, chickpea, tomato, rice, foxtail millet and mustard and other developments at the Institute.

The Institute has developed advanced version of chickpea draft genome and performed sequence alignment to the genetic map. Genotyping by sequencing technology has been utilized to simultaneously identify a large set of SNP markers and construct a high density inter-specific linkage map of chickpea. We have focused not only on development of these genomic resources but also on transcriptomic resources for gene discovery. One of the examples in this direction is profiling of root nodule transcriptome. Another important focus area of research at the Institute is genetic and molecular dissection of seed size and weight associated traits for seed quality and yield improvement in chickpea. Further, analyses of small RNA deep sequencing data sets generated from various tissues of chickpea identified large number of novel miRNAs. Such discovery of candidate genes will be useful for improvement of various agronomic traits in chickpea in future.

For tomato crop improvement, the Institute is focusing on two main areas, namely, development of thermotolerant plants and increasing shelf life of the harvested fruits. Three key heat stress response gene families and microRNAs targeting them are being studied to understand the thermotolerance. Also important genes regulating fruit ripening are being manipulated to delay the ripening with the aim to increase shelf life.

Institute is also interested in developing rice plants with better utilization of phosphorus, a critical but less abundant nutrient. Whole-genome sequencing of low phosphorous sensitive and tolerant genotypes allowed identification of high resolution markers for low phosphorous tolerance. Further, few labs at the Institute are working to develop rice plants with better root system under stress, this is yet another focus at the Institute. Under abiotic stress tolerance research, functional characterization of *OsiSAP* gene family has been one of the major focuses. We also made progress in understanding gene regulatory networks during flower, anther, seed development and seed vigor/viability in rice.

In foxtail millet, association mapping for few yield contributing traits and genome wide analysis for abiotic stress tolerance related traits has provided considerable insight in understanding these two complex agronomically related aspects.

On the product development, Institute is making steady progress in many fronts. Here, I would like to cite two examples. One, development of a simple and quick on-site early diagnostic kit for rice sheath blight pathogen. Second, development of low glucosinolate Indian mustard lines and assessment of their agronomic performance under contained field conditions. This is expected to be a useful product because of its nutritive value.

Some of the basic biology research programmes that achieved significant progress during the past year include, understanding glucose signaling, light dependent regulator networks, characterization of inositol metabolism and dissection of mediator protein complex. Various findings have also been made in the area of plant proteomics and immunity. Further, several important bioinformatics tools and databases were developed. Few important databases, namely, EssOilDB - a repository of plant essential oils, IGMAP - an integrative genome maps for plants, CGWR – chickpea genomics web resource and FmTEMDb – foxtail millet transposable element-based marker database, have utility for wide spectrum of plant science researchers.

With the addition of three new faculties, thus taking total current strength to 25, and fully functional additional labs in the newly constructed block, expanding the laboratory space and core facilities, NIPGR is poised to take up widened research mandates. In addition to expansion of research programmes under the current thematic areas, the new areas of research recently initiated include understanding plant-herbivore interaction, nitric oxide signaling under flooding stress and shade tolerance of plants. Such research activities are expected to not only strengthen the 'basic plant biology' research in our country, but also contribute to Indian agriculture through crop improvement.

Finally, it is a pleasure to record my appreciation for preparation of the Annual Report 2014-2015 to Dr. Senthil Kumar Muthappa and Dr. Gopaljee Jha, Staff Scientists and Administration/Technical Staff of the NIPGR.

Akhilesh K. Tyagi
Professor and Director

Highlights of the Scientific Achievements

Highlights of the Scientific Achievements

The highlights of the scientific achievements of National Institute of Plant Genome Research during 2014-2015 are given below:

A. Computational Biology

Start domains in plants: Epigenetics and evolution

Steroidogenic acute regulatory protein (StAR)-related lipid transfer (START) is an evolutionarily conserved module of approximately 200 amino acids implicated in lipid/sterol binding, and the availability of several nuclear plant genomes has indicated that START domains are hugely amplified in HD-Zip transcription factors of plants. Despite this expansion, function of the plant START domains in lipid/sterol binding has not been verified, nor has the crystal structure been solved for any plant-derived START subfamily. Our present work involving computational and systems based studies of the START domains in yeast and *Arabidopsis thaliana* have revealed a role for this domain in the regulation of transcription. The main focus has been on the class III HD-Zip family in *Arabidopsis* that contains five proteins implicated in vasculature, meristem initiation and/or organ polarity. Preliminary results suggest that START domains from both mammals and plants are modular in that they can bind lipid ligands. The study provides evidence for an evolutionarily conserved mechanism by which lipid metabolites can orchestrate transcription.

Evolutionary patterns of origin and continuity in organellar genomes

Plant organellar genomes are descendants of ancient serial endosymbiotic events and contain their own genomes, and divide like their free-living ancestors, enabling continued inheritance. The aim of this project is to explore the mechanisms and consequences of reduction in this coding capacity, and also for the asymmetrical distribution of genes between organellar and nuclear genomes. Available genome sequence data for about 300 organellar genomes was downloaded and filtered for developing analytical pipelines. Analysis of several genome size indices and gene content of these genomes suggests two distinct modes of gene reduction, one via loss of non essential coding sequences through random mutations, and the second via transfer of essential genes to the nuclear genome. Network based analysis of gene similarities and ontologies for fourteen mitochondrial genomes from three major taxonomic families showed that one can assign putative function to uncharacterized genes in these genomes.

Isoprenoid based volatile compound diversity in plants

Plants are capable of generating a diverse spectrum of volatile organic compounds (VOCs or essential oils, predominantly terpenoid in nature) for maintaining communication and fruitful adaptive interaction with their environment. The objective of this project is to elucidate the key features responsible for diversity of isoprenoid based VOCs through an assessment of essential oil composition data combined with comparative genomics and secondary metabolic pathway analyses. Over the years, our continuing work on isoprenoid pathways and phytochemicals has led to several new insights into the

plant “terpenome”, and these insights have, in turn, enabled algorithm development and analytical automation. For example, the systematic compilation of essential oil profiles, biotic and abiotic factors, has led to the compilation of one of the world’s most comprehensive phytochemical databases, spanning a century of published reports of essential oil profiles, starting from early 1900s. This database substantiates the huge volatile compound diversity observed in plants, clearly showing the extent to which composition of essential oils depends upon external and internal factors and stress conditions. Further, availability of large number of plant genome sequence have boosted development of methods for gene family discovery and identification of clustering patterns at genomic scales, particularly so for the isoprenoid pathway genes. This method, IGMAP, enables automated studies on clustered linkage of genes, and identifies gene family expansion arising through neo-functionalization and relocation of duplicated or existing genes.

B. Genome Analysis and Molecular Mapping

Chickpea genome sequence analysis and its alignment to genetic map

Additional sequence data (1.01 Gb from mate pair libraries and 23.93 Gb paired-end sequence data) was generated and utilized to obtain a highly improved draft 2 genome sequence of the desi chickpea. This improved assembly spanned 511,022,194 bases in which the number of scaffolds was reduced from 182,734 to 42,978 and the N-content from 13.8% to 8.68%. The scaffolds were anchored to their corresponding linkage groups (LGs) based on an advanced genetic linkage map harbouring 6697 markers which resulted in 2.7-fold enhancement to 333 Mb in the length of the eight pseudomolecules. N50 length improved from 77.31 kb to 39.90 Mb. Annotation of the new assembly resulted in 30,257 protein-coding genes of which 29,553 gene models (97.67%) showed significant similarity with at least one of the public protein databases. 2230 and 133 genes encoding potential transcription factors and resistance gene homologs respectively were identified. 3296 chickpea-specific genes and 704 orphan genes were also predicted. Genotyping by Sequencing (GBS) technology was utilized for SNP genotyping of RILs of an inter-specific mapping population of chickpea. A high resolution genetic map comprising of 13,647 markers spanning 1299.14 cM with an average marker density of 0.095 cM was generated. Genome-wide analysis of homeobox gene family was performed in five legume species including chickpea. The Chickpea Genomic Web Resource (CGWR) was developed that enables coherent informatics-based exploration of the completely sequenced chickpea nuclear genome, including mapping and visualization of structural and functional aspects of the underlying DNA sequence.

Genomic and transcriptomic resources for gene discovery and molecular mapping in chickpea

Four cDNA libraries prepared from various stages of developing chickpea root nodules were sequenced using the Roche 454 GS FLX platform and assembled into 83,405 unigenes. Transcripts were annotated using various databases. Transcripts specific to nodule development were identified which included transcription factors (TFs) and transporters. Differential expression analysis showed 6186 unigenes as differentially expressed of which 3760 unigenes were found differentially expressed in nodule tissue with respect to root. 555 differentially expressed TFs and 37 nodule specific TFs belonging to 16 families of plant TFs were identified. Barley B recombinant/Basic pentacysteine (BBR-BPC) family of transcription factors are GAGA binding proteins present in plants and are involved in gene regulation by binding to GA/TC repeats present in the regulatory regions. A genome wide analysis

of the BBR-BPC TFs in chickpea identified 3 genes with *CaGBP3* being the most significantly expressed in early phase of nodulation. The GA/TC binding activity of BBR-BPC TFs was tested using yeast one hybrid analysis followed by EMSA analysis. Further, the *in silico* predicted targets of *CaGBP3* were validated. Functional characterization is being attempted using transgenic approach.

Genetic and molecular dissection of complex seed size/weight quantitative traits in chickpea

For quantitative dissection of complex seed size/weight trait and identification of functionally relevant molecular tags governing 100-seed weight in *desi* and *kabuli* chickpea, 461 trait-specific association panel and 20 diverse intra- and inter-specific mapping population have been generated, phenotyped precisely in field and analysed through integrated genomics-assisted breeding approach. The genome-wide conserved non-coding microsatellite (CNMS) marker-based integrative genetical genomics and QTL region-specific association analysis-led integrated genomic approach delineated favourable natural allelic variants and superior haplotypes in the upstream regulatory regions of three transcription factor genes controlling cis-regulated expression for seed weight in chickpea. A total of 44844 high-quality SNPs by sequencing of 93 diverse cultivated *desi*, *kabuli* and wild accessions was discovered at a genome-wide scale using reference genome- and *de novo*-based GBS (genotyping-by-sequencing) assays to understand the natural allelic diversity-led domestication pattern in chickpea for its genomics-assisted crop improvement.

Development of DNA-based molecular markers for robust genotyping purposes in foxtail millet [*Setaria italica* (L.) P. Beauv.]

Genome-wide development of transposable elements-based markers in foxtail millet and construction of an integrated database has been performed. A total of 30706 transposable elements (TE) have been identified in the genome, from which six marker types namely Retrotransposon-Based Insertion Polymorphisms (4801, ~24%), Inter-Retrotransposon Amplified Polymorphisms (3239, ~16%), Repeat Junction Markers (4451, ~22%), Repeat Junction-Junction Markers (329, ~2%), Insertion-Site-Based Polymorphisms (7401, ~36%) and Retrotransposon-Microsatellite Amplified Polymorphisms (57, 0.2%) have been developed and validated in a panel of *Setaria* accessions. Further, genetic diversity analysis and comparative mapping have also been performed, which demonstrated the applicability of these markers in large-scale genotyping. Further, an open-access Transposable Element-based Marker Database has also been constructed. The developed resources will be useful for genomic studies including genomic selection, fine-mapping and phylogenetic analysis. Further, this would also assist in gaining new insights on genome structure of foxtail millet and the potential of TEs in genetic variation studies.

Discovery of candidate genes and defining regulatory elements/modules for agronomic traits in chickpea

MicroRNAs (miRNAs) are essential components of complex gene regulatory networks that orchestrate plant development. Although several genomic resources have been developed for legume crop chickpea, the discovery of miRNAs is lacking as of now. We performed analyses of small RNA deep sequencing data sets (a total of 154 million reads) generated from seven major tissues/organs of chickpea. Using these data, we identified a total of 618, including 440 conserved and 178 novel miRNAs. These miRNAs targeted a wide range of mRNAs involved in diverse cellular processes, majorly those encoding for transcription factors, protein modification and turnover, signal transduction

components and metabolic enzymes. We detected differential expression of many conserved and novel miRNAs in different tissues/organs. We also showed the conserved and differential expression patterns of miRNA isoforms of the same family and their regulatory implications. Some of the same family members were predicted to target different chickpea mRNAs, which suggested the specificity and complexity of miRNA-mediated developmental regulation. Altogether, this study significantly extends the compendium of miRNAs and offers new perspectives to understand the complex spatio-temporal regulation of transcription during organ development in chickpea and other legumes.

Understanding transcriptional landscape of chickpea genome

To delineate the transcriptional landscape of chickpea, we report here analyses of RNA-seq experimental data on genome-wide scale from vegetative and reproductive organs at different developmental stages. A total of 428.4 million reads were obtained from 12 independent organ-specific cDNA libraries and analysed further for differential gene expression. 11,034 differentially expressed (DE) transcripts were identified, of which, 3701 and 2956 was highly upregulated in the vegetative and reproductive tissues, respectively; whereas, 2013 were found to be common between the two sets. GO analysis revealed that genes associated with organic substance metabolic process (35.12%), primary metabolic process (31.88%), organic cyclic compound binding (21.35%) followed by ion binding (18.28%) and protein binding (15.39%) were highly enriched. The datasets of the organ-specific transcripts will be a useful resource to explore the pluri-functionality of these genes in different stages of development and help elucidating critical network hubs interpreting the cellular processes.

Identifying genetic markers for improving phosphorus (P) utilization in rice

Two rice genotypes Dular and PB1 were found to be low P tolerant and sensitive, respectively. To further understand the molecular regulation at whole genome levels, whole-genome sequencing of Dular and PB1 was performed. This analysis was aimed to reveal the potential SNP/Indels markers between two genotypes and especially in low P responsive genes involved in root architecture modulation and P uptake. Several low P responsive genes showed DNA polymorphism between Dular and PB1. These variants were further validated in four low P tolerant and sensitive rice genotypes. Discovery of high resolution SNP and InDel markers associated with low P tolerance would accelerate the identification and fine mapping of novel P starvation response genes and P related QTLs for crop improvement.

C. Molecular Mechanisms of Abiotic Stress Response

Functional analysis of abiotic stress responsive genes from rice

As part of the ongoing investigation on sub-functionalization of *SAP* gene family members, investigation on a nuclear localised member, OsiSAP7, has been initiated. The YFP-OsiSAP7 co-localization with CFP-AtCOP1 in dotted pattern shows that YFP-OsiSAP7 was co-localizing with degradation sub-nuclear speckles. Its expression is down-regulated in rice. OsiSAP7 exhibits E3 ubiquitin ligase activity. Transgenic *Arabidopsis* expressing OsiSAP7 were ABA insensitive at seed germination stage and sensitive to water-deficit stress at advanced stage as compared to wild type. They were also impaired in ABA and stress-responsive gene expression. Thus, OsiSAP7 appears to act as a negative regulator of ABA and water-deficit stress signalling. Simultaneously, investigations are on with SAP1/SAP11 which work as positive regulators of stress signalling. It would be of interest to define their interplay in rice and unravel components of their action.

Molecular regulation of phosphorus (P) utilization in rice

Genes differentially expressed under low Phosphate (P) in tolerant and sensitive rice genotypes were functionally characterised using transgenic approach. One such gene (*OsPAP9b*) encodes a purple acid phosphatase and is highly upregulated under low P in tolerant genotype. *OsPAP9b* uses ATP as a preferred substrate at pH 5-6. *OsPAP9b* overexpressing rice transgenics showed better growth than wild-type, when P source was replaced with ATP. Functional characterization of other low P responsive genes is underway.

Unraveling complexity of abiotic stress responses in rice via omics approaches

We performed RNA-seq profiling of three rice cultivars with contrasting response to drought and salinity stresses, including IR64 (stress-sensitive), N22 (drought-tolerant) and Pokkali (salinity-tolerant). A large number of genes differentially expressed under the control and stress conditions across and within the cultivars have been identified. Several novel genes/transcript isoforms and their differential expression have also been revealed. The genes involved in various biological processes, including enzymatic activities, transport, reactive oxygen species homeostasis, hormone signaling, transcription, and secondary metabolite metabolism were identified to be stress-responsive in the rice cultivars.

We investigated the differences in DNA methylation patterns in the three rice cultivars at single-base resolution via whole genome bisulphite sequencing. We discovered extensive DNA methylation in the rice cultivars, identified the sequence context and extent of methylation at each site. The expression of stress-responsive genes was found to be influenced by methylation status of associated regions, which suggested possible role of DNA methylation in stress adaptation. We have provided evidence suggesting that DNA methylation plays an important role in abiotic stress adaptation/response by regulating expression of a set of stress-responsive genes in rice largely via methylation/demethylation of proximal transposable elements. Small RNA abundance was found to be positively correlated with hypermethylated regions.

Membrane-associated proteomics of chickpea identifies Sad1/UNC-84 protein (CaSUN1), a novel component of dehydration signaling

Dehydration affects almost all the physiological processes including those that result in the accumulation of misfolded proteins in the endoplasmic reticulum (ER), which in turn elicits the unfolded protein response (UPR). We investigated the dehydration-responsive membrane-associated proteome of a legume, chickpea. Among the differentially expressed proteins, a non-canonical SUN domain protein, designated CaSUN1 (*Cicer arietinum* Sad1/UNC-84), was identified. CaSUN1 localized to the nuclear membrane and ER, besides small vacuolar vesicles. The transcripts were downregulated by both abiotic and biotic stresses. Overexpression of CaSUN1 conferred stress tolerance in transgenic *Arabidopsis*. Functional complementation of the yeast mutant, *slp1*, could rescue its growth defects. We propose that the function of CaSUN1 in stress response might be regulated via UPR signaling.

Nuclear phosphoproteome of developing chickpea seedlings (*Cicer arietinum* L.) and protein-kinase interaction network

Post translational modifications of proteins, particularly phosphorylation control a wide variety of cellular processes but its functional connectivity, in plants, is still elusive. To better understand such event, we examined the nuclear phosphoproteome of chickpea. Intact nuclei were isolated from 3-week-old seedlings using two independent methods, and nuclear proteins were resolved by 2-DE. In a separate set of experiments, phosphoproteins were enriched using IMAC method and resolved by 1-DE. Proteomic analyses led to the identification of 107 putative phosphoproteins, of which 86 were non-redundant. Multiple sites of phosphorylation were predicted on several key elements, which included both regulatory and functional proteins. The analysis revealed an array of phosphoproteins, presumably involved in a variety of cellular functions, viz., protein folding (24%), signalling and gene regulation (22%), DNA replication, repair and modification (16%), and metabolism (13%), among others. This represents the first nucleus-specific phosphoproteome map of a non-model legume, which would provide insights into the possible function of protein phosphorylation in plants.

Genome-wide identification and characterization of dehydration-responsive microRNAs and important stress-responsive gene families in foxtail millet (*Setaria italica* L.)

Small RNA libraries constructed from control and dehydration-treated seedlings of two contrasting cultivars of foxtail millet were Illumina sequenced to identify 55 known miRNAs (23 families) and 136 novel miRNAs (47 families). In tolerant cultivar, 35 dehydration-responsive miRNAs (13 known and 22 novel) have been observed and 32 were up-regulated. In sensitive cultivar, 32 miRNAs (8 known and 24 novel) were differentially expressed and 22 were down-regulated after stress treatment. Expression patterns of novel dehydration-responsive miRNAs were investigated by stem-loop qRT-PCR. This differing expression behavior of miRNAs after dehydration might play role in conferring contrasting tolerance characteristics. Further, genome-wide analysis of AP2/ERF, 14-3-3, MYB and C2H2-zinc finger families were formed. Study on molecular role of Si14-3-3 proteins revealed phosphorylation-dependent subcellular localization of a splicing factor, SiRSZ21A. Expression profiling of these genes in response to abiotic-stresses revealed specific and/or overlapping expression patterns, and identified potential candidates for functional characterization.

Molecular and functional characterization of inositol metabolism in chickpea in perspective of abiotic stress responses

In our earlier study, we have shown that inositol metabolism plays an important role in plant growth, development and stress adaptation in chickpea. Here, we aim to further characterize the extended inositol biosynthetic pathway where free inositol is utilized to produce galactinol by galactinol synthase, a key enzyme for the biosynthesis of galactinol and Raffinose Family of Oligosaccharides (RFOs). The enzyme activity was found to be stimulated by various abiotic stresses in chickpea. The enzyme is encoded by two genes (*CaGolS1* and *CaGolS2*) which were shown to produce multiple transcript variants to encode multiple galactinol synthase isoforms. For functional and biochemical characterization of these isoforms, respective cDNAs were cloned and bacterially expressed and purified. Biochemical properties of these CaGolS isoforms are presently being studied. Simultaneously, constructs for plant transformation were made to elucidate the function of CaGolS isoforms in seed desiccation tolerance, longevity and stress tolerance.

Identification and characterization of three key heat stress response gene families and microRNAs targeting them in tomato (*Solanum lycopersicum* L.)

Genome-wide identification of two major classes of Heat Stress Response (HSR) genes including 75HSPs (small-HSPs, containing the α -crystallin domain and the HSP70 superfamily) and 28HSFs were identified in tomato. Comparative analysis of tomato HSR gene-families with *Arabidopsis* and rice revealed conservation and diversification of its members during evolution. The expression patterns in response to five abiotic stresses and two exogenous plant hormones suggested a universal role these HSR genes play in imparting tolerance to varied stresses and hormones possibly via combinatorial interactions between different pathways. The expression of these HSR genes in five developmental stages of tomato highlighted that transcripts of some members predominantly accumulate in the reproductive tissues which are most heat-sensitive. A comprehensive study identified 30 putative miRNA:HSR-target hits in tomato. The results are being validated by establishing an anti-correlation between miRNAs:targets transcripts abundance, degradome analysis and RACE.

Role of microRNA in root development under abiotic stress

Root apex of higher plants shows high sensitivity to environmental changes and adjusts root growth accordingly. A group of continuously dividing cells at the root apex, called root apical meristem (RAM) cells, adjusts the rate of cell division and cell spacing to regulate root growth during abiotic stresses such as, water deficit and high salinity. A group of small RNA, namely microRNA (miRNA), regulates gene expression post-transcriptionally and in turn, affects root growth. We report global miRNA expression profiling by small RNA sequencing in the RAM of chickpea in response to 20% PEG and 250 mM sodium chloride for 1 hr and 2 hr. Probable target genes were predicted for the miRNAs and expressions of some of those were compared with the expressions of the miRNAs. We identified a miRNA-encoding gene that showed differential expression in chickpea RAM in response to different stress treatments. To investigate the mechanism of its action, we took its orthologous gene in *Arabidopsis* and conducted experiments to unravel its role and mechanism of action in root growth regulation.

D. Nutritional Genomics

Molecular cloning, characterization of genes and their uses in increased shelf-life of fruits and vegetables

We have identified and functionally characterized the fruit ripening-specific promoters of genes of N-glycan processing enzymes (α -Man and β -Hex). Our results demonstrated that *RIN* and *SIASR1* are transcriptional regulators of β -Hex. Moreover, β -Hex expression/promoter activity in tomato fruits was down-regulated once expression of either *RIN* or *SIASR1* was suppressed, indicating that *RIN* and *SIASR1* positively regulate the transcription of β -Hex during fruit ripening. Interestingly, *RIN* could also bind to the *SIASR1* promoter and *SIASR1* expression was suppressed in *rin* mutant fruits, indicating that *RIN* also acts as a positive regulator of *SIASR1* expression. Our data suggested that *RIN*, both directly and indirectly, through *SIASR1*, regulates the transcription of β -Hex during fruit ripening. Moreover, functional characterization of some geraniol responsive ripening specific genes is also under progress to explore some previously unknown regulators of fruit ripening and/or senescence.

Genetically modified crops expressing *AmA1* for better nutrition

Earlier, we have shown that ectopic expression of the seed protein, *AmA1* in carbohydrate-rich food crops showed increase protein and amino acid accumulation in the storage organ. Here, we report the development of T6 homozygous population of the transgenic rice lines. The detailed analysis of physiological and agro-phenotypic characterization of T5 homozygous lines revealed enhanced photosynthetic activity with increase in yield. There was a 42–67% increase in total protein content in the transgenic seeds as compared to their wild-type counterpart. Furthermore, we have developed sweet potato lines expressing *AmA1* under the control of constitutive and tissue specific promoters. Biochemical analyses also showed increase in protein content up to 70%. We would continue our effort to analyze transgenic rice and sweet potato engineered with the storage protein. In addition, detailed comparative omics analyses would be carried out of the transgenic and control lines in both rice and sweet-potato.

Over-expression of OXDC in edible crops to reduce oxalate toxicity

In the recent past, we have shown that ectopic expression of oxalate degrading enzymes in model plants and crop plants help reduce oxalic acid accumulation. Here, we report development of transgenic spinach and soybean expressing OXDC under different inducible and tissue specific promoters. The putative transformants were selected on the basis of their growth on medium containing kanamycin as a selectable marker. PCR amplification showed a consistent band of 1.6 kb of OXDC in the transgenic events. There were no visible phenotypic changes in the morphology either in the primary transgenic population or in the subsequent generations. T1 spinach plants screened on kanamycin are recently been transferred to green house for production of T2 lines. Currently, the biochemical evaluations of these lines are underway. We would continue our effort to develop and characterize transgenic crops with low oxalate and oxalate derived neurotoxin like spinach, groundnut, soybean and grass pea expressing *FvOXDC*.

Study on the functional role of seed storage protein: a comparative proteomics approach

Seed storage proteins are known to be utilized as carbon and nitrogen source for growing seedlings. However, their precise function remains unknown. To elucidate the storage protein-regulated molecular mechanism, a comparative metabolomics approach has been applied on tuber life-cycle between wild-type and *AmA1*-potato. A total of 402 metabolites were identified from both wild-type and *AmA1* lines. Of the total 402 metabolites, 282 were polar and 121 nonpolar compounds. Comparative analysis revealed that 75 metabolites were common among different stages of development between wild-type and *AmA1*-tubers. Of the 75 common metabolites, 42 were up-regulated, while 33 were down-regulated in both the transgenics. Nonetheless, 11 metabolites were unique to WT, 10 to 35S-*AmA1* and 14 to GBSS-*AmA1* mature tubers. Interestingly, all the identified metabolites were found to be the derivatives of natural compounds. Our future efforts will focus onto system level understanding of storage protein mediated regulation in plant.

Comparative analysis for nutrient availability in two contrasting cultivars of sweet potato (*Ipomoea batatas* L.)

Sweet potato ranks as the world's seventh most important food crop, and has major contribution to energy and phytochemical source of nutrition. To unravel the molecular basis for differential nutrient availability, and to exploit the natural genetic variation(s) of sweet potato, a series of physiochemical

and proteomics experiment was conducted using two contrasting cultivars, an orange-fleshed sweet potato (OFSP) and a white-fleshed sweet potato (WFSP). Phytochemical screening revealed high percentage of carbohydrate, reducing sugar and phenolics in WFSP, whereas OFSP showed increased levels of total protein, flavonoids, anthocyanins, and carotenoids. The rate of starch and cellulose degradation was found to be less in OFSP during storage, indicating tight regulation of gene(s) responsible for starch-degradation. Comparative proteomics displayed a cultivar-dependent expression of proteins along with evolutionarily conserved proteins. These results suggest that cultivar-specific expression of proteins and/or their interacting partners might play a crucial role for nutrient acquisition in sweet potato.

Tissue specific engineering of glucosinolate content and profiles in Indian oilseed mustard (*Brassica juncea*) for higher nutritional value and uncompromised defense response

Through constitutive silencing of a key glucosinolate pathway enzyme, AOP2, we aim towards the enrichment of the cancer preventive glucosinolate glucoraphanin in Indian oilseed mustard. The transgenic lines provided significantly higher amount of glucoraphanin, while reducing the major anti-nutritional glucosinolates like gluconapin (GNA) and sinigrin (SIN) in seeds and sprouts. Molecular characterization revealed a significant reduction in the transcript levels of *GSL-ALK* gene homologs in all transgenic lines. Further, to provide tissue specific engineering of glucosinolate levels, we isolated multiple homologs of glucosinolate transporter (*GTR1*, *GTR2*) gene family from polyploid *Brassica* species, showing differential spatio-temporal expression profiles. To investigate the functional divergence of multiple *GTR* homologs, a series of over-expression and knock-down constructs for *BjuGTR1* and *BjuGTR2* homologs were developed and recently transformed into *Arabidopsis* and *B. juncea*, respectively.

E. Plant Development and Architecture

Analysis of rice genes controlling seed development

AtLeafycotyledon1 (*AtLEC1*) was the first *NF-Y* gene to be reported in plants. Transgenic rice plants overexpressing its rice homolog under maize *Ubiquitin* promoter have a clustered appearance and flowering is highly delayed. Mature spikelets show viviparous germination with plantlets emerging from the spikelets on the parent plant. The transgenic plants are being analyzed at molecular level, including interactions with other subunits of multi-subunit protein complex. Further, genome-wide SNP genotyping data of 551 grain size-specific association panel of rice along with our previous data with GBS was used in an integrated genomic approach to delineate 73 genomic loci [57 SNP loci in 25 genes (10 TFs and 8 known cloned grain size-related genes)] and functionally relevant molecular tags (genes, TFs, alleles and haplotypes). Also, efforts to generate diverse mapping populations [like (Sonasal x LGR), (Pusa Basmati1121 x LGR), and (Pusa Basmati1121 x Sonasal)] derived from three low (Sonasal), medium (Pusa Basmati1121) and high (LGR) grain weight rice genotypes have been initiated.

Transcription factors and their networks involved in rice seed development

Five NAC transcription factors express with different patterns in five genotypes, having variable seed weights. The promoters of four of these genes direct expression of the reporter gene specifically in the seed. The proteins heterodimerize and get nuclear localized. They also exhibit variable levels of trans-activation and repression.

Functional characterization of sugar- and auxin-regulated DUF581 domain containing genes encoding expressed proteins of unknown functions in model plant system *Arabidopsis thaliana*

Glucose has a prominent role in affecting plant growth and development. Glucose has been shown to work in concert with hormones to regulate a number of genes. Domain of unknown function 581 (DUF581) containing gene At5g47060 is positively regulated by both glucose and auxin. *Arabidopsis* genome contains 18 DUF581 containing genes. DUF581 domain is a C2-C2 type of zinc finger which mediates protein-protein interaction. Based on its similarity with a ubiquitous class of zinc finger named zf-FCS domain, DUF581 was named as FCS Like Zinc-finger (FLZ). FLZ domain mediates the interaction of FLZ domain containing proteins with other proteins which are regulators of plant growth and development. FLZ gene family is a plant specific gene family which is present in all sequenced plant genomes. *Arabidopsis* FLZ gene family members were found to be induced during phase transition and reproductive stages of plant lifecycle. FLZ gene family member mutants have perturbations in the normal growth and development and altered sensitivity towards different abiotic stresses. Molecular and physiological dissection of these responses will be helpful in understanding the role of FLZ genes in plant development.

To study the interaction between glucose and brassinosteroid signal transduction pathway in model plant system *Arabidopsis thaliana*

Glucose (Glc) has a profound effect on plant growth and development. Glc has been shown to work with hormones to modulate plant growth and development. In the present study, whole genome transcript profiling has been performed to find out the interdependence/overlap between Glc and BR response pathways in the etiolated seedlings of model plant system *Arabidopsis thaliana*. At whole genome level, Glc can broadly affect BR regulated gene expression. Glc alone can affect expression of many important genes involved in BR biosynthesis, metabolism, perception and signaling suggesting that Glc may regulate BR related responses by modulating both BR biosynthesis as well as BR signaling at a global scale. BR-Glc could also co-regulate many genes involved in developmental processes and stress responses. At physiological level, Glc and BR signals interact to regulate etiolated hypocotyl elongation growth.

Molecular dissection of contrasting root architecture of selected *indica* rice cultivars

The main root, its branches and adventitious roots of a higher plant constitute the root system architecture (RSA), which is regulated by the genetic make up of a plant as well as various environmental factors such as stresses and nutrient availability. A robust RSA may enhance nutrient/water up take, growth and productivity of a crop. A thorough knowledge of functions of key genes underlying the huge variation in RSA identified among *indica* rice would help in crop improvement. Using functional genomics approach, we have identified genes differentially expressed between selected indica rice cultivars (OsAS83 and OsAS84) with contrasting RSA. The difference in their genetic make up and transcriptome level underlies the variation in RSA and tolerance to abiotic stresses or nutrient (Nitrogen) deficiency, which is further being studied in depth at gene function level in both rice and model plant *Arabidopsis*.

Protein L -isoaspartyl methyltransferase (PIMT) in rice

In our earlier study, we have shown that the protein repairing enzyme PROTEIN L-ISOASPARTYL O-METHYLTRANSFERASE (PIMT) plays an important role in seed vigor and longevity in chickpea.

However, the role and regulation of this enzyme is largely unknown in monocot plant. The present study in rice established correlation of PIMT activity and isoAsp repairing demands during seed maturation and drying. Further, we demonstrated that rice possess two PIMT coding genes (*OsPIMT1* and *OsPIMT2*) which produce multiple PIMT isoforms, among which three (*OsPIMT1*, *OsPIMT2* and Δ *OsPIMT2* i.e. *OsPIMT2* protein without N-terminal extension) are found to be biochemically active. Subsequently, expression analysis clearly demonstrated distinct tissue and seed development stage specific expression pattern of these PIMT isoforms. Further analysis of transgenic rice and *Arabidopsis* plants overexpressing *OsPIMT* isoforms defined the individual and coordinated roles of *OsPIMT* isoforms in seed vigor and longevity in rice.

F. PLANT IMMUNITY

Analysis of patho-stress responsive extracellular matrix (ECM) proteome of chickpea

Plants exposed to patho-stress mostly rely on the protection of cellular integrity to prevent mechanical damage by changing the cell wall/extracellular matrix (ECM) composition. Further, protein phosphorylation often serves as “on-and-off” switches in regulation of cellular activity. Here, we report the development of immune-responsive comparative ECM phosphoproteome in chickpea during vascular wilt that resolved more than 775 protein spots. The quantitative image analysis revealed 453 differentially expressed protein spots (CaFREPP, *Fusarium* responsive ECM phosphoprotein). Of the 453 FREPs, 321 were clearly up-regulated, 53 were down-regulated, and 78 showed a mixed pattern of time-dependent expression. Mass spectrometric analysis and database search lead to the identification of 134 phosphoproteins presumably involved in a variety of functions, including metabolism, cell defense and rescue, protein folding and degradation, signaling, transport and development. This study might facilitate the targeted alteration of the extracellular matrix to generate bio-markers for effective engineering strategies for crop improvement program.

Comparative proteomic analysis of patho-stress response in tomato induced by *Sclerotinia*

Patho-stress is a major impediment during post-harvest storage and plant productivity. Tomato, the second most consumed vegetable of high economic value is a rich source of nutrients and thus conducive to pathogen attack, including necrotrophic phytopathogen *Sclerotinia sp.* Here, we report, the comparative proteome analysis of tomato fruit infected with *Sclerotinia sp.* by 2-DGE analysis that resolved more than 650 reproducible protein spots. The quantitative image analysis revealed 340 differentially expressed protein spots. MS/MS analysis results in 164 proteins identified with a significant match. Among the identified PSRPs, major functional category corresponded to proteins involved in metabolism (41%), followed by proteins involved in stress response (26%). We will focus on the detailed network analysis of the comparative fruit proteome and identify target biomarkers for functional determination and exploitation in patho-stress tolerance. Network analysis of these PSRPs would provide valuable insights into the dynamic regulation of cellular phenotype in fruit under patho-stress.

Induced immune response of chickpea to a necrotrophic pathogen

To delineate the chickpea genes involved in *Ascochyta rabiei* resistance, we have initiated the fine mapping of QTLs and narrowed down few candidate genes in QTLAR1. The ORFeomes related to CaMAPK cascade members and CaWRKY transcription factors were utilized for interaction by yeast

two-hybrid based on split-ubiquitin approach. The interaction analysis of 7 MEK, 6 MEK^{EE}, 21 MAPK ORFs and 60 CaWRKY has revealed various complex pathways.

Isolation and functional characterization of genes from chickpea blight fungus *Ascochyta rabiei* which are involved in pathogenesis/virulence

Several candidate genes for pathogenicity were identified and we choose some of them for functional characterization. An effector, Ar93, is unanimously present in different fungal species. Ar93 is indispensable for *A. rabiei* virulence and translocates into the host nucleus during infection, which is critical for its functionality. The bioassay using different mutant strains were compared and disease severity was monitored.

Genome sequencing and comparative genome and transcriptome analysis of necrotrophic phytopathogenic fungi

The *Ascochyta rabiei* genome was deciphered and we predicted 10,596 protein-coding genes that encodes for large and diverse inventories of secretory proteins, carbohydrate-active enzymes, transporters and enzymes for primary and secondary metabolism, reflecting the necrotrophic lifestyle of this fungus. Detailed analysis of *A. rabiei* secretome revealed new classes of effector candidates.

Understanding the molecular intricacies of rice-*Rhizoctonia* interactions

Rhizoctonia solani is an important necrotrophic pathogen causing sheath blight disease in rice and controlling it remains a challenge for sustainable rice cultivation. We have studied the morphological and pathological attributes of different Indian isolates of *R. solani*. The in-planta expression profile of four putative secondary metabolite encoding genes was found co-relating with disease aggressiveness of different isolates. The interaction transcriptome were sequenced and catalogs of differentially expressed fungal and plant genes during pathogenesis of *R. solani* on three different rice genotypes, having varied disease susceptibility (susceptible, partially susceptible and partially resistance) were identified. The detail functional analyses of these genes are in-progress to understand the molecular intricacies of Rice-*Rhizoctonia* interactions.

Development of simple, quick and on site early diagnostic kit for *Rhizoctonia solani*, the causal of sheath blight disease of rice

Sheath blight disease caused by *Rhizoctonia solani* AG1-1A is a deadly pathogen of rice and every year during favourable conditions it causes up to 50% reduction in rice yield and yield loss of ~6 million tons. It would be advantageous to detect the pathogen during asymptomatic stage so that one can timely adopt the recommended preventive practices and avoid unnecessary usages of fungicides. We have developed a visual, rapid, cost effective and on-site detection system for detecting presence of *R. solani* during asymptomatic stage. We would work on validating our method in spotting the pathogen in field samples and correlate pathogen presence with disease incidence.

Mapping of *Mungbean yellow mosaic India virus* (MYMIV) resistance loci in soybean through genotyping-by-sequencing

Ninety-six recombinant inbred lines (RIL) derived from a cross between a *Mungbean Yellow Mosaic India Virus* (MYMIV) disease resistant soybean cultivar 'UPSM-534' and susceptible cultivar 'JS-335' were re-sequenced and genetically characterized using genotyping-by-sequencing (GBS) approach.

High-quality GBS-SNPs were then identified and a high-density genetic linkage map was constructed. Further, QTLs associated with yellow mosaic disease resistance were identified at highly significant LOD scores, whose R^2 values suggested that the identified QTLs were associated with yellow mosaic disease resistance trait contributed to a higher percentage of total phenotypic variation. Functional annotation of genes present in these QTLs showed their involvement in complex stress-responsive pathways and expression profiling of these genes revealed differential expression patterns in soybean tissues. These genes will be explored as genetic markers for their applications in soybean breeding for MYMIV-mediated yellow mosaic disease resistance.

Cytokinin producing *Agrobacterium* strain GV3101 primes defense responses in *Nicotiana tabacum* through mitogen activated protein kinase cascade

We report that the pre-treatment with disarmed *Agrobacterium tumefaciens* strain GV3101 primes the defense response to subsequent infection by *Pseudomonas syringae* in *Nicotiana tabacum*. The presence of a trans-zeatin synthase (*tzs*) gene in strain GV3101 may be partly responsible for the priming response as the *tzs* deficient *Agrobacterium* strain LBA4404 only weakly imparts such responses. Besides inducing the expression of defense-related genes like *PR-1* and *NHL10*, GV3101 pre-treatment increased the expression of tobacco mitogen-activated protein kinase pathway. Furthermore, the GV3101 strain showed a stronger effect than the LBA4404 strain in activating phosphorylation of the tobacco MAP kinases, WIPK and SIPK, which presumably primes the plant immune machinery. The current study serves as a cautionary warning for plant researchers over the choice of *Agrobacterium* strains and their possible consequences on subsequent pathogen-related studies.

Understanding the role of pyrroline-5-carboxylate metabolism in defense against *Pseudomonas syringae* pathovars by nonhost plant, *Arabidopsis thaliana*

Pyrroline-5-carboxylate (P5C) is the intermediate product of the proline biosynthesis and catabolism. Proline-P5C metabolism is tightly regulated in plants, especially during non host pathogen infection. However, its role in disease resistance is not fully understood. We aim to dissect the regulators of P5C levels in non-host resistance. Our genetic studies involving two *Arabidopsis thaliana* mutants namely, *Atp5cdh* and *Atsro5*, both lacking catabolism of P5C in mitochondria indicated that down regulation of P5CDH-mediated step is important for defense against non host pathogens. *Atsro5* mutant supported non-host pathogen multiplication in their leaves and *Atp5cdh* mutants showed disease symptoms. Currently we are in the process of identifying the regulators of these two genes. Understanding non-host resistance, a broad spectrum disease resistance using our model plant-pathogen system will facilitate transfer of key genes to crop plants (example, tomato) which are host (susceptible interaction) to pathovars of this and related pathogens.

Dissecting early plant defense strategies activated upon insect pest attack

Insect herbivory causes great amount of crop loss worldwide. We use *Arabidopsis* and its herbivore pest *Spodoptera litura* (cutworm), as model system to study early and rapidly active defense pathways that help in herbivory recognition. We have identified Ca^{2+} ion conducting cyclic nucleotide gated channels (CNGC) as early targets of insect elicitors and are functionally characterizing their role in herbivory. Plants have evolved sophisticated defense mechanism to counteract herbivorous insect via jasmonic acid (JA) dependent signaling cascade. How plants rapidly sense this bioactive JA1e burst in

cytosol is not known. To dissect this a high throughput forward genetic screen is being undertaken, using JA-Ile induced cytosolic Ca^{2+} elevation in *Arabidopsis* as a marker, to identify mutants involved in cytosolic JA-Ile perception. We have performed EMS-mutagenesis in *Arabidopsis* Ca^{2+} reporter, aequorin and are generating heterozygous M1 plants. By both approaches we aim to understand how plants defend rapidly against insect herbivores.

G. Emerging Areas

Elucidation of protein level interactions to define arrangement of subunits in *Arabidopsis* mediator complex

Mediator is a gigantic multi-protein complex involved in transcriptional regulation of class II genes. We do not know the molecular details of Mediator functioning in plants. In this study we tried to understand the arrangement of subunits to understand the possible architecture of *Arabidopsis* Mediator complex. Our results reveal existence of two triads, Med6-Med11-Med22 and Med20-Med18-Med19, in the Head module. In Middle module, Med31 brings Med4, Med9 and Med7 together by interacting with them. Med21, Med9 and Med7 form a triad and Med10 interacts with Med4. In Tail module, we observed formation of a triad by Med2, Med3 and Med15. Interaction between Med6 and Med31 can bring Head and Middle modules together. Overall, Med10 of Middle emerged as the main connecting link between all the core modules of Mediator complex in *Arabidopsis*. This study can be helpful in understanding of mechanism of Mediator functioning in plants.

Evolution of disorder in mediator complex and its functional relevance

Mediator complex is a gigantic multiprotein complex found in all the eukaryotes. In response to different signals, Mediator interacts with diverse transcription factors, cofactors and other proteins. These interactions change the overall conformation of Mediator complex, highlighting its structural flexibility. We found that primary amino acid sequences of many of the Mediator subunits contain disordered regions. We suggest that these disordered regions might have evolved to render flexibility to the complex and make it accommodate so many interactions, some of them specific to different kingdoms. Our analysis revealed that the placement of Intrinsically Disordered Regions (IDRs) in some subunits is evolutionarily conserved across the kingdoms. However, in many subunits, the kingdom- or group-specific positioning of IDRs is also observed. IDRs are known to modulate the protein's functional profile through short stretches of preformed elements called MoRFs which impart low affinity but high specificity for the interacting partner. We have suggested a new concept of 'junction-MoRF' and demonstrated its role in the evolution of CBP KIX from Med15 KIX.

Molecular and functional characterization of $\Delta 7$ -sterol-C-5-desaturase to explore its importance in plants

We have expressed gene of C-5 sterol (FvC5SD) desaturase from an edible fungus *Flammulina velutipes* to drought susceptible rice cultivar Pusa Basmati to improve epicuticular wax. We also characterized the tomato *LeC5SD* by performing phenotypic complementation of C-5 sterol desaturase mutant of *Arabidopsis* showing dwarf phenotype. When *LeC5SD* was expressed in *Arabidopsis* the transformants showed rescue of dwarf phenotype having more length as compared to dwarf mutants. Localization study showed the presence of *LeC5SD* in the outer cell membrane. For functional characterization of *LeC5SD*, we have generated tomato transgenic lines silenced for C-5

sterol desaturase and over-expressing the gene. Flowers, fruits and leaves of RNAi lines were smaller compared to wild type. Moreover, RNAi lines are much more susceptible to drought, salinity and pathogen stress compared to wild type. Over-expression lines were found to be more tolerant than wild type as well as that expressing FvC5SD for drought and pathogen stress.

Characterization of miRNA generating complex in *Oryza sativa*

The biogenesis of microRNA requires complex formation of DRB with DCL1 in *Arabidopsis*. The AtDRB1 protein associates with AtDCL1 and accurately processes pri-miRNAs first to pre-miRNAs and finally to mature miRNAs. The monocot model crop plant *Oryza sativa* encodes four orthologs of AtDRB1 proteins, the only one encoded by *Arabidopsis*. We report the functionality of the OsDRBs as the orthologs of AtDRB1 by using RNA binding assays and *in-planta* protein-protein interaction analysis. Further, MPK3 is established as the kinase phosphorylating the AtDRB1/HYL1 protein in both the model plants *Oryza sativa* and *Arabidopsis*. The microRNA microarray analysis in *atmpk3* and *atmpk6* mutants indicates the importance of AtMPK3 in maintaining the level of miRNAs in the plant.

Dissecting the heterotrimeric G-protein signaling in polyploid *Brassica* crops

We have identified G-protein members from polyploid *Brassica* species, including allotetraploid *B. juncea* which encodes two G α , six G β and eight G γ subunit genes, with highest possible G $\alpha\beta\gamma$ heterotrimer combinations from any *Brassica* species. In depth expression and interaction analysis suggested that tissue and condition specific G $\alpha\beta\gamma$ functional heterotrimer may exist. A series of over-expression and RNAi based knock-down *B. juncea* transgenic lines were developed and currently being analyzed. In addition, we are also investigating the biochemical and transcriptional regulation of G-proteins components including G α subunit and regulator of G-protein signalling (RGS) proteins from *Brassica* species. The *in-vitro* GTP-binding and GTP-hydrolysis assay suggests that the *Brassica* G α and RGS have retained a very high degree of functional conservation during evolution. Interestingly, the divergent RGS proteins showed differential transcriptional regulation during plant development and in response to various elicitor treatments, to control the G-protein signaling cycle.

Novel roles of nitric oxide under hypoxia and post hypoxia

Plant tissues encounter hypoxia during flooding stress and the deleterious effect on energy production has a major impact on crop productivity. Under hypoxic/anoxic conditions various tissues produce considerable amount of nitric oxide (NO), a gaseous free radical, using nitrate reductase (NR) and mitochondrial electron transport. Hypoxia/hypoxic release lead to enhanced reactive oxygen species (ROS) production. Using WT and nitrate reductase mutant we found that nitric oxide protects plants from hypoxia induced ROS production by inducing various antioxidant enzymes. We also found that nitric oxide induces aerenchyma formation for plant survival under flooding stress.

Publications and Patents

Publications

2015

1. Ara H and Sinha AK (2015) Role of mitogen activated protein kinase cascade in combating abiotic stress in plants. In: Pandey GK (ed), Elucidation of Abiotic Stress Signaling in Plants. Springer Science, New York, USA (In Press).
2. Bajaj D, Saxena MS, Kujur A, Das S, Badoni S, Tripathi S, Upadhyaya HD, Gowda CLL, Sharma S, Singh S, Tyagi AK and Parida SK (2015) Genome-wide conserved non-coding microsatellite (CNMS) marker-based integrative genetical genomics for quantitative dissection of seed weight in chickpea. J. Exp. Bot. 66: 1271-1290.
3. Bajaj D, Upadhyaya HD, Khan Y, Das S, Badoni S, Shree T, Kumar V, Tripathi S, Gowda CLL, Singh S, Sharma S, Tyagi AK, Chattopadhyay D and Parida SK (2015) A combinatorial approach of comprehensive QTL-based comparative genome mapping and transcript profiling identified a seed weight-regulating candidate gene in chickpea. Sci. Rep. 5: 9264.
4. Balyan SC, Mutum RD, Kansal S, Kumar S, Mathur S and Raghuvanshi S (2015) Insights into the small RNA mediated networks in response to abiotic stress in plants. In: Pandey GK (ed), Elucidation of Abiotic Stress Signaling in Plants. Springer Science, New York, USA (In Press).
5. Bhattacharjee A, Ghangal R, Garg R and Jain M (2015) Genome-wide analysis of homeobox gene family in legumes: identification, gene duplication and expression profiling. PLoS One 10: e0119198.
6. Bisht NC, Jagannath A, Augustine R, Burma PK, Gupta V, Pradhan AK and Pental D (2015) Effective restoration of male-sterile (*barnase*) lines requires overlapping and higher levels of barstar expression: A multi-generation field analysis in *Brassica juncea*. J. Plant Biochem. Biotechnol. (In Press).
7. Chakraborty N (2015) Rice proteomics and beyond. J. Rice Res. 3: 1000e113.
8. Chandra A, Verma PK, Islam MN, Grisham MP, Jain R, Sharma A, Roopendra K, Singh K, Singh P, Verma I and Solomon S (2015) Expression analysis of genes associated with sucrose accumulation in sugarcane (*Saccharum* spp. hybrids) varieties differing in content and time of peak sucrose storage. Plant Biol. 17: 608-617.
9. Dhariwal R, Gahlaut V, Govindraj BR, Singh D, Mathur S, Vyas S, Bandopadhyay R, Khurana JP, Tyagi AK, Prabhu KV, Mukhopadhyay K, Balyan HS and Gupta PK (2015) Stage-specific reprogramming of gene expression characterizes *Lr48*-mediated adult plant leaf rust resistance in wheat. Funct. Integr. Genomics (In Press).

10. Das S, Upadhyaya HD, Bajaj D, Kujur A, Badoni S, Laxmi, Kumar V, Tripathi S, Gowda CL, Sharma S, Singh S, Tyagi AK and Parida SK (2015) Deploying QTL-seq for rapid delineation of a potential candidate gene underlying major trait-associated QTL in chickpea. DNARes. (In Press).
11. Garg R, Bhattacharjee A and Jain M (2015) Genome-scale transcriptomic insights into molecular aspects of abiotic stress responses in chickpea. Plant Mol. Biol. Rep. (In Press).
12. Gautam V and Sarkar AK (2015) Laser assisted microdissection, an efficient technique to understand tissue specific gene expression patterns and functional genomics in plants. Mol. Biotechnol. 57: 299-308.
13. Gupta A, Singh M and Laxmi A (2015) Interaction between glucose and brassinosteroid during regulation of lateral root development in *Arabidopsis thaliana*. Plant Physiol. 168: 307-320.
14. Gupta S, Garg V and Bhatia S (2015) A new set of ESTs from chickpea (*Cicer arietinum* L.) embryo reveals two novel F-box genes, *CarF-box_PP2* and *CarF-box_LysM*, with potential roles in seed development. PLoS One 10: e0121100.
15. Gupta S, Garg V, Kant C and Bhatia S (2015) Genome-wide survey and expression analysis of F-box genes in chickpea. BMC Genomics 16: 67.
16. Gupta S, Malviya N, Kushwaha H, Nasim J, Bisht NC, Singh VK and Yadav D (2015) Insights into structural and functional diversity of Dof (DNA binding with one finger) transcription factor. Planta (In Press).
17. Heikrujam M, Sharma K, Prasad M and Agrawal V (2015) Review on different mechanisms of sex determination and sex-linked molecular markers in dioecious crops: a current update. Euphytica 201: 161-194.
18. Kamthan A, Chaudhuri A, Kamthan M and Datta A (2015) Small RNAs in plants: recent development and application for crop improvement. Front. Plant Sci. 6: 208.
19. Kansal S, Devi RM, Balyan SC, Arora MK, Singh AK, Mathur S and Raghuvanshi S (2015) Unique miRNome during anthesis in drought-tolerant *indica* rice var. Nagina 22. Planta (In Press).
20. Khujuria YP, Saxena MS, Gaur R, Chattopadhyay D, Jain M, Parida SK and Bhatia S (2015) Development and integration of genome-wide polymorphic microsatellite markers onto a reference linkage map for constructing a high-density genetic map of chickpea. PLoS One 10: e0125583.
21. Kujur A, Bajaj D, Upadhyaya HD, Das S, Ranjan R, Shree T, Saxena MS, Badoni S, Kumar V, Tripathi S, Gowda CL, Sharma S, Singh S, Tyagi AK and Parida SK (2015) Employing genome-wide SNP discovery and genotyping strategy to extrapolate the natural allelic diversity and domestication patterns in chickpea. Front. Plant Sci. 6: 162.

22. Kujur A, Upadhyaya HD, Shree T, Bajaj D, Das S, Saxena MS, Badoni S, Kumar V, Tripathi S, Gowda CL, Sharma S, Singh S, Tyagi AK and Parida SK (2015) Ultra-high density intra-specific genetic linkage maps accelerate identification of functionally relevant molecular tags governing important agronomic traits in chickpea. *Sci. Rep.* 5: 9468.
23. Kumar K, Muthamilarasan M, Bonthala VS, Roy R and Prasad M (2015) Unraveling 14-3-3 proteins in C4 panicoids with emphasis on model plant *Setaria italica* reveals phosphorylation-dependent subcellular localization of RS splicing factor. *PLoS One* 10: e0123236.
24. Kumar R, Agarwal P, Pareek A, Tyagi AK and Sharma AK (2015) Genomic survey, gene expression, and interaction analysis suggest diverse roles of ARF and Aux/IAA proteins in Solanaceae. *Plant Mol. Biol. Rep.* (In Press).
25. Kumar S, Kumari R and Pandey R (2015) New insight-guided approaches to detect, cure, prevent and eliminate malaria. *Protoplasma* 252: 717-753.
26. Kumar V and Jain M (2015) The CRISPR-Cas system for plant genome editing: advances and opportunities. *J. Exp. Bot.* 66: 47-57.
27. Kushwaha N, Sahu PP, Prasad M and Chakraborty S (2015) *Chilli leaf curl virus* infection highlights the differential expression of genes involved in protein homeostasis and defense in resistant chilli plants. *Appl. Microbiol. Biotechnol* (In Press).
28. Lata C, Muthamilarasan M and Prasad M (2015) Drought stress responses and signal transduction in plants. In: Pandey GK (ed), *Elucidation of Abiotic Stress Signaling in Plants*. Springer Science, New York, USA (In Press).
29. Meenu, Augustine R, Majee M, Pradhan AK and Bisht NC (2015) Genomic origin, expression differentiation and regulation of multiple genes encoding CYP83A1, a key enzyme for core glucosinolate biosynthesis, from the allotetraploid *Brassica juncea*. *Planta* 241: 651-665.
30. Mukhopadhyay P and Tyagi AK (2015) OsTCP19 influences developmental and abiotic stress signaling by modulating ABI4-mediated pathways. *Sci. Rep.* 5: 9998.
31. Muthamilarasan M and Prasad M (2015) Advances in *Setaria* genomics for genetic improvement of cereals and bioenergy grasses. *Theor. Appl. Genet.* 128: 1-14.
32. Muthamilarasan M and Prasad M (2015) Role of genomics in enhancing nutrition content of cereals. In: Al-Khayri JM, Jain SM, Johnson DV (eds), *Advances in Plant Breeding Strategies, Vol 2: Agronomic, Abiotic and Biotic Stress Traits*. Springer, Switzerland (In Press).
33. Mysore KS and Senthil-Kumar M (eds.) (2015) *Plant Gene Silencing: Methods and Protocols*. (Book Series: Methods in Mol. Biol. Vol. 1287). Springer Science, New York, USA, pp 1-307.

34. Pandey P, Sinha R, Mysore KS and Senthil-Kumar M (2015) Impact of concurrent drought stress and pathogen infection on plants. In: Mahalingam R (ed), Combined Stresses in Plants. Springer Science, New York, USA, pp 203-222.
35. Pandey P, Senthil-Kumar M and Mysore KS (2015) Advances in plant gene silencing methods. In: Mysore KS, Senthil-Kumar M (eds.), Plant Gene Silencing: Methods and Protocols (Series: Methods in Mol. Biol. Vol. 1287). Springer Science, New York, USA, pp 3-23.
36. Priya P, Bandhiwal N, Misra G, Mondal S and Yadav G (2015) IGMAP: An interactive mapping and clustering platform for plants. Mol. Plant (In Press).
37. Raghuram B, Sheikh AH, Rustagi Y and Sinha AK (2015) MicroRNA biogenesis factor DRB1 is a phosphorylation target of mitogen activated protein kinase, MPK3 in both rice and *Arabidopsis*. FEBS J. 282: 521-536.
38. Rai V, Sanagala R, Sinilal B, Yadav S, Sarkar AK, Dantu PK and Jain A (2015) Iron availability affects phosphate deficiency-mediated responses, and evidences of cross talk with auxin and zinc in *Arabidopsis*. Plant Cell Physiol. (In Press).
39. Ramegowda V and Senthil-Kumar M (2015) The interactive effects of simultaneous biotic and abiotic stresses on plants: Mechanistic understanding from drought and pathogen combination. J. Plant Physiol. 176: 47-54.
40. Sahu PP and Prasad M (2015) Application of molecular antiviral compounds: novel approach for durable resistance against geminiviruses. Mol. Biol. Rep. (In Press).
41. Samanta S and Thakur JK (2015) Role of plant mediator complex in stress response. In: Pandey GK (ed), Elucidation of Abiotic Stress Signaling in Plants. Springer Science, New York, USA (In Press).
42. Scholz SS, Reichelt M, Vadassery J and Mithöfer A (2015) Calmodulin-like protein CML37 is a positive regulator of ABA during drought stress in *Arabidopsis*. Plant Signal. Behav. (In Press).
43. Sharma E, Sharma R, Borah P, Jain M and Khurana JP (2015) Emerging roles of auxin in abiotic stress responses. In: Pandey GK (ed), Elucidation of Abiotic Stress Signaling in Plants. Springer Science, New York, USA, pp 299-328.
44. Singh P, Mohanta TK and Sinha AK (2015) Unraveling the intricate nexus of molecular mechanisms governing rice root development: OsMPK3/6 and auxin-cytokinin interplay. PLoS One 10: e0123620.
45. Singh VK, Jain M and Garg R (2015) Genome-wide analysis and expression profiling suggest diverse roles of *GH3* genes during development and abiotic stress responses in legumes. Front. Plant Sci. 5: 789.

46. Srivastava S, Bharti RK, Verma PK and Thakur IS (2015) Cloning and expression of gamma carbonic anhydrase from *Serratia* sp. ISTD04 for sequestration of carbon dioxide and formation of calcite. *Bioresour. Technol.* (In Press).
47. Thakore D, Srivastava AK and Sinha AK (2015) Model based fed batch cultivation and elicitation for the overproduction of ajmalicine from hairy roots of *Catharanthus roseus*. *Biochem. Eng. J.* 97: 73-80.
48. Verma P, Chandra A, Roy AK, Malaviya DR, Kaushal P, Pandey D and Bhatia S (2015) Development, characterization and cross-species transferability of genomic SSR markers in berseem (*Trifolium alexandrinum* L.), an important multi-cut annual forage legume. *Mol. Breed.* 35: 23.
49. Yadav CB, Bhareti P, Muthamilarasan M, Mukherjee M, Khan Y, Rathi P and Prasad M (2015) Genome-wide SNP identification and characterization in two soybean cultivars with contrasting *Mungbean Yellow Mosaic India Virus* disease resistance traits. *PLoS One* 10: e0123897.
50. Yadav CB, Bonthala VS, Muthamilarasan M, Pandey G, Khan Y and Prasad M (2015) Genome-wide development of transposable elements-based markers in foxtail millet and construction of an integrated database. *DNA Res.* 22: 79-90.
51. Yadav CB, Muthamilarasan M, Pandey G and Prasad M (2015) Identification, characterization and expression profiling of Dicer-like, Argonaute and RNA-dependent RNA polymerase gene families in foxtail millet. *Plant Mol. Biol. Rep.* (In Press).
52. Yadav M, Babu S and Yadav G (2015) Patterns of codon usage in plastidial genomes of ancient plants provide insights into evolution. *Proc. Int. Conf. Bioinformatics Models, Methods and Algorithms 2015*: 144-149.

2014

53. Abbas N and Chattopadhyay S (2014) CAM7 and HY5 genetically interact to regulate root growth and abscisic acid responses. *Plant Signal. Behav.* 9: e29763.
54. Abbas N, Maurya JP, Senapati D, Gangappa SN and Chattopadhyay S (2014) *Arabidopsis* CAM7 and HY5 physically interact and directly bind to the *HY5* promoter to regulate its expression and thereby promote photomorphogenesis. *Plant Cell* 26: 1036-1052.
55. Adil M, Singh K, Verma PK and Khan AU (2014) Eugenol-induced suppression of biofilm-forming genes in *Streptococcus mutans*: An approach to inhibit biofilms. *J. Glob. Antimicrob. Resist.* 2: 286-292.
56. Agarwal P, Parida SK, Mahto A, Das S, Mathew IE, Malik N and Tyagi AK (2014) Expanding frontiers in plant transcriptomics in aid of functional genomics and molecular breeding. *Biotechnol. J.* 9: 1480-1492.

57. Ahmed F, Senthil-Kumar M, Lee S, Dai X, Mysore KS and Zhao PX (2014) Comprehensive analysis of small RNA-seq data reveals that combination of miRNA with its isomiRs increase the accuracy of target prediction in *Arabidopsis thaliana*. RNA Biol. 11: 1414-1429.
58. Ara H and Sinha AK (2014) Conscientiousness of mitogen activated protein kinases in acquiring tolerance for abiotic stresses in plants. Proc. Ind. Natl. Sci. Acad. 80: 211-219.
59. Arya GC, Kumar R and Bisht NC (2014) Evolution, expression differentiation and interaction specificity of heterotrimeric G-protein subunit gene family in the mesohexaploid *Brassica rapa*. PLoS One 9: e105771.
60. Augustine R, Arya GC, Nambiar DM, Kumar R and Bisht NC (2014) Translational genomics in Brassica crops: challenges, progress, and future prospects. Plant Biotechnol. Rep. 8: 65-81.
61. Bahl JR, Bansal RP, Garg SN, Gupta MM, Singh V, Goel R and Kumar S (2014) Variation in yield of curcumin and yield and quality of leaf and rhizome essential oils among Indian land races of turmeric *Curcuma longa* L. Proc. Ind. Natl. Sci. Acad. 80: 143-156.
62. Bansal RP, Bahl JR, Lal RK, Singh V and Kumar S (2014) Development of technology for large-scale economic production of propagules in the rose-scented geranium (*Pelargonium graveolens*). Journal of Herbs, Spices and Medicinal Plants 20: 282-294.
63. Barik S, Sarkardas S, Singh A, Gautam V, Kumar P, Majee M and Sarkar AK (2014) Phylogenetic analysis reveals conservation and diversification of micro RNA166 genes among diverse plant species. Genomics 103: 114-121.
64. Bonthala VS, Muthamilarasan M, Roy R and Prasad M (2014) FmTFDb: a foxtail millet transcription factors database for expediting functional genomics in millets. Mol. Biol. Rep. 41: 6343-6348.
65. Dansana PK, Kothari KS, Vij S and Tyagi AK (2014) *OsiSAP1* overexpression improves water-deficit stress tolerance in transgenic rice by affecting expression of endogenous stress-related genes. Plant Cell Rep. 33: 1425-1440.
66. Das A and Parida SK (2014) Advances in biotechnological applications in three important food legumes. Plant Biotechnol. Rep. 8: 83-99.
67. Das B, Sengupta S, Prasad M and Ghose TK (2014) Genetic diversity of the conserved motifs of six bacterial leaf blight resistance genes in a set of rice landraces. BMC Genetics 15: 82.
68. Gahlaut V, Mathur S, Dhariwal R, Khurana JP, Tyagi AK, Balyan HS and Gupta PK (2014) A multi-step phosphorelay two-component system impacts on tolerance against dehydration stress in common wheat. Funct. Integr. Genomics 14: 707-716.

69. Garg R, Kumari R, Tiwari S and Goyal S (2014) Genomic survey, gene expression analysis and structural modeling suggest diverse roles of DNA methyltransferases in legumes. *PLoS One* 9: e88947.
70. Garg R, Varshney RK and Jain M (2014) Molecular genetics and genomics of abiotic stress responses. *Front. Plant Sci.* 5: 398.
71. Garg R, Verma M, Agrawal S, Shankar R, Majee M and Jain M (2014) Deep transcriptome sequencing of wild halophyte rice, *Porteresia coarctata*, provides novel insights into the salinity and submergence tolerance factors. *DNA Res.* 21: 69-84.
72. Gaur R, Bhatia S and Gupta M (2014) Generation of expressed sequence tags under cadmium stress for gene discovery and development of molecular markers in chickpea. *Protoplasma* 251: 955-972.
73. Ghosh S, Gupta SK and Jha G (2014) Identification and functional analysis of AG1-IA specific genes of *Rhizoctonia solani*. *Curr. Genet.* 60: 327-341.
74. Ghosh S, Rao KH, Bhavesh NS, Das G, Dwivedi VP and Datta A (2014) N-acetylglucosamine (GlcNAc) inducible gene, *GIG2*, is a novel component of GlcNAc metabolism in *Candida albicans*. *Eukaryot. Cell* 13: 66-76.
75. Gupta N, Prasad VBR and Chattopadhyay S (2014) LeMYC2 acts as a negative regulator of blue light mediated photomorphogenic growth, and promotes the growth of adult tomato plants. *BMC Plant Biol.* 14: 38.
76. Gupta S, Kumari K, Muthamilarasan M, Parida SK and Prasad M (2014) Population structure and association mapping of yield contributing agronomic traits in foxtail millet. *Plant Cell Rep.* 33: 881-893.
77. Gupta S, Kushwaha H, Singh VK, Bisht NC, Sarangi BK and Yadav D (2014) Genome wide in silico characterization of Dof transcription factor gene family of sugarcane and its comparative phylogenetic analysis with *Arabidopsis*, rice and sorghum. *Sugar Tech* 16: 372-384.
78. Hasan S, Singh K, Danisuddin M, Verma PK and Khan A U (2014) Inhibition of major virulence pathways of *Streptococcus mutans* by Quercitrin and Deoxynojirimycin: a synergistic approach of infection control. *PLoS One* 9: e91736.
79. Hema R, Ramu SV, Shivkumar S, Reddy PC, Senthil-Kumar M and Udayakumar M (2014) Stable expression of *m1D* gene imparts multiple stress tolerance in finger millet. *PLoS One* 9: e99110.
80. Irfan M, Ghosh S, Kumar V, Chakraborty N, Chakraborty S and Datta A (2014) Insights into transcriptional regulation of β -D-N-acetylhexosaminidase, an N-glycan-processing enzyme involved in ripening-associated fruit softening. *J. Exp. Bot.* 65: 5835-5848.

81. Jain M, Chevala VVSN and Garg R (2014) Genome-wide discovery and differential regulation of conserved and novel microRNAs in chickpea via deep sequencing. *J. Exp. Bot.* 65: 5945-5958.
82. Jain M, Moharana KC, Shankar R, Kumari R and Garg R (2014) Genome-wide discovery of DNA polymorphisms in rice cultivars with contrasting drought and salinity stress response and their functional relevance. *Plant Biotechnol. J.* 12: 253-264.
83. Jaiswal DK, Mishra P, Subba P, Rathi D, Chakraborty S and Chakraborty N (2014) Membrane-associated proteomics of chickpea identifies Sad1/UNC-84 protein (CaSUN1), a novel component of dehydration signaling. *Sci. Rep.* 4: 4177.
84. Kamthan M, Nalla VK, Ruhela D, Kamthan A, Maiti P and Datta A (2014) Characterization of a putative spindle assembly checkpoint kinase Mps1, suggests its involvement in cell division, morphogenesis and oxidative stress tolerance in *Candida albicans*. *PLoS One* 9: e101517.
85. Kaur C, Mustafiz A, Sarkar AK, Ariyadasa TU, Singla-Pareek SL and Sopory SK (2014) Expression of abiotic stress inducible ETHE1-like protein from rice is higher in roots and is regulated by calcium. *Physiol. Plant.* 152: 1-16.
86. Khan Y, Yadav A, Suresh VB, Muthamilarasan M, Yadav CB and Prasad M (2014) Comprehensive genome-wide identification and expression profiling of foxtail millet [*Setaria italica* (L.)] miRNAs in response to abiotic stress and development of miRNA database. *Plant Cell Tiss. Organ Cult.* 118: 279-292.
87. K MJ and Laxmi A (2014) DUF581 is plant specific FCS-like zinc finger involved in protein-protein interaction. *PLoS One* 9: e99074.
88. Kujur A, Bajaj D, Saxena MS, Tripathi S, Upadhyaya HD, Gowda CLL, Singh S, Tyagi AK, Jain M and Parida SK (2014) An efficient and cost-effective approach for genic microsatellite marker-based large-scale trait association mapping: identification of candidate genes for seed weight in chickpea. *Mol. Breed.* 34: 241-265.
89. Kumar K and Sinha AK (2014) Genome-wide transcriptome modulation in rice transgenic lines expressing engineered mitogen activated protein kinase kinase 6. *Plant Signal. Behav.* 9: e28502.
90. Kumar R, Arya GC and Bisht NC (2014) Differential expression and interaction specificity of heterotrimeric G-protein family in *Brassica nigra* reveal their developmental-and condition-specific roles. *Plant Cell Physiol.* 55: 1954-1968.
91. Kumar R, Kumar A, Subba P, Gayali S, Barua P, Chakraborty S and Chakraborty N (2014) Nuclear phosphoproteome of developing chickpea seedlings (*Cicer arietinum* L.) and protein-kinase interaction network. *J. Proteomics* 105: 58-73.

92. Kumar S, Kumari R and Sharma V (2014) Genetics of dioecy and causal sex chromosomes in plants. *J. Genet.* 93: 241-277.
93. Kumar S, Shah N, Garg V and Bhatia S (2014) Large scale in-silico identification and characterization of simple sequence repeats (SSRs) from de novo assembled transcriptome of *Catharanthus roseus* (L.) G. Don. *Plant Cell Rep.* 33: 905-918.
94. Kumari S, Pundhir S, Priya P, Jeena G, Punetha A, Chawla K, Jafaree Z, Mondal S and Yadav G (2014) EssOilDB: A database of essential oils reflecting terpene composition and variability in the plant kingdom. *Database* 2014: bau120.
95. Lata C, Mishra AK, Muthamilarasan M, Bonthala VS, Khan Y and Prasad M (2014) Genome-wide investigation and expression profiling of AP2/ERF transcription factor superfamily in foxtail millet (*Setaria italica* L.). *PLoS One* 9: e113092.
96. Lata C and Prasad M (2014) Association of an allele-specific marker with dehydration stress tolerance in foxtail millet suggests SiDREB2 to be an important QTL. *J. Plant Biochem. Biotechnol.* 23: 119-122.
97. Mishra AK, Muthamilarasan M, Khan Y, Parida SK and Prasad M (2014) Genome-wide investigation and expression analyses of WD40 protein family in the model plant foxtail millet (*Setaria italica* L.). *PLoS One* 9: e86852.
98. Misra G, Priya P, Bandhiwal N, Bareja N, Jain M, Bhatia S, Chattopadhyay D, Tyagi AK and Yadav G (2014) The chickpea genomic web resource: visualization and analysis of the desi-type *Cicer arietinum* nuclear genome for comparative exploration of legumes. *BMC Plant Biol.* 14: 315.
99. Muthamilarasan M, Bonthala VS, Mishra AK, Khandelwal R, Khan Y, Roy R and Prasad M (2014) C₂H₂ type of zinc finger transcription factors in foxtail millet define response to abiotic stresses. *Funct. Integr. Genomics* 14: 531-543.
100. Muthamilarasan M, Khandelwal R, Yadav CB, Bonthala VS, Khan Y and Prasad M (2014) Identification and molecular characterization of MYB transcription factor superfamily in C4 model plant foxtail millet (*Setaria italica* L.). *PLoS One* 9: e109920.
101. Muthamilarasan M, Parida SK and Prasad M (2014) Advances in wheat genomics and its potential in ensuring food security in the scenario of climate change. *Proc. Ind. Natl. Sci. Acad.* 80: 325-331.
102. Muthamilarasan M and Prasad M (2014) An overview of wheat genome sequencing and its implications for crop improvement. *J. Genet.* 93: 619-622.
103. Muthamilarasan M and Prasad M (2014) Impact of Impact Factor in quantifying the quality of scientific research. *Curr. Sci.* 107: 1233-1234.

104. Muthamilarasan M, Venkata Suresh B, Pandey G, Kumari K, Parida SK and Prasad M (2014) Development of 5123 intron-length polymorphic markers for large-scale genotyping applications in foxtail millet. *DNA Res.* 21: 41-52.
105. Nizam S, Gazara RK, Verma S, Singh K and Verma PK (2014) Comparative structural modeling of six old yellow enzymes (OYEs) from the necrotrophic fungus *Ascochyta rabiei*: Insight into novel OYE classes with differences in cofactor binding, organization of active site residues and stereopreferences. *PLoS One* 9: e95989.
106. Nizam S, Verma S, Borah NN, Gazara RK and Verma PK (2014) Comprehensive genome-wide analysis reveals different classes of enigmatic old yellow enzyme in fungi. *Sci. Rep.* 4: 4013.
107. Pradhan S, Bandhiwal N, Shah N, Kant C, Gaur R and Bhatia S (2014) Global transcriptome analysis of developing chickpea (*Cicer arietinum* L.) seeds. *Front. Plant Sci.* 5: 698.
108. Raghuram B, Sheikh AH and Sinha AK (2014) Regulation of MAP kinase signaling cascade by microRNAs in *Oryza sativa*. *Plant Signal. Behav.* 9: e972130.
109. Ram H, Priya P, Jain M and Chattopadhyay S (2014) Genome-wide DNA binding of GBF1 is modulated by its heterodimerizing protein partners, HY5 and HYH. *Mol. Plant* 7: 448-451.
110. Ramegowda V, Mysore KS and Senthil-Kumar M (2014) Virus-induced gene silencing is a versatile tool for unraveling the functional relevance of multiple abiotic-stress-responsive genes in crop plants. *Front. Plant Sci.* 5: 323.
111. Rao KH, Ruhela D, Ghosh S, Abdin MZ and Datta A (2014) N-acetylglucosamine kinase, *HXK1* contributes to White-Opaque morphological transition in *Candida albicans*. *Biochem. Biophys. Res. Comm.* 445: 138-144.
112. Rojas CM, Senthil-Kumar M, Tzin V and Mysore KS (2014) Regulation of primary plant metabolism during plant-pathogen interactions and its contribution to plant defense. *Front. Plant Sci.* 5: 17.
113. Sahu PP, Sharma N, Puranik S, Muthamilarasan M and Prasad M (2014) Involvement of host regulatory pathways during geminivirus infection: a novel platform for generating durable resistance. *Funct. Integr. Genomics* 14: 47-58.
114. Sahu PP, Sharma N, Puranik S and Prasad M (2014) Post-transcriptional and epigenetic arms of RNA silencing: a defense machinery of naturally tolerant tomato plant against *Tomato leaf curl New Delhi virus*. *Plant Mol. Biol. Rep.* 32: 1015-1029.
115. Saroj S, Kumar K, Prasad M and Singh RP (2014) Differential expression of peroxidase and ABC transporter as the key regulatory components for degradation of azo dyes by *Penicillium oxalicum* SAR-3. *Funct. Integr. Genomics* 14: 631-642.

116. Saxena MS, Bajaj D, Das S, Kujur A, Kumar V, Singh M, Bansal KC, Tyagi AK and Parida SK (2014) An integrated genomic approach for rapid delineation of candidate genes regulating agro-morphological traits in chickpea. *DNA Res.* 21: 695-710.
117. Saxena MS, Bajaj D, Kujur A, Shouvik S, Saurabh B, Kumar V, Singh M, Bansal KC, Tyagi AK and Parida SK (2014) Natural allelic diversity, genetic structure and linkage disequilibrium pattern in wild chickpea. *PLoS One* 9: e107484.
118. Schrick K, Bruno M, Khosla A, Cox PN, Marlatt SA, Roque RA, Nguyen HC, He C, Snyder MP, Singh D and Yadav G (2014) Shared functions of plant and mammalian StAR-related lipid transfer (START) domains in modulating transcription factor activity. *BMC Biol.* 12: 70.
119. Sengupta S, Das B, Acharyya P, Prasad M and Ghose T (2014) Genetic diversity analysis in a set of Caricaceae accessions using resistance gene analogues. *BMC Genetics* 15: 137.
120. Senthil-Kumar M and Mysore KS (2014) Tobacco rattle virus-based virus-induced gene silencing in *Nicotiana benthamiana*. *Nature Protocols* 9: 1549-1562.
121. Sethi V, Raghuram B, Sinha AK and Chattopadhyay S (2014) A mitogen-activated protein kinase cascade module, MKK3-MPK6 and MYC2, is involved in blue light-mediated seedling development in *Arabidopsis*. *Plant Cell* 26: 3343-3357.
122. Sharma M, Singh A, Shankar A, Pandey A, Baranwal V, Kapoor S, Tyagi AK and Pandey GK (2014) Comprehensive expression analysis of rice Armadillo gene family during abiotic stress and development. *DNA Res.* 21: 267-283.
123. Sharma R, Sahoo A, Devendran R and Jain M (2014) Over-expression of a rice tau class glutathione S-transferase gene improves tolerance to salinity and oxidative stresses in *Arabidopsis*. *PLoS One* 9: e92900.
124. Sharma V, Kumar A and Kumar S (2014) An analysis of vascular system in the compound tendrilled *afila* leaf in *Pisum sativum*. *Indian J. Exp. Biol.* 52: 664-668.
125. Sheikh AH, Raghuram B, Eschen-Lippold L, Scheel D, Lee J and Sinha AK (2014) Agroinfiltration by cytokinin-producing *Agrobacterium* strain GV3101 primes defense responses in *Nicotiana tabacum*. *Mol. Plant Microbe Interact.* 27: 1175-1185.
126. Shekhar S, Mishra D, Buragohain AK, Chakraborty S and Chakraborty N (2014) Comparative analysis of phytochemicals and nutrient availability in two contrasting cultivars of sweet potato (*Ipomoea batatas* L.). *Food Chemistry* 173: 957-965.
127. Shrivastava D, Verma P and Bhatia S (2014) Expanding the repertoire of microsatellite markers for polymorphism studies in Indian accessions of mung bean (*Vigna radiata* L. Wilczek). *Mol. Biol. Rep.* 41: 5669-5680.

128. Singh A, Kanwar P, Yadav AK, Mishra M, Jha SK, Baranwal V, Pandey A, Kapoor S, Tyagi AK and Pandey GK (2014) Genome-wide expressional and functional analysis of calcium transport elements during abiotic stress and development in rice. *FEBS J.* 281: 894-915.
129. Singh A, Singh S, Panigrahi KCS, Reski R and Sarkar AK (2014) Balanced activity of microRNA166/165 and its target transcripts from the class III homeodomain leucine-zipper family regulates root growth in *Arabidopsis thaliana*. *Plant Cell Rep.* 33: 945-953.
130. Singh M, Gupta A and Laxmi A (2014) Glucose and phytohormone interplay in controlling root directional growth in *Arabidopsis*. *Plant Signal. Behav.* 9: e29219.
131. Singh M, Gupta A and Laxmi A (2014) Glucose control of root growth direction in *Arabidopsis thaliana*. *J. Exp. Bot.* 65: 2981-2993.
132. Singh VK and Jain M (2014) Transcriptome profiling for discovery of genes involved in shoot apical meristem and flower development. *Genomics Data* 2: 135-138.
133. Srivastava S, Pandey R, Kumar S and Nautiyal CS (2014) Correspondence between flowers and leaves in terpenoid indole alkaloid metabolism of the phytoplasma-infected *Catharanthus roseus* plants. *Protoplasma* 251: 1307-1320.
134. Suresh BV, Roy R, Sahu K, Misra G and Chattopadhyay D (2014) Tomato genomic resources database: an integrated repository of useful tomato genomic information for basic and applied research. *PLoS One* 9: e86387.
135. Thakur JK, Yadav A and Yadav G (2014) Molecular recognition by the KIX domain and its role in gene regulation. *Nucl. Acids Res.* 42: 2112-2125.
136. Tyagi H, Jha S, Sharma M, Giri J and Tyagi AK (2014) Rice SAPs are responsive to multiple biotic stresses and overexpression of OsSAP1, an A20/AN1 zinc-finger protein, enhances the basal resistance against pathogen infection in tobacco. *Plant Science* 225: 68-76.
137. Varshney RK, Mir RR, Bhatia S, Thudi M, Hu Y, Azam S, Zhang Y, Jaganathan D, You FM, Gao J, Riera-Lizarazu O and Luo MC (2014) Integrated physical, genetic and genome map of chickpea (*Cicer arietinum* L.). *Funct. Integr. Genomics* 14: 59-73.
138. Verma JK, Gayali S, Dass S, Kumar A, Parveen S, Chakraborty S and Chakraborty N (2014) OsAlba1, a dehydration-responsive nuclear protein of rice (*Oryza sativa* L. ssp. *indica*), participates in stress adaptation. *Phytochemistry* 100: 16-25.
139. Verma M, Ghangal R, Sharma R, Sinha AK and Jain M (2014) Transcriptome analysis of *Catharanthus roseus* for gene discovery and expression profiling. *PLoS One* 9: e103583.
140. Verma P, Sharma TR, Srivastava PS, Abdin MZ and Bhatia S (2014) Exploring genetic variability within lentil (*Lens culinaris* Medik.) and across related legumes using a newly developed set of microsatellite markers. *Mol. Biol. Rep.* 41: 5607-5625.
141. Yadav CB, Muthamilarasan M, Pandey G, Khan Y and Prasad M (2014) Development of novel

microRNA-based genetic markers in foxtail millet for genotyping applications in related grass species. Mol. Breed. 34: 2219-2224.

142. Yadav RK and Chattopadhyay D (2014) Differential soybean gene expression during early phase of infection with *Mungbean yellow mosaic India virus*. Mol. Biol. Rep. 41: 5123-5134.

Patents

1. Chakraborty N, Chakraborty S, Jaiswal DK, Mishra P, Subba P and Rathi D (2014) A method of producing stress tolerant plants [Indian Patent Application No. 8/DEL/2014].
2. Datta A, Chakraborty S, Chakraborty N and Meli SV (2014) Polynucleotide sequence of fruit softening associated B-D-N-Acetylhexosaminidase and its uses for enhancing fruit shelf life [European Patent No. 2315830].
3. Datta A, Ghosh S, Ghosh S, Kongara HR and Kamthan M (2014) Recombinant microorganisms and uses thereof [US Patent No. 8,734,814].

Technology/Products/Database processed/developed

1. IGMAP: Interactive Genome Maps for Plants; a platform for mapping and clustering of genes and gene families. Available at <http://nipgr.res.in/igmap.html>.
2. CGWR: The Chickpea Genomics Web Resource. Available at <http://www.nipgr.res.in/CGWR/home.php>.
3. EssOilDB: A database of essential oils reflecting terpene composition and variability in the plant kingdom. Available at <http://nipgr.res.in/Essoildb/>.
4. An open access Foxtail millet Transposable Elements-based Marker Database has been constructed for catering the developed marker resource to the global scientific community through the web address <http://59.163.192.83/ltrdb/index.html>.
5. Low glucosinolate Indian *B. juncea* line(s), having total seed-glucosinolate content less than the internationally acceptable limit (30 α moles g⁻¹ seed DW) are currently being analyzed for their agronomical performance under the containment field conditions.
6. Development of simple, quick and on site early diagnostic kit for *Rhizoctonia solani*, the causal of sheath blight disease of rice.

Activities of the Institute

Honours / Awards

Prof. Akhilesh K. Tyagi

- ❖ Accepted the Presidentship of the National Academy of Sciences, India (NASI), January 2015.
- ❖ Professor Archana Sharma Memorial Lecture Award by the West Bengal Academy of Science & Technology, November 28, 2014.
- ❖ Professor Ranjan Memorial Lecture Award by the National Academy of Sciences, India, September 16, 2014.

Dr. Debasis Chattopadhyay

- ❖ Tata Innovation Fellowship Award, Department of Biotechnology, Govt. of India, February 18, 2015.

Dr. Sabhyata Bhatia

- ❖ Elected Fellow of the National Academy of Sciences, India.

Dr. Manoj Prasad

- ❖ Joined the Editorial Board of 'Scientific Reports (Nature Publishing Group) as Academic Editor.
- ❖ Became the Co-Ordinator of International Climate-Resilient Crop Genomics Consortium (ICRCGC).

Dr. Gopaljee Jha

- ❖ INSA Bi-lateral Exchange Programme-2015.

Dr. Senthil Kumar Muthappa

- ❖ Topic editor for the journal Frontiers in Plant Science.

Dr. Swarup K. Parida

- ❖ Young Scientist Award in Plant Improvement by National Academy of Agricultural Sciences (NAAS).
- ❖ Pran Vohra Award by Indian Science Congress Association (ISCA).
- ❖ Young Scientist Researcher Award by Indian Genetics Congress (IGC).

Dr. Rohini Garg (INSPIRE Faculty Fellow)

- ❖ Young Scientist Platinum Jubilee Award (2014) from the National Academy of Sciences India (NASI).
- ❖ Indian National Science Academy (INSA) medal for Young Scientist (2014).

International Visits

Prof. Asis Datta

- ❖ Visited Muscat, Oman to attend 25th General Meeting of TWAS, October 24-30, 2014.

Dr. Subhra Chakraborty

- ❖ Visited Harbin, China to attend the 6th International Symposium on Frontiers in Agriculture Proteome Research, the 1st AOAPO Conference & 5th Plant Proteomics Conference, June 23-27, 2014.
- ❖ Visited Madrid, Spain to attend HUPO 2014 13th World Congress, October 05-08, 2014.

Dr. Debasis Chattopadhyay

- ❖ Visited The World Academy of Sciences, Trieste, Italy to attend AAAS-TWAS workshop on climate change and a global research agenda for high altitude agriculture in central Asia and India, November 09-11, 2014.

Dr. Praveen Verma

- ❖ Visited Stockholm, Sweden for bilateral workshop between India and Sweden “Bio-based economy” organized by DST, India and FORMAS, Sweden, August 18–22, 2014.

Dr. Manoj Prasad

- ❖ Visited Aohan City, Inner Mongolia, China to attend and deliver a lecture on ‘Foxtail millet: A model crop with rich genetic and genomic resources for expediting millets and cereal crop research’ in the 2nd International Millet Workshop, September 03–05, 2014.

Dr. Jitendra Kumar Thakur

- ❖ Visited Department of Biochemistry, Cellular and Molecular Biology, University of Tennessee, Knoxville, Tennessee, USA for a collaborative research and advanced research training, April 01 –August 31, 2014.

Dr. Gitanjali Yadav

- ❖ Visited Lisbon, Portugal to attend BIOSTEC 2015: International Conference on Bioinformatics Models, Methods and Algorithms, January 12–15, 2014.

Dr. Manoj Majee

- ❖ Visited Department of Plant Breeding and Genetics, Max Planck Institute, Cologne, Germany, March 20 – June 19, 2014.

Dr. Naveen Chandra Bisht

- ❖ Visited Max Planck Institute of Chemical Ecology, Jena, Germany as Max Planck India Fellow (2012), jointly funded by The Max Plank Society (Germany) and the Department of Science & Technology, Govt of India, August 14 – September 24, 2014.

Dr. Ananda K. Sarkar

- ❖ Visited University of Freiburg, Germany to attend scientific training/collaboration, October 17–31, 2014.

Dr. Senthil Kumar Muthappa

- ❖ Visited Plant Biology Division, Noble Foundation, Ardmore, Oklahoma, USA to discuss possible collaboration and to conduct few experiments on the project related to combined stress tolerance of plants, October 02–31, 2014.

Invited Lectures

Prof. Akhilesh K. Tyagi

- ❖ Delivered a lecture at South Asian University, September 12, 2014.
- ❖ Delivered the Foundation Day Lecture at NBRI, September 29, 2014.

Prof. Asis Datta

- ❖ Delivered the Keynote/Lead Lecture at Amity University, Noida, April 2, 2014.
- ❖ Delivered the Inaugural Lecture at National Seminar on 'Evolving Plant Biology: From Chromosomes to Genomics', at Bose Institute, Kolkata, November 27-29, 2014.
- ❖ Delivered the Plenary Lecture in Recent Trends in Biomedical and Translational Research (RTBTR)-2014, IIT Roorkee, December 17-19, 2014.
- ❖ Special Session on 'Recent Progress and Future Prospective for Stress Tolerance in Plants' (ISCA-2015) at Mumbai University, January 04, 2015.
- ❖ Delivered a lecture in Deen Dayal Upadhyaya College, New Delhi, January 30, 2015.
- ❖ Delivered the Inaugural Address at 5th International Conference on 'Next Generation Genomics and Integrated Breeding for Crop Improvement' at ICRISAT, Hyderabad, February 18-20, 2015.
- ❖ Delivered the Inaugural Lecture at National Science Day Celebration at the Institute of Science, Nirma University, Ahmedabad, February 28, 2015.

Dr. Niranjan Chakraborty

- ❖ Delivered a lecture in the 90th Orientation Course at Academic Staff College (ASC), Jawaharlal Nehru University, New Delhi, April 21, 2014.
- ❖ Delivered a talk in the 16th Refresher Course in Biotechnology at Academic Staff College (ASC), Jawaharlal Nehru University, New Delhi, August 19, 2014.
- ❖ Delivered a lecture in the National Symposium on 'Evolving Plant Biology: from Chromosome to Genetics' at Bose Institute, Kolkata, November 28-30, 2014.
- ❖ Delivered a lecture in the National Symposium on 'Cell Biology, Chromosome Research, Genetics and Biotechnology' at Department of Botany, University of Calcutta, Kolkata, December 4-6, 2014.
- ❖ Delivered a talk in the '6th Annual Meeting of the Proteomic Society of India' at Indian Institute of Technology, Bombay, December 06-10, 2014.
- ❖ Delivered a lecture in the 2nd International meet on 'Advanced Studies in Cell Signaling Network' at CSIR – Indian Institute of Chemical Biology (CSIR-IICB), Kolkata, December 12-15, 2014.
- ❖ Delivered a talk in the International conference on 'Molecular signaling: Recent Trends in Biomedical and Translational Research' at Indian Institute of Technology, Roorkee, December 17-19, 2014.
- ❖ Delivered a talk in the International Symposium and workshop on 'Mass spectrometry based Proteomics' at CCMB, Hyderabad, December 22-23, 2014.
- ❖ Delivered a lecture in the 93th Orientation Course at Academic Staff College (ASC), Jawaharlal

Nehru University, New Delhi, February 12, 2015.

- ❖ Delivered a lecture in the 94th Orientation Course at Academic Staff College (ASC), Jawaharlal Nehru University, New Delhi, March 10, 2015.
- ❖ Delivered a lecture at Sri Venkateswara Collage, Delhi University on 'Proteomics', March 16, 2015.

Dr. Subhra Chakraborty

- ❖ Delivered a lecture in the National Conference on 'Contemporary topics in biotechnology: Progress & future applications and panel discussion on attracting talent to the field', Amity Institute of Biotechnology (AIB), Amity University Haryana (AUH), April 02, 2014.
- ❖ Delivered two lectures in the 90th Orientation Course at Academic Staff College, Jawaharlal Nehru University, New Delhi, April 16, 2014.
- ❖ Delivered a lecture in the International conference on 'Genomics & proteomics research 2014' organized by Selectbio, New Delhi, June 12–13, 2014.
- ❖ Delivered a lecture in the workshop on 'Scientific paper writing and technological empowerment of women' organized by NASI, India held in Graphic Era University, Dehradun, June 17–18, 2014.
- ❖ Delivered a lecture in the 6th International Symposium on Frontiers in Agriculture Proteome Research, the 1st AOAPO Conference & 5th Plant Proteomics Conference in China, June 23–27, 2014.
- ❖ Delivered a lecture in the workshop on 'Principles of Biotechnology' for the students of Class XII, DPS, Vasant Kunj, New Delhi, August 28, 2014.
- ❖ Delivered a lecture in the workshop on 'Biotechnology and its applications' for the students of Class XII, DPS, Vasant Kunj, New Delhi, November 07, 2014.
- ❖ Delivered a lecture in the National Symposium on 'Cell biology, chromosome research, genetics and biotechnology', Department of Botany, University of Calcutta, Kolkata, December 04–06, 2014.
- ❖ Delivered a lecture in the 6th annual meeting, Proteomics Society, India (PSI) and International Proteomics Conference on 'Proteomics from Discovery to Function', IIT, Bombay, Mumbai, December 06–11, 2014.
- ❖ Delivered a lecture in the International meet on 'Cell signaling & network (CeSiN 2014)', CSIR-IICB, Kolkata, December 13–15, 2014.
- ❖ Delivered a lecture in the International conference on 'Molecular signaling: recent trends in biomedical and translational research (ICMS: RTBTR-2014)', IIT, Roorkee, December 18, 2014.
- ❖ Delivered a lecture in the SERB (DST) sponsored one day Brain storming session on 'Plant Metabolomics', University of Hyderabad, Hyderabad, December 20, 2014.
- ❖ Delivered a lecture in the International Conference on 'Translational research: From basic science to clinical application', KIIT University, Bhubaneswar, February 5–7, 2015.
- ❖ Delivered a lecture in the National Symposium on 'Environmental impact on biodiversity and plant development', Department of Biological Sciences, Presidency University, Kolkata, February 19–20, 2015.
- ❖ Organized & delivered a lecture in the 'South Africa-India Bilateral Agricultural Biotechnology Workshop' at NIPGR, New Delhi, February 23–27, 2015.

Dr. Debasis Chattopadhyay

- ❖ Delivered a lecture on Defining biological function of PR-10 proteins in the 'National Symposium on Evolving Plant Biology: From Chromosome to Genomics', at West Bengal Academy of Science & Technology (WAST), Bose Institute, Kolkata, November 28–29, 2014.

Dr. Alok Krishna Sinha

- ❖ Delivered a lecture on 'Cross talk between light signaling and mitogen activated protein kinase cascade during *Arabidopsis* Seedling Development' in the National Seminar on New Frontiers in Plant Sciences and Biotechnology at Department of Botany, University of Goa, Goa, January 29–30, 2015.
- ❖ Delivered a lecture on 'Protein-Protein Interactions and its implication in Mitogen Activated Protein Kinase Cascade in Plants' at 20th Refresher Course in Life Science at the Academic Staff College JNU, New Delhi, February 02, 2015.

Dr. Praveen Verma

- ❖ Delivered a lecture on 'Genomics of Phytopathogens: Fungal Effectors and Beyond' in the National Symposium on 'Plant Pathology in Genomic Era' organized by Indian Phytopathological Society at Indira Gandhi Krishi Viswavidyalaya, Raipur, May 26–28, 2014.
- ❖ Delivered a lecture on 'Secreted effectors of fungi: New insight towards generating disease free plants' in the International Conference on 'Emerging Trends in Biotechnology' organized by Biotech Research Society, India at Jawaharlal Nehru University, New Delhi, November 6–9, 2014.
- ❖ Delivered a lecture on 'Genomics of Phytopathogens: Genome and Secretome Analyses of a Necrotrophic Fungus' in the National Conference on 'Genome Informatics', at SRM University, Chennai, January 21–22, 2015.
- ❖ Delivered a lecture on 'New insights in plant and fungal interactions' in the National symposium on 'Molecular Intricacies of Plant Pathogenic Micro-organisms (MIPPM)', at Tezpur University, February, 21–22, 2015.

Dr. Manoj Prasad

- ❖ Delivered a lecture on 'Foxtail millet: A model crop with rich genetic and genomic resources for expediting millets and cereal crop research' in the National Conference on 'Contemporary Topics in Biotechnology: Progress and Future applications & Panel Discussion on Attracting Talent to the Field', Amity University, Gurgaon, Haryana, April 04, 2014.
- ❖ Delivered a lecture on 'High-throughput genomics for plant breeding' in the National Conference on 'Integration of Genomics and Phenomics in Crop Improvement', Punjab Agricultural University (PAU), Ludhiana, Punjab, August 07, 2014.
- ❖ Delivered a lecture on 'Foxtail millet: A model crop with rich genetic and genomic resources for expediting millets and cereal crop research' in the 2nd International Millet Workshop, Aohan City, Inner Mongolia, China, September 3–5, 2014.
- ❖ Delivered a lecture on 'Foxtail millet: A model crop with rich genetic and genomic resources for expediting millets and cereal crop research' in the National Conference on 'Biotechnological applications for agricultural development and food security in India', Amity University, Gwalior, Rajasthan, September 23, 2014.

- ❖ Delivered a lecture on 'Foxtail millet: A climate change resilient model crop with rich genetic and genomic resources for genetic improvement of cereals and bioenergy grasses' in the National Symposium on 'Evolving Plant Biology: From Chromosomes to Genomics', Bose Institute, University of Calcutta & The Ramakrishna Mission Institute of Culture, Gol Park, Kolkata, West Bengal, September 29, 2014.
- ❖ Delivered a lecture on 'Foxtail millet: A climate change resilient model crop with rich genetic and genomic resources for genetic improvement of cereals and bioenergy grasses' in the National CAFT Training Programme on "Modern tools and techniques for Plant Breeding in the era of genomics", Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, December 02, 2014.
- ❖ Delivered an invited lecture on 'Foxtail millet: A climate change resilient model crop with rich genetic and genomic resources for genetic improvement of cereals and bioenergy grasses' at Bhabha Atomic Research Centre, Mumbai, January 05, 2015.
- ❖ Delivered a lecture on 'Foxtail millet: A climate change resilient model crop with rich genetic and genomic resources for genetic improvement of cereals and bioenergy grasses' in the National 102nd Indian Science Congress Association Symposium held, Mumbai University, Mumbai, January 06, 2015.
- ❖ Delivered a lecture on 'Foxtail millet: A climate change resilient model crop with rich genetic and genomic resources for genetic improvement of cereals and bioenergy grasses' at International Workshop on "India-South Africa Bilateral Agricultural Biotechnology", at National Institute of Plant Genome Research, New Delhi, February 24, 2015.
- ❖ Delivered a lecture on 'Foxtail millet: A climate change resilient model crop with rich genetic and genomic resources for genetic improvement of cereals and bioenergy grasses' in the National Training Programme on "Phenotyping for drought adaptive traits and trait introgression through molecular approaches" at UAS, GKVK, Bangalore, March 02, 2015.
- ❖ Delivered a lecture on 'Foxtail millet: A climate change resilient model crop with rich genetic and genomic resources for genetic improvement of cereals and bioenergy grasses' in the National Seminar on "Contemporary Progress in Plant Sciences", Burdwan University, Burdwan, West Bengal, March 20-21, 2015.

Dr. Jitendra K. Thakur

- ❖ Delivered a lecture on 'Understanding the importance of KIX domain proteins in plants' in the National Seminar on 'Evolving Plant Biology: From Chromosome to Genomics' organised by West Bengal Academy of Science and Technology, Bose Institute and Calcutta University at Ramakrishna Mission Institute of Culture, Kolkata, November 27-29, 2014.
- ❖ Delivered a lecture on 'Understanding the importance of KIX domain proteins in plants' in the 83rd Annual meeting of the society of biological chemists of India at KIIT University, Bhubaneswar, December 18-21, 2014.
- ❖ Delivered a lecture on 'Understanding the importance of KIX domain proteins in plants' in National Seminar on 'Contemporary Progress in Plant Sciences' organised by the Department of Botany, Burdwan University, Burdwan, March 20-21, 2015.

Dr. Gitanjali Yadav

- ❖ Delivered 'Genomics for Crop Improvement' Public Lecture at JIGYASA – A Science Popularization Program Series, Jabalpur, September 27, 2014.

- ❖ Delivered a lecture on 'Application of Database and in-silico tools in Molecular Biology' at National Bioinformatics Workshop on latest techniques in Molecular Biology, Amity University, Gwalior, October 17, 2014.
- ❖ Delivered a lecture on 'Patterns of Codon Usage in Plastidial Genomes of Ancient Plants provide insights into Evolution', at the 6th International Conference on Bioinformatics Models, Methods and Algorithms, Lisbon, January 13, 2015.
- ❖ Delivered 'Comparative Genomics–Introduction and Applications' Expert lecture at National workshop on Bioinformatics Tools for Genomic Research Problem Solving, March 19, 2015.

Dr. Manoj Majee

- ❖ Delivered a lecture on 'An enzyme to increase seed vigor and longevity' in a National Symposium at BHU, Varanasi, February 19-20, 2015.

Dr. Mukesh Jain

- ❖ Delivered a lecture on 'Genomics and bioinformatics: Introduction, challenges and opportunities' in the Workshop on Genomics and Bioinformatics at Sadhu Vaswani International School for Girls, Shantiniketan, New Delhi, July 19, 2014.
- ❖ Delivered a lecture on 'Discovery of trait determining transcriptomic, genomic and epigenomic variations in crop plants via next generation sequencing' in the Conference on Applying NGS: Basic Research, Agriculture & Healthcare at Hotel Capitol, Bangalore, September 11, 2014.
- ❖ Delivered a lecture on 'Transcriptome analysis for discovery of candidate genes involved in agronomic traits' in the DBT-sponsored Short term Training Course on Plant Transgenic Technologies at M. D. University, Rohtak, Haryana, October 1–16, 2014.
- ❖ Delivered a lecture on 'Genome-wide discovery and differential regulation analysis of miRNAs: A case study in chickpea' in the Workshop on Computational identification of microRNA for biotic and abiotic stress tolerance in cereals at Meerut University, Meerut, UP, January 12–14, 2015.
- ❖ Delivered a lecture on 'Next generation genomics: Connecting genes and (epi) genomic variations to agronomic traits' in the Indo-US Bilateral Conference cum Workshop on Big Data Analysis and Translation in Disease Biology at JNU, New Delhi, January 18–22, 2015.

Dr. Ananda K. Sarkar

- ❖ Delivered a lecture on 'Small RNA mediated regulation of root architecture in *Arabidopsis thaliana*' in the Arabidopsis Workshop 2014 at CCMB, Hyderabad, October 09, 2014.
- ❖ Delivered a lecture on 'A Small RNA pathway having both conserved & diverse role in root development between monocot and dicot plants' at University of Freiburg, Germany, October 16, 2014.
- ❖ Delivered a lecture on 'Small RNA Mediated Regulation of Root Architecture' at ICGEB, New Delhi, January 20, 2015.
- ❖ Delivered lecture on 'Molecular Genetics of Plant Development: Regulation of Stem Cells and Lateral Organ Patterning through the Activity of Novel Genes and small RNAs' in the 3rd Ramalingaswami Fellows Conclave at ILS, Bhubaneswar, January 30, 2015.
- ❖ Delivered lecture on 'Small RNA Mediated Regulation of Stem Cells and Lateral Organ Patterning in Plants' at NRCPB, IARI, February 06, 2015.

Dr. Gopaljee Jha

- ❖ Delivered a lecture in a two-day symposium on “Molecular Intricacies of Plant Pathogenic Micro-organisms” (MIPPM) at Department of Molecular Biology and Biotechnology, Tezpur University, Assam, February 21–22, 2015.

Dr. Senthil Kumar Muthappa

- ❖ Participated and delivered a lecture on ‘Functional genomics of plant stress tolerance: Applications and advantages of virus-induced gene silencing approach’ in International Workshop on ‘India-South Africa Bilateral Agricultural Biotechnology’, at National Institute of Plant Genome Research, New Delhi, February 24, 2015.

Dr. Swarup K. Parida

- ❖ Delivered a lecture on ‘Integrated genomic approach for rapid quantitative dissection of complex traits in crop plants’, in Indian Genetics Congress (IGC) at SRM University, Chennai, Tamil Nadu, March 06, 2015.

Participation in National/International Conference/Workshops

Prof. Akhilesh K. Tyagi

- ❖ Delivered a talk during the 3rd Summit of South Asian Science Academies and AASSA General Assembly at INSA, October 14, 2014.
- ❖ Delivered a talk in the 84th Annual Session of NASI & the National Symposium on 'Desert Science- Opportunities and Challenges' at Jai Narayan Vyas University, Jodhpur, December 4–6, 2014.
- ❖ Delivered a talk during 102nd Science Congress in the Symposium on Crop Improvement at Bombay University, January 5, 2015.
- ❖ Participated as Chief Guest in the National Conference on Climate Change by Deen Dayal Upadhyaya College, New Delhi, March 2, 2015.

Prof. Asis Datta

- ❖ Invited as a Mentor at Sibasagar Girls College, Assam, April 7–11, 2014.
- ❖ NASI Award Lectures held at Miranda House Auditorium, Delhi University, on September 16, 2014.
- ❖ CSIR Foundation Day, September 26, 2014.
- ❖ Convenor, GM Crops Session at Indian Science Congress-2015, Mumbai University, January 04, 2015.
- ❖ 38th Annual International Conference on Oriental Heritage, Delhi, February 22, 2015.
- ❖ Invited as a Mentor at International Conference on Medicinal Plants: Resource for Affordable New Generation Healthcare (ICOMP 2015), Lucknow, March 20–22, 2015.

Dr. Niranjana Chakraborty

- ❖ Participated in the 2nd International meet on 'Advanced Studies in Cell Signaling Network' at CSIR – Indian Institute of Chemical Biology (CSIR-IICB), Kolkata, December 12-15, 2014.
- ❖ Participated as an expert in the International conference on 'Molecular signaling: Recent Trends in Biomedical and Translational Research' at Indian Institute of Technology, Roorkee, December 17-19, 2014.
- ❖ Participated as an expert in the International Symposium and workshop on 'Mass spectrometry based Proteomics' at CCMB, Hyderabad, December 22-23, 2014.

Dr. Subhra Chakraborty

- ❖ Participated in the National Conference on 'Contemporary topics in biotechnology: Progress & future applications and panel discussion on attracting talent to the field', Amity Institute of Biotechnology (AIB), Amity University Haryana (AUH), April 02, 2014.
- ❖ Participated and delivered a lecture in the International conference on 'Genomics & proteomics research 2014' organized by Selectbio, New Delhi, June 12–13, 2014.
- ❖ Participated in the workshop on 'Scientific paper writing and technological empowerment of women' organized by NASI, Graphic Era University, Dehradun, June 17–18, 2014.

- ❖ Attended the 6th International Symposium on Frontiers in Agriculture Proteome Research, the 1st AOAPPO Conference & 5th Plant Proteomics Conference in China, June 23–27, 2014.
- ❖ Acted as resource person and panelist in the Workshop cum Training program on 'Leadership and Career Development for Women Scientists' organized by DST, India in collaboration with Indo US Scientific Technology Forum (IUSSTF) and COACH International, University of Oregon, Eugene, USA, held at INSA, New Delhi, September 1–5, 2014.
- ❖ Attended the HUPO 2014 13th World Congress, Spain, October 5–8, 2014.
- ❖ Participated in the discussion on the 'Development of policy document on CCPM' during the 4th workshop on Computational Core for Plant Metabolomics (CCPM4), JNU, New Delhi, November 17, 2014
- ❖ Participated in the National Symposium on 'Cell biology, chromosome research, genetics and biotechnology', Department of Botany, University of Calcutta, Kolkata, December 04–06, 2014.
- ❖ Attended the 6th annual meeting, Proteomics Society, India (PSI) and International Proteomics Conference on 'Proteomics from Discovery to Function', IIT, Bombay, Mumbai, December 06–11, 2014.
- ❖ Participated in the International meet on 'Cell signaling & network' (CeSiN 2014), CSIR-IICB, Kolkata, December 13–15, 2014.
- ❖ Participated in the International conference on 'Molecular signaling: recent trends in biomedical and translational research' (ICMS: RTBTR-2014), IIT, Roorkee, December 18, 2014.
- ❖ Participated in the SERB (DST) sponsored one day Brain storming session on 'Plant Metabolomics', University of Hyderabad, Hyderabad, December 20, 2014.
- ❖ Participated in the National Symposium on 'Environmental impact on biodiversity and plant development', Department of Biological Sciences, Presidency University, Kolkata, February 19–20, 2015.
- ❖ Attended the International Conference on 'Translational research: From basic science to clinical application', KIIT University, Bhubaneswar, February 5–7, 2015.
- ❖ Organized & participated in the 'South Africa-India Bilateral Agricultural Biotechnology Workshop' at NIPGR, New Delhi, February 23–27, 2015.

Dr. Alok Krishna Sinha

- ❖ Participated in National Seminar on New Frontiers in Plant Sciences and Biotechnology, Department of Botany, University of Goa, Goa and delivered a lecture on a topic titled 'Cross talk between light signaling and mitogen activated protein kinase cascade during *Arabidopsis* Seedling Development', January 29–30, 2015.
- ❖ Participated in National Seminar on New Frontiers in Plant Sciences and Biotechnology, Department of Botany, University of Goa, Goa along with my student Ms. Jalmi Siddhi Kashinath and presented a poster titled 'Functional Involvement of a Group C Mitogen Activated Protein Kinase, OsMPK7 in Mediating Resistance against *Xanthomonas oryzae* in Rice', January 29–30, 2015.

Dr. Sabhyata Bhatia

- ❖ Participated in ICETB-2014, JNU, New Delhi, November 7 – 9, 2014.
- ❖ Participated in the 5th International Conference on Next Generation Genomics and Integrated Breeding for Crop Improvement, ICRISAT, Patancheru, February 18–20, 2015.

Dr. Manoj Prasad

- ❖ Attended and delivered a lecture on 'Foxtail millet: A model crop with rich genetic and genomic resources for expediting millets and cereal crop research' in the 2nd International Millet Workshop, at Aohan City, Inner Mongolia, China, September 3–5, 2014.

Dr. Jitendra K. Thakur

- ❖ Participated and delivered a lecture in the National Seminar on 'Evolving Plant Biology: From Chromosome to Genomics' organised by West Bengal Academy of Science and Technology, Bose Institute and Calcutta University at Ramakrishna Mission Institute of Culture, Kolkata, November 27–29, 2014.
- ❖ Participated and delivered a lecture in the '83rd Annual meeting of the society of biological chemists of India' at KIIT University, Bhubaneswar, December 18–21, 2014.
- ❖ Participated and delivered a lecture in the National Seminar on 'Contemporary Progress in Plant Sciences' organised by the Department of Botany, Burdwan University, Burdwan, March 20–21, 2015.

Dr. Gitanjali Yadav

- ❖ Attended BIOINFORMATICS-2015, the 6th International Conference on Bioinformatics Models, Methods and Algorithms at Lisbon, Portugal, January 12–15, 2015.

Dr. Manoj Majee

- ❖ Attended National Symposium at BHU, Varanasi, India, February 19–20, 2015.

Dr. Mukesh Jain

- ❖ Attended Workshop on Genomics and Bioinformatics at Sadhu Vaswani International School for Girls, Shantiniketan, New Delhi, July 19, 2014.
- ❖ Attended Conference on Applying NGS: Basic Research, Agriculture & Healthcare at Hotel Capitol, Bangalore, September 11, 2014.
- ❖ Attended Short term Training Course on Plant Transgenic Technologies at M. D. University, Rohtak, Haryana, October 1–16, 2014.
- ❖ Attended Workshop on Computational identification of microRNA for biotic and abiotic stress tolerance in cereals at Meerut University, Meerut, UP, January 12–14, 2015.
- ❖ Attended Indo-US Bilateral Conference cum Workshop on Big Data Analysis and Translation in Disease Biology at JNU, New Delhi, January 18–22, 2015.
- ❖ Attended 5th International Conference on Next Generation Genomics and Integrated Breeding for Crop Improvement at ICRISAT, Hyderabad, February 18–20, 2015.

Dr. Ananda K. Sarkar

- ❖ Delivered a lecture on 'Small RNA mediated regulation of root architecture in *Arabidopsis thaliana* 2014' at CCMB, Telengana, October 09–10, 2014.
- ❖ Delivered a lecture on 'Molecular Genetics of Plant Development: Regulation of Stem Cells and Lateral Organ Patterning through the Activity of Novel Genes and small RNAs' in the 3rd Ramalingaswami Fellows Conclave at ILS, Bhubaneswar, January 29, 2015– February 01, 2015.

Dr. Gopaljee Jha

- ❖ Participated in an international conference on New Plant Breeding Molecular Technologies-Technology Development and Regulation at Jaipur, Rajasthan, October 9–10, 2014.
- ❖ Participated in a two-day symposium on Molecular Intricacies of Plant Pathogenic Micro-organisms (MIPPM) at Tezpur University, Assam, February 21–22, 2015.

Dr. Senthil Kumar Muthappa

- ❖ Participated in DBT Ramalingaswami Fellows 4th Conclave at Bhubaneswar, January 30, 2015–February 01, 2015.

Visitors to the Institute

- ❖ **Dr. Robert Habib**, Head of the International Affairs of the National Institute for Agricultural Research (INRA), France visited NIPGR on April 28, 2014 to learn about the research activities and ongoing projects at NIPGR and to explore the possibility of collaboration between INRA and NIPGR.
- ❖ A Japanese Delegation led by **Dr. Yutaka Tabei**, Head of GMO Research Promotion Office, National Institute of Agrobiological Sciences visited NIPGR on October 14, 2014 to discuss on the policies and regulations on GM crops. The other members of the delegation were **Dr. Junichi Tanaka**, Senior Researcher, National Institute of Crop Science and **Dr. Tomiko Yamaguchi**, Senior Associate Professor, International Christian University, Japan.
- ❖ **Dr. Paul Quick** and **Dr. Anindya Bandyopadhyay** from the International Rice Research Institute, Philippines visited NIPGR on November 5, 2014 to discuss some scientific issues with the Director.
- ❖ **Shri Y.S. Chowdary**, Hon'ble Minister of State for Science & Technology and Earth Sciences, Government of India visited NIPGR on December 24, 2014.



Study Tours at the Institute

The students from the following Universities/Colleges/School(s) visited NIPGR to familiarize themselves with the frontier research being carried out at NIPGR and interacted with the faculty.

- ❖ M.Sc. (Molecular Biology), Yuvaraja's College, University of Mysore on April 4, 2014.
- ❖ B.Tech. (Biotechnology) and B.Tech. (Bioinformatics) students of Tamil Nadu Agricultural University, Coimbatore on September 23, 2014.
- ❖ M.Sc. (Biotechnology), Gauhati University, Assam on October 17, 2014.
- ❖ B. Sc., Ramjas College, University of Delhi on January 16, 2015.
- ❖ M.Sc. (Biotechnology), Mizoram University, Aizawl, Mizoram on February 23, 2015.
- ❖ M.Sc. (Biotechnology), University of Jammu, on March 10, 2015.

Symposia/Workshop/Special Lectures/Events Organized

Annual Student Research Symposium – SciEfflux-2014 (August 1-2, 2014)

The Institute organized a two-day Student Research Symposium during August 1-2, 2014. On this occasion, the 2nd and 4th year students of the Institute delivered their presentations related to theme & progress of their research followed by a cultural event “RAINBOW”.



Inauguration of Annual Student Research Symposium – SciEfflux-2014



Students performing in the cultural event “RAINBOW”

Hindi Pakhwara (September 1-14, 2014)

Hindi Pakhwara was observed during September 1-14, 2014 in the Institute. All the members of the staff, student and researcher were requested to do maximum work in Hindi during this period. The staff members were encouraged to use Hindi in the deliberations of the meetings, seminars, etc., organized during this period, to work in Hindi on computers and to opt for forms in Hindi which are used for various purposes inside the Institute, besides all other official works. In addition, a Hindi Lecture on scientific topic was organized on September 10, 2014 in the Institute to exhibit the effortless use of Hindi in every field of education.

Like every year, an Essay Competition was organized to commemorate 'Hindi Diwas' on September 12, 2014. Members of NIPGR community participated enthusiastically in the event. The first and second best essays were conferred prize and certificate on the occasion of Foundation Day of the Institute.

Three days National Workshop and hands on training on "Plant Gene Repository and Plant Gene Data Base Handling" (September 17-19, 2014)

The National Plant Gene Repository (NAPGER) at NIPGR organized the "National Workshop and Hands on Training on Plant Gene Repository and Plant Gene Database Handling" during September 17-19, 2014. The main goal of the workshop was to familiarize the participants with the advances in Plant Gene Repositories, Plant Gene Databases, resources and technologies available in the field. A total of 15 participants including Faculty, Scientists and Students from Universities/Govt. departments/Colleges/Research Institutions joined the workshop and the training program. The sessions of the workshop included lectures in the area followed by hands on practical sessions. Dr. Subhra Chakraborty, the Co-ordinator, NAPGER gave an overview and importance of plant gene database and gene repository in plant research and sustainable agriculture. The valedictory session included distribution of certificates by Prof. Akhilesh K. Tyagi, Director, NIPGR and an interaction of the Director with all the participants. The participants gave a very positive feed-back on the workshop. It is hoped to continue such workshops and training program and improve upon the effort in future.

Swachh Bharat Abhiyan (October 02, 2014)

The Institute took an initiative in the mass movement of Hon'ble Prime Minister of India called 'Swachh Bharat', observed on October 2, 2014 at the Institute. In order to spread the message of cleanliness and awareness campaign in a befitting manner, all the staff members, students and researchers participated in this national endeavour. On this day, various sites in the campus like approach roads, students' hostel, office/laboratories etc. were identified for cleanliness drive, lead by senior officers & scientists of the Institute.



**Staff members, students and researchers participated in the national endeavour on
"Swachh Bharat"**

Two-days National Workshop on “Computational Biology in Plant Science” (November 13-14, 2014)

The Distributed Information Sub Centre (DISC) at NIPGR organized a Bioinformatics Workshop titled ‘Computational Biology in Plant Science’ during 13-14th November 2014, with the goal to strengthen computational skills among plant biologists, by tapping into the rich experience and expertise available in the area of bioinformatics in India. 30 participants were selected for the workshop based upon abstracts received from all over India. The Inaugural session was held at 10 am on the 13th of November, 2014. After the welcome address by the Director, Dr. GitanjaliYadav delivered a lecture on the theme of the workshop and stressed upon the diverse applications of computational biology in plant sciences giving cases studies from the ongoing research activities at NIPGR. The remaining sessions of the workshop included four specially designed hands-on tutorial sessions covering genomics and transcriptomics. Participants were encouraged to interact with each other as well as with the organising team. The workshop culminated on the second day with the valedictory session, distribution of certificates, proceedings and prizes, followed by an informal feedback session on the workshop. Finally, Dr. J.K. Thakur, Dy. Coordinator of the Sub-DIC delivered the vote of thanks and the workshop was brought to a close.



Participants during the workshop

Foundation Day (December 19, 2014)

The Institute celebrated its 16th Foundation Day by organizing “J. C. Bose Memorial Lecture” on Friday, December 19, 2014. On this occasion, Prof. Maharaj Kishan Bhan, National Science Professor, IIT, New Delhi and Advisor, World Health Organization delivered the lecture on “The Indian Nutrition Enigma”. Besides, researchers/students of the Institute were facilitated with medals/mementos for the best scores in Ph.D. course work, for best presentation in Students Research Symposium 2014 and for the best two essays in the Nibandh Pratiyogita conducted during Hindi Pakhwara. The invited guests from nearby institutions as well as staff and students of the Institute attended the function.



Professor Maharaj Kishan Bhan, lighting a Lamp on the occasion of 16th Foundation Day of NIPGR



Musical presentation by the Ms. Sunanda Sharma on the occasion of 16th Foundation Day of NIPGR

South Africa-India Bilateral Agricultural Biotechnology Workshop (February 23 – 27, 2015)

Within the framework of the bilateral Agreement on Scientific and Technological Cooperation between the Government of India and the Government of the Republic of South Africa, the “India-South Africa Bilateral Agricultural Biotechnology Workshop” between the two countries was held during 23 to 27 February 2015 at the National Institute of Plant Genome Research (NIPGR) in New Delhi, India. It was held under the Co-ordination of Dr. Subhra Chakraborty (NIPGR, India) and Dr. Maneshree Jugmohan-Naidu (Department of Science and Technology, South Africa).

The workshop was officially opened by the opening remarks by Prof. Akhilesh Kumar Tyagi, Director, NIPGR and a welcome note of Dr. Subhra Chakraborty (Indian Coordinator). This was followed by brief remarks on the Science and Technology Cooperation between India and South Africa by Dr. Arabinda Mitra, Advisor and Head of International Cooperation of the Department of Science and Technology (DST), India and Ms. Bongi Mkhize, Deputy Director, Overseas Bilateral Cooperation (Americas & Asia) of the DST, South Africa.

The joint workshop was centered around the theme on “Stress Biology and Agricultural Biotechnology”, including both abiotic and biotic stress and application of combination of new biology technologies and tools encompassing genomics, proteomics and metabolomics for system level understanding of the subject for future crop improvement program. Around 25 colleagues from India and South Africa participated in the workshop. The workshop included key presentations of eminent scientists from both sides in four technical sessions: (i) Translational Research-PPP and Models of Governance and Collaboration, (ii) Plant Stress Biology, (iii) New Biology and Future Crop Improvement, and (iv) Food Safety and Biosafety. It provided a platform to explore new possibilities in collaborating research programs between the countries.



Participants of the workshop

The workshop was concluded with a wrap-up session during which the outcomes of the deliberations and discussions were compiled. The deliberations between India and South Africa identified broad areas of commonality in terms of genetic and phenotypic characterisation and its implications for addressing some of the broader challenges for food and nutrition security. The development of the full value chain approach inclusive of all role players plus mechanisms including working with industry was emphasized. It was recommended to develop joint research programs in the areas of common interest based on each other expertise, and capacity building in terms of manpower development.

We hope through this workshop both South African and Indian scientists working in the related fields will benefit from each other's experience and expertise. Also, the workshop may lead to future collaboration and capacity building in the area.

It is hoped to continue such workshops in future for fostering a platform for further International Scientific Collaboration.

Monthly Seminar Series (2014-2015)

The Institute organized the "Monthly Seminar Series" (initiated in the year 2009) in the year 2014-15 by inviting renowned scientists to present their work, for the benefit of the students and young researchers of the Institute. Dr. Gitanjali Yadav and Dr. Ananda Kumar Sarkar, Scientists of the Institute, have been entrusted with the work to organize the activities of the Seminar Series. The Seminar Series includes the inaugural lecture, by the new faculty member(s) of the Institute and lecture by the invited speaker.

During the period under report, the following lectures were organized at the Institute as part of "Monthly Seminar Series :

Name of the scientist / invited speaker	Lecture	Date
Dr. Amit Kumar Institute of Physics/Biophysics, Martin-Luther-University Halle- Wittenberg, Germany	A conformational switch upon phosphorylation trigger ubiquitin proteasome mediated degradation of p19INK4d	May 15, 2014
Dr. Rattan Yadav Crop Genetics, Genomics and Breeding Division, Institute of Biological, Environmental & Rural Sciences (IBERS), Aberystwyth University, United Kingdom	Genomics Applied to Crop Breeding - Lessons for Current and Future Challenges	May 23, 2014
Dr. C. Viswanathan Indian Agricultural Research Institute, New Delhi	Making Sense of Plant Stress Hormone Signalling	August 27, 2014
Dr. Satyajit Rath National Institute of Immunology, New Delhi	Sources and Consequences of Biological Variance: The Immune System Example	September 09, 2014
Dr. Jyothilakshmi Vadassery National Institute of Plant Genome Research (NIPGR), New Delhi	Calcium signaling in plant perception of insect attack	December 08, 2014
Dr. Jason W. Reed University of North Carolina, Chapel Hill (USA)	Functions of SAUR proteins and transporters required for suberin biosynthesis	December 16, 2014
Prof. Stephane Genin LIPM, Toulouse, France	<i>Ralstonia solanacearum</i> pathogenesis and adaptation to the plant environment	March 05, 2015

Academic Courses and Training Programmes

Ph. D. Programme

As in the previous years, the response for admission to Institute's Ph. D. programme was very encouraging this year also. The candidates are selected after a national level test/interview conducted by NIPGR. Only CSIR/UGC/DBT-JRF/ICMR Fellowship awardees are eligible to apply. The selected scholars are first required to do course work, which is followed by research work on different areas on Plant Genomics in various laboratories. A total number of 161 students have registered for the Programme leading to Ph. D. degree to JNU since the Academic year 2001-2002, and out of these, 65 students have been awarded with Ph. D. degree, & the rest are at various stages of their Ph. D. work.

Students enrolled for Ph.D programme 2014-15

S. No.	Name of the Student	Name of the Supervisor / Joint Supervisor
1.	Mr. Lande Nilesh Vikram	Dr. Niranjana Chakraborty
2.	Mr. Pramod Kumar Mittal	Dr. Subhra Chakraborty
3.	Mr. Nilesh Kumar Sharma	Dr. Debasis Chattopadhyay
4.	Mr. Niraj K. Vishwakarma	Dr. Debasis Chattopadhyay
5.	Ms. Stanzin Noryang	Dr. Alok Krishna Sinha
6.	Ms. Sarita Kumari	Dr. Sabhyata Bhatia
7.	Ms. Kanchan Prabha	Dr. Praveen Verma
8.	Mr. Shreenivas Kumar Singh	Dr. Praveen Verma
9.	Mr. Roshan Kumar Singh	Dr. Manoj Prasad
10.	Ms. Annvi Dhaka	Dr. Manoj Prasad
11.	Mr. Sanjeet Kumar Mahtha	Dr. Gitanjali Yadav
12.	Ms. Manvi Sharma	Dr. Ashvarya Laxmi
13.	Ms. Dhriti Singh	Dr. Ashvarya Laxmi
14.	Ms. Shraboni Ghosh	Dr. Manoj Majee
15.	Mr. Sunil Kumar Yadav	Dr. Gopaljee Jha
16.	Ms. Sarita Jha	Dr. Saloni Mathur
17.	Ms. Aanchal Choudhary	Dr. Senthil Kumar Muthappa
18.	Mr. Sandeep Kumar Dixit	Dr. Senthil Kumar Muthappa
19.	Mr. Ajit Pal Singh	Dr. Jitender Giri
20.	Mr. Ankit Verma	Dr. Pinky Agarwal & Prof. Akhilesh Kr. Tyagi
21.	Mr. Daware Anurag Vasantrao	Dr. Swarup K Parida & Prof. Akhilesh Kr. Tyagi

Ph. D. Degrees awarded to NIPGR Scholars

The Jawaharlal Nehru University, New Delhi, awarded the degree of Doctoral of Philosophy to the following scholars of the Institute during the year under report:

S. No.	Name of the Student	Thesis Title	Name of the supervisor
1.	Mr. Shadab Nizam	Functional analysis of genes involved in pathogenesis and virulence of the chickpea blight fungus <i>Ascochyta rabiei</i>	Dr. Praveen Verma
2.	Mr. Bhuwaneshwar S. Mishra	To study the interaction between auxin and sugar signal transduction pathway in model plant system <i>Arabidopsis thaliana</i>	Dr. Ashverya Laxmi
3.	Mr. Rajiv Kumar	Study of dehydration-responsive phosphoproteome of nuclear fraction in chickpea (<i>Cicer arietinum</i> L.)	Dr. Niranjana Chakraborty
4.	Ms. Shefali Gupta	Transcriptome analysis of developing chickpea (<i>Cicer arietinum</i> L.) seed for marker development and gene identification	Dr. Sabhyata Bhatia
5.	Ms. Sunita Kushwah	To study the interaction between cytokinin and sugar signal transduction pathway in model plant system <i>Arabidopsis thaliana</i>	Dr. Ashverya Laxmi
6.	Ms. Pooja Verma	Molecular analysis and functional characterization of protein L-isoaspartyl methyl transferase (PIMT) from chickpea	Dr. Manoj Majee
7.	Ms. Aditi Gupta	To study the interaction between glucose and brassinosteroid signal transduction pathway in a model plant system <i>Arabidopsis thaliana</i>	Dr. Ashverya Laxmi

S. No.	Name of the Student	Thesis Title	Name of the supervisor
8.	Mr. Raghu Ram B.	Regulation of MAP kinase signaling cascade by microRNAs in <i>Oryza sativa</i>	Dr. Alok Kr. Sinha
9.	Mr. Vijay Wardhan	Role of chickpea Tubby-like protein (CaTLP1) in dehydration tolerance	Dr. Niranjana Chakraborty
10.	Mr. Arsheed Hussain Sheikh	Identification and characterization of novel interacting partners of mitogen activated protein kinases in <i>Oryza sativa</i>	Dr. Alok Kr. Sinha
11.	Mr. Awdhesh Kumar Mishra	Cloning and characterization of gene(s) encoding putative WD-repeat protein in foxtail millet [<i>Setaria italica</i> (L.) P. Beauv.]	Dr. Manoj Prasad
12.	Ms. Kamakshi S. Kothari	Functional characterization of stress responsive genes in rice	Prof. Akhilesh K. Tyagi
13.	Mr. Mukesh Kumar Meena	Role of serine-threonine protein kinase from chickpea and its homologue in <i>Arabidopsis</i> in root development	Dr. Debasis Chattopadhyay

Research Scholars other than Ph.D. students associated with NIPGR

Research Associates

Aarti Gupta
Abira Choudhary
Aditi Gupta
Alka Singh
Anshuman Roy
Arvind Kumar
B. Raghuram
Chandra Bhan Yadav
Debalena B.Chattopadhyay
Gunjan Kumari
Hussain Ara
Kamal Kumar
Mohammad Irfan
Papri Nag
Prachi Pandey
Pradipto Mukhopadhyay

Pratigya Subba
Rehna Augustine
Renu Kumari
Santosh Kumar
Saurabh Badoni
Saurabh Saxena
Shefali Gupta
Subhasis Samanta
Tirthankar Bandyopadhyay
Upendra Kumar
Vigya Kesari
Vijay Wardhan
Vikas Srivastava
Vimal Kumar Pandey
Vinay Kumar Tyagi

Project Fellows

Abhishek Mazumdar
Akhilesh Mishra
Alok N Patel
Amit Kumar
Anil Kumar
Apoorva Bhatnagar
Ashutosh Kumar
Awdhesh Mishra
Ayushi Kamthan
Chandana Pandey
Chevla V.V.S. Narayana
Deepa Kumari Rohela
Deepak Bajaj
Dinesh Kumar Tripathy
Gargi Pal
Ishita Chandel
Jitendra Kumar Verma
Juhi Kumari
Jyoti Agarwal

Pooja Verma
Poonam Mishra
Pramila Yadav
Pratima Sharma
Priyanka Ghorai
Priyanka Verma
Purnima Singh
Raghvendra Sharma
Rajeev Kumar
Rajesh Ghangal
Rajul Tayal
Rashmi Gaur
Rishi Srivastava
Riti Roy
Rohit khandelwal
Satish Barfa
Shaista Parveen
Shikha Gupta
Shubhendu Shekhar

Karishma
Kashif Nawaz
Kumari Veena Sinha
Meenakshi Sharma
Megha Varshney
Mohit Verma
Neetu Tyagi
Nidhi Maheshwari
Nilesh Vikram Lande
Niraj Kumar Khemka
Nuzeena Bashir

Shweta
Sneha Tiwari
Sudip Ghosh
Sukanya Samanta
Sukriti Sharma
Sushmita Biswas
Suvakanta Barik
Tanima Shree
Thakkur Bijal
Umang Koul

Training Programme

The Institute accepts students from different Universities/Institutes as trainees and provides them facilities and guidance. A list of students from various universities/institutions trained by faculty of the Institute is given below :

1.	Anjugam Paramanantham	Bharathidasan University, Tiruchirappalli
2.	Aparna Pal	Department of Bioscience & Biotechnology, Banasthali University, Rajasthan
3.	Arpita Biswas	NIT, Surathkal, Karnataka
4.	Ashok Kumar Singh	Devi Ahilya University, Indore, Madhya Pradesh
5.	Avinash Kumar Jha	Department of Biotechnology, Lalit Narayan Mithila University, Darbhanga
6.	Bhanupriya	Department of Bioscience and Biotechnology, Banasthali University, Rajasthan
7.	Deepti Singh	VBS Purvanchal University, Jaunpur
8.	Happy Kaushik	Jaipur National University, Jaipur
9.	Jananee Jaishankar	Maulana Azad National Institute of Technology, Bhopal, Madhya Pradesh
10.	Jayabalan D	Alagappa University, Karaikudi, Tamil Nadu
11.	Joel Fernandes	Goa University, Goa
12.	Karishma	School of Biochemistry, Devi Ahilya University, Indore, Madhya Pradesh
13.	Manika Vikal	Banasthali University, Rajasthan
14.	Medha Sharma	Gautam Buddha University, Greater Noida, UP
15.	Nur Amin Hoque	Jamia Milia Islamia , New Delhi
16.	Prerna Sharma	Integral University, Lucknow
17.	Priti Kumari	Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad
18.	Priyanshu Sharma	Banasthali Vidyapeeth, Jaipur, Rajasthan
19.	Rahul Raman	IIT-BHU, Varanasi
20.	Rajbala	Lalit Narayan Mithila University, Darbhanga, Bihar
21.	Reshu	Gautam Buddha University, Greater Noida, UP
22.	Saumya Jaiswal	NIT, Bhopal
23.	Shalini Gupta	Banasthali Vidyapeeth
24.	Shubham	School of Life Sciences, Jaipur National University, Jaipur, Rajasthan
25.	Shweta Agarwal	Gautam Buddha University, Greater Noida, UP
26.	Shweta Tyagi	CCS, Meerut
27.	Vandana Jaggi	Department of Microbiology, Maharishi Markandeshwar University, Ambala
28.	VVN Mukesh Gowd	JNTU, Hyderabad
29.	Zohra Firdos Jafaree	University of Rajasthan, Jaipur

Other activities at NIPGR

NIPGR Sub-DIC Facility (DISC)

The Distributed Information Sub Centre (DISC) at NIPGR, was established in 2007, in order to serve as a support structure for all IT related issues at the institute, in addition to providing computational facilities, bioinformatics related services to the researchers in various laboratories at the Institute. The center specializes in comparative genomics and stress biology of plants. Major activities of the center during the current year include genome mining, development of algorithms to map and cluster genes and gene families of interest, on to respective plant genomes, construction of databases on phytochemicals and secondary metabolite biosynthetic genes, apart from online web server design in several research areas.

In addition, the DISC performs regular training of researchers under short and long term programs, at both individual and group levels. At the individual level, two students were trained for six months in Bioinformatics in the laboratory, whereas at the group level, lectures and hands-on demonstrations were imparted by DISC staff in the area of computational biology at conferences and workshops organized by various universities in India. At the group training level, a two-day workshop on the theme of 'Computational Biology in Plant Science' was conducted in November 2014, for Ph.D. scholars, postdoctoral researchers and teachers from various colleges and universities, in order to enhance and spread awareness about the use and applications of bioinformatics in plant biology. The DISC facility has an in-house reference manager, several in-house databases on a variety of themes including essential oils, terpene synthases, KIX domains, glycoproteins etc. DISC also houses a large collection of internally developed online web-servers for multi-variate analyses in plant biology, such as transcription factor families, biomolecular networks, plant-sugar interactions and chickpea genome browser. In addition, the facility provides access to public bioinformatics resources covering a wide range of applications like sequence and structure analyses, molecular modeling and simulations, structure prediction and drug design.

National Plant Gene Repository (NAPGER)

In India, different R&D institutions and Universities besides The National Institute of Plant Genome Research (NIPGR) are intensely involved in plant genomics research. Recently completed work of rice, tomato, potato and chickpea genome sequences, on-going effort on sequencing other crop along with different EST, RNA-Seq-based projects are giving out many novel and important genes and promoters. However, the large sets of these items are scattered in various laboratories all over the country. It is thus a difficult task to find the components one wants from various individual sources. Therefore, proper cataloging, documentation, storage, maintenance and distribution of various gene libraries, clones, and promoters are pre-requisites, which would help functional and application genomics, the next steps in gene revolution. Further, these efforts are also important in the new era of patent regime. Towards this, the Department of Biotechnology has set up National Plant Gene Repository (NAPGER) at National Institute of Plant Genome Research to serve as National facility. NAPGER has come in to existence during 2008. The activities of NAPGER are (1) storage and distribution of genes, promoters

and ESTs in form of DNA clone, library, etc. and (2) to develop a database for all stocks and other information. During the first phase setting up the infrastructure, procurement of instruments, recruitment of project staffs, formulation of guidelines for procurement of materials and their distribution to public and private sector have been successfully done. The research protocols to be followed in NAPGER have been developed and the recruited manpower had been trained. Identification of potential Indian laboratories involved in genomics research and development of the NAPGER web page has been completed. The web enabled database and information regarding NAPGER is available online at http://www.nipgr.res.in/facilities/facilities_napger.php. Further, the facility had been advertised and made online and all researchers have been encouraged to utilize this facility. NAPGER is fully functional and the deposited stocks are now been regularly maintained and ready for distribution. A National workshop had been organized on “National workshop and hands on training about plant gene repository and plant gene database handling” in September 2014. We regard this as an occasion to promote fellowship among researchers, to enhance their professional understanding through interaction, to establish communication for better research orientation in the field.

INSPIRE FACULTY AWARD

Project title	: Epigenomics of stress adaptation in plants
Awardee	: Rohini Garg
Research scholar	: Romika Kumari

Epigenetic regulation of gene expression involves complex interplay between DNA methylation, histone modifications, and non-coding RNAs, notably small interfering RNAs (siRNAs) and micro RNAs (miRNAs). Recent evidences indicate that epigenetic mechanisms play a crucial role in regulating gene expression in plant responses to environmental stress. To study role of epigenetic mechanism in stress we first identified stress regulated small RNAs/miRNAs from different chickpea varieties. We sequenced small RNA libraries constructed from control and salt stressed tolerant and sensitive chickpea varieties. A total of 281 mature miRNAs, including 208 known miRNAs and 73 novel miRNAs of 20-24 nt were identified. We have also identified miRNAs differentially expressed in tolerant and sensitive varieties of chickpea during abiotic stresses. A total of 150 out of 281 miRNAs were differentially expressed between the two cultivars under control conditions. Notably, a set of 175 miRNAs have altered expression under stress comparisons. We have identified their target genes that are involved in a broad spectrum of cellular, metabolic, physiological and developmental processes. We are currently analysing the expression of these target genes. In our previous study, we identified two DNA methyltransferases; DRM and DNMT2 to be differentially regulated during various abiotic stress treatments in chickpea. These genes might regulate DNA methylation in response to abiotic stress in chickpea. The activity of these methyltransferases might be regulated by their interaction with other proteins that could direct them to specific loci to regulate their methylation. However, interacting proteins of DRMs are not known in plants. The complete ORF of these genes were utilized for screening chickpea cDNA library using yeast two-hybrid method. We identified several interacting proteins. The confirmation of interaction with selected screened proteins is in progress.

Infrastructural Development at the Institute

The newly constructed research-block measuring approximately 6500 sq. mtr. area, taken over from the Project Management Agency, has been made functional. This includes 12 wet laboratories, 02 Tissue Culture Laboratories, besides 01 Genome Analysis Facility. Additionally, 02 Cold Rooms and 01 Dark Room have also been established in the research area.



New Wet Laboratories



Tissue Culture Laboratory



Geneome Analysis Facility

Grant-in-Aid Schemes

Sl. No.	Investigator / Co-Investigator	Title of the Scheme	Funded by
1.	Prof. Akhilesh K. Tyagi	Functional analysis of gene regulatory networks during flower and seed development in rice	DBT Govt. of India
2.	Prof. Akhilesh K. Tyagi	Association and genetic mapping of loci for seed size/weight in rice of Seed Biology	DBT Govt. of India
3.	Prof. Akhilesh K. Tyagi	J. C. Bose Fellowship	DST Govt. of India
4.	Prof. Asis Datta	Role of N-acetylglucosamine catabolic pathway in pathogens of human and plant	CSIR Govt. of India
5.	Prof. Asis Datta	Biotechnological approaches to improve nutritional and post-harvest quality, drought tolerance and pathogen resistance in edible crops	DBT Govt. of India
6.	Dr. Niranjana Chakraborty	Functional genomics of water deficit stress in chickpea of Next Generation Challenge Programme on Chickpea Genomics	DBT Govt. of India
7.	Dr. Niranjana Chakraborty	Molecular cloning & characterization of CaTLP1 dehydration responsive tubby like protein from chickpea	DBT Govt. of India
8.	Dr. Niranjana Chakraborty	Proteomic analysis of dehydration responsive endomembrane Fraction of Rice (<i>Oryza sativa</i> D.)	CSIR Govt. of India
9.	Dr. Niranjana Chakraborty	Functional Proteomic Studies in North East Rice (<i>Oryza sativa</i> L.) for Dehydration Tolerance	DBT Govt. of India
10.	Dr. Niranjana Chakraborty	Proteomic analysis of dehydration-responsive secretome of grasspea (<i>Lathyrus sativus</i> L.)	CSIR Govt. of India
11.	Dr. Subhra Chakraborty	National Plant Gene Repository at NIPGR	DBT Govt. of India
12.	Dr. Subhra Chakraborty	Functional genomics of Seed development & nutrition of Next Generation Challenge Programme on Chickpea Genomics	DBT Govt. of India

Sl. No.	Investigator / Co-Investigator	Title of the Scheme	Funded by
13.	Dr. Subhra Chakraborty	Comparative metabolite profiling of transgenic and non-transgenic potato expressing AmA1 protein	DBT Govt. of India
14.	Dr. Subhra Chakraborty	TATA Innovation Fellowship: Elucidating immune- related pathostress-reponsive ECM reportier in legume and tuber crops by comparative proteomic analysis	DBT Govt. of India
15.	Dr. Debasis Chattopadhyay	Mechanism of genetic interaction between CIPK6 and CIPK25 in root development under National Bioscience Award for career Development 2010	DST Govt. of India
16.	Dr. Debasis Chattopadhyay	Regulation of root development by auxin and cytokinin mediated signaling of Root Development and Nutrition	DBT Govt. of India
17.	Dr. Alok Krishna Sinha	Study of the role of Mitogen Activated Protein Kinase (MAPK) during rice root development of Root Development and Nutrition	DBT Govt. of India
18.	Dr. Alok Krishna Sinha	Investigation of cross talk between light and MAP kinase signaling pathways in <i>Arabidopsis thaliana</i>	DBT Govt. of India
19.	Dr. Alok Krishna Sinha	National Bioscience Award: Interaction between two rice mitogen activated protein kinase and its possible role in plant defense	DST Govt. of India
20.	Dr. Sabhyata Bhatia	Chickpea genome sequence analysis and its alignment to genetic map of Next Generation Challenge Programme on Chickpea Genomics	DBT Govt. of India
21.	Dr. Sabhyata Bhatia	Functional genomics of nodulation in chickpea root of Root Development and Nutrition	DBT Govt. of India

Sl. No.	Investigator / Co-Investigator	Title of the Scheme	Funded by
22.	Dr. Sabhyata Bhatia	Indo- Australian project Genomic Approaches for Stress Tolerant Chickpea	DST Govt. of India
23.	Dr. Praveen Verma	Analysis of chickpea response to <i>Ascochyta</i> infection and generation of ORFeome for target gene of Next Generation Challenge Programme on Chickpea Genomics	DBT Govt. of India
24.	Dr. Praveen Verma	Identification and characterization of effectors from necrotrophic blight fungus <i>Ascochyta rabiei</i> and their targets from the chickpea	DBT Govt. of India
25.	Dr. Praveen Verma	Towards identification, isolation and characterization of <i>Exobasidium vexans</i> strains and their pathogenic determinants/effectors, from blister blight infested tea-plantation of Assam and development of a future roadmap for effective management practices	DBT Govt. of India
26.	Dr. Manoj Prasad	Mapping of Mungbean yellow Mosaic Virus resistance loci in soybean	DBT Govt. of India
27.	Dr. Manoj Prasad	Introgression of begomovirus resistance genes in tomato (<i>Solanum Lycopersicum</i> L.) using MAS and Genomics approach	DBT Govt. of India
28.	Dr. Manoj Prasad	Characterization of ubiquitin/26S proteasome pathway-related genes by VIGS in tomato during ToLCNDV infection	DBT Govt. of India
29.	Dr. Jitendra K. Thakur	Functional Study of Mediator Complex, a Transcriptional Co-activator, in Plant Growth and Development	DBT Govt. of India
30.	Dr. Jitendra K. Thakur	Elucidation of Protein level interactions to Define Arrangement of subunits in the Plant Mediator Complex	DBT Govt. of India

Sl. No.	Investigator / Co-Investigator	Title of the Scheme	Funded by
31.	Dr. Jitendra K. Thakur	DNA methylation and histone (H3K9Ac and H3K27me3) markings during seed development in two rice varieties with contrasting seed size/weight of Seed Biology	DBT Govt. of India
32.	Dr. Gitanjali Yadav (Scientist Incharge)	Establishment of Distributed Information Sub-Centre (DISC)	DBT Govt. of India
33.	Dr. Gitanjali Yadav	START domains in Plants: Epigenetics & Evolution under Women Excellence Award Scheme	DST Govt. of India
34.	Dr. Gitanjali Yadav	Comparative analysis of plant organellar genes with their nuclear and free-living counterparts to understand genome organization, gene content and evolutionary patterns of origin and continuity	INSA Govt. of India
35.	Dr. Ashverya Laxmi	To Study the role of glucose and its interaction with hormones in controlling <i>Arabidopsis thaliana</i> root directional responses of Root Development and Nutrition	DBT Govt. of India
36.	Dr. Ashverya Laxmi	To study the interaction between cytokinin and sugar signal transduction pathway in model plant system <i>Arabidopsis thaliana</i>	DBT Govt. of India
37.	Dr. Manoj Majee	Molecular and biochemical study of Protein L-Isoaspartyl Methyltransferase (PIMT) and its biological role in seed vigor, viability and stress tolerance in rice	DBT Govt. of India
38.	Dr. Manoj Majee	Investigation the role of Protein L-Isoaspartyl Methyltransferase (PIMT) in plant stress adaptation	DBT Govt. of India
39.	Dr. Mukesh Jain	Role of Homeobox Genes in Abiotic Stress Responses in Rice	DST Govt. of India

Sl. No.	Investigator / Co-Investigator	Title of the Scheme	Funded by
40.	Dr. Mukesh Jain	Functional genomics approaches in understanding the regulation of flowering and synthesis, and accumulation of apocarotenoids in saffron crocus (<i>Crocus sativus</i> L.)	DBT Govt. of India
41.	Dr. Mukesh Jain	Transcriptome and epigenome diversity analysis during seed development for discovery of molecular markers and gene regulatory mechanism in chickpea of Seed Biology	DBT Govt. of India
42.	Dr. Naveen C. Bisht	Development of low Glucosinolate <i>Brassica Juncea</i> transgenic lines using RNAi based down-regulation of glucosinolate pathway genes	DBT Govt. of India
43.	Dr. Naveen C. Bisht	Tissue specific engineering of glucosinolate content and profiles in Indian oilseed mustard (<i>Brassica juncea</i>) for higher nutritional value and uncompromised defense response	DBT Govt. of India
44.	Dr. Ananda K. Sarkar	Ramalingaswami Fellowship	DBT Govt. of India
45.	Dr. Ananda K. Sarkar	Molecular characterization of variation in root system architecture among selected Indica rice varieties of Root Development and Nutrition	DBT Govt. of India
46.	Dr. Saloni Mathur	Identification of heat responsive miRNAs in tomato (<i>Solanum lycopersicum</i>)	DST Govt. of India
47.	Dr. Gopaljee Jha	Gold nanoparticles based simple, quick and onsite early diagnostic kit for apple scab disease	DBT Govt. of India
48.	Dr. Gopaljee Jha	Understanding the molecular intricacies of <i>Rice-Rhizoctonia</i> interactions	DBT Govt. of India
49.	Dr. Senthil Kumar Muthappa	Ramalingaswami Fellowship	DBT Govt. of India

Sl. No.	Investigator / Co-Investigator	Title of the Scheme	Funded by
50.	Dr. Jitender Giri	Identification of genes involved in regulation of phosphate utilization by root under water-deficit stress in rice of Root Development and Nutrition	DBT Govt. of India
51.	Dr. Swarup K. Parida	Association and genetic mapping of loci for seed size/weight in chickpea of Seed Biology	DBT Govt. of India
52.	Dr. Pinky Agarwal	Transcriptome and small RNA diversity analysis of developing seed contrasting rice varieties of Seed Biology	DBT Govt. of India
53.	Dr. Pinky Agarwal	Elucidation of seed storage protein encoding genes in rice and their promoter analysis	DST Govt. of India
54.	Dr. Doel Ray Principal Investigator DBT Bio-Care Scheme	Analysis of dehydration-responsive proteome, and cloning and functional characterization of novel elements in rice	DBT Govt. of India
55.	Dr. Rohini Garg INSPIRE Faculty Fellow	INSPIRE Fellowship: Epigenomics and stress Adaptation in Plant	DST Govt. of India
56.	Dr. Rohini Garg	G-Quadruplexes: Prevalence, function relevance and epigenetic regulation in plants	DBT Govt. of India
57.	Dr. Shilpi Nidhi	Morphological transition and gene regulation in <i>Candida albicans</i> induced by free internal amino acid	ICMR Govt. of India
58.	Dr. Ranjita Sinha	Dissecting physiological and molecular response adapted by chickpea plants exposed to concurrent drought stress and bacterial pathogen infection by using transcript profiling and VIGS	DST Govt. of India
59.	Dr. Prachi Pandey	Uncovering the unique stress tolerance mechanisms of contrasting chickpea genotypes against simultaneous drought stress and pathogen infection: An approach based on miRNA-induced gene silencing	DST Govt. of India

Committees of the Institute

Society

Dr. Harsh Vardhan

Hon'ble Minister of Science & Technology and Earth Sciences,
Ministry of Science & Technology and Earth Sciences, Government of India, New Delhi
(President) (November 09, 2014 to till date)

Dr. Jitendra Singh

Hon'ble Minister of Science & Technology and Earth Sciences
Ministry of Science & Technology and Earth Sciences, Government of India, New Delhi
(President) (Up to November 08, 2014)

Shri Sudini Jaipal Reddy

Hon'ble Minister of Science & Technology and Earth Sciences
Ministry of Science & Technology and Earth Sciences, Government of India, New Delhi
(President) (Up to May 26, 2014)

Prof. Krishnaswamy VijayRaghavan

Secretary, Department of Biotechnology,
Government of India, New Delhi

Prof. Sudhir K. Sopory

Vice Chancellor
Jawaharlal Nehru University, New Delhi

Prof. A.K. Sharma

University of Calcutta, Kolkata
(Up to April 30, 2014)

Dr. S. Ayyappan

Director General
Indian Council for Agricultural Research, New Delhi

Prof. V. L. Chopra

Former Member
Planning Commission, New Delhi

Prof. R. B. Singh

Former Director, IARI
President, NAAS, New Delhi

Prof. Avadhesha Surolia

Former Director, National Institute of Immunology,
New Delhi

Dr. Rakesh Tuli

Former Executive Director
NABI, Mohali (Up to April 30, 2014)

Shri. J. B. Mohapatra

Financial Adviser, Department of Biotechnology,
Ministry of Science and Technology, Government of India, New Delhi (December 15, 2014 to till date)

Ms. Anuradha Mitra

Financial Adviser, Department of Biotechnology,
Ministry of Science and Technology, Government of India, New Delhi (Up to December 14, 2014)

Dr. K. S. Charak

Adviser, Department of Biotechnology
Ministry of Science & Technology
Government of India, New Delhi

Dr. Dinakar M. Salunke

Executive Director, Regional Centre for
Biotechnology, Gurgaon, Haryana

Prof. H. Devaraj

Vice-Chairman
University Grants Commission, New Delhi

Prof. Jitendra P. Khurana

Professor & Coordinator (UGC-SAP)
Department of Plant Molecular Biology
University of Delhi, South Campus,
New Delhi (May 01, 2014 to till date)

Dr. Chandrima Saha

Director, National Institute of Immunology,
New Delhi (May 01, 2014 to till date)

Prof. Akhilesh Kumar Tyagi

Director, NIPGR (Member-Secretary)

Governing Body

Prof. Krishnaswamy Vijay Raghavan

Secretary
Department of Biotechnology
Government of India, New Delhi
(Chairman)

Prof. Sudhir K. Sopory

Vice Chancellor
Jawaharlal Nehru University
New Delhi

Prof. A.K. Sharma

University of Calcutta, Kolkata
(Up to April 30, 2014)

Dr. S. Ayyappan

Director General
Indian Council for Agricultural Research
New Delhi

Prof. R. B. Singh

Former Director, IARI
President, NAAS, New Delhi

Shri. J. B. Mohapatra

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Ministry of Science and Technology
Government of India
New Delhi (December 15, 2014 to till date)

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Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi (Up to December 14, 2014)

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Ministry of Science & Technology
Government of India
New Delhi

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(Up to April 30, 2014)

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Regional Centre for Biotechnology
Gurgaon, Haryana

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New Delhi

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New Delhi
(May 01, 2014 to till date)

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Director
National Institute of Immunology
New Delhi
(May 01, 2014 to till date)

Prof. Akhilesh Kumar Tyagi

Director, NIPGR
(Member-Secretary)

Finance Committee

Prof. Krishnaswamy Vijay Raghavan

Secretary
Department of Biotechnology
Government of India, New Delhi
(Chairman)

Shri. J. B. Mohapatra

Financial Adviser
Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi
(December 15, 2014 to till date)

Ms. Anuradha Mitra

Financial Adviser
Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi
(Up to December 14, 2014)

Dr. Satish K. Gupta

National Institute of Immunology
New Delhi

Shri. N. S. Padmanabham

Senior Manager
National Institute of Immunology
New Delhi

Ms. Kusum Lata Sharma

Deputy Secretary
Department of Biotechnology
Government of India
New Delhi

Prof. Akhilesh Kumar Tyagi

Director, NIPGR
New Delhi

Shri. Sandeep Datta

Manager, NIPGR
(Non-Member Secretary)

Scientific Advisory Committee

Prof. Sudhir K. Sopory

Vice Chancellor
Jawaharlal Nehru University
New Delhi (Chairman)
(September 01, 2014 to till date)

Prof. A. K. Sharma

University of Calcutta
Kolkata, (Chairman)
(Up to August 31, 2014)

Dr. P. Ananda Kumar

Director
Institute of Biotechnology,
ANGRAU, Rajendra Nagar, Hyderabad
(Up to August 31, 2014)

Prof. Jitendra P. Khurana

Professor & Coordinator (UGC-SAP)
Department of Plant Molecular Biology
University of Delhi, South Campus
New Delhi

Prof. M. Udayakumar

Department of Crop Physiology
University of Agricultural Sciences
Hebbal GKVK, Bangalore

Dr. Rakesh Tuli

Former Executive Director
NABI, Mohali, Punjab
(Up to August 31, 2014)

Prof. K. Veluthambi

UGC-BSR Faculty Fellow
Department of Plant Biotechnology
School of Biotechnology
Madurai Kamaraj University, Madurai

Dr. K. C. Bansal

Director
National Bureau of Plant Genetic Resources
PUSA, New Delhi

Dr. Imran Siddiqi

Centre for Cellular & Molecular Biology
(CCMB), Hyderabad

Dr. R. S. Sangwan

Chief Executive Officer
Center of Innovative and Applied Bio-processing
(CIAB)
(September 01, 2014 to till date)

Dr. T. R. Sharma

Project Director
National Research Centre on Plant
Biotechnology (NRCPB)
Lal Bahadur Shastri Building, IARI, Pusa
Campus, New Delhi
(September 01, 2014 to till date)

Dr. A. K. Singh

Professor & Head
Genetics Division, IARI,
Pusa, New Delhi
(September 01, 2014 to till date)

Dr. (Mrs.) Usha Barwale

Maharashtra Hybrid Seeds Co. Ltd.
Mumbai

Dr. Kuldeep Singh

Senior Molecular Geneticist & Director
Punjab Agricultural University, Ludhiana

Dr. Usha VijayaRaghavan

Professor, Department of Microbiology &
Cell Biology, Indian Institute of Science
Bangalore

Dr. K. S. Charak

Advisor
Department of Biotechnology
Ministry of Science & Technology
Govt. of India, New Delhi

Prof. Akhilesh Kumar Tyagi

Director, NIPGR
(Member-Secretary)

Academic Committee

Prof. Akhilesh Kumar Tyagi

Director, NIPGR
(Chairman)

Prof. Supriya Chakraborty

School of Life Sciences
Jawaharlal Nehru University
New Delhi

Dr. Rohini Muthuswamy

School of Life Sciences
Jawaharlal Nehru University
New Delhi

Dr. Raj K. Bhatnagar

ICGEB, JNU Campus
New Delhi

Prof. Indranil Dasgupta

Department of Plant Molecular Biology
University of Delhi, South Campus
New Delhi

Dr. Niranjana Chakraborty

National Institute of Plant Genome Research
New Delhi

Dr. Sabhyata Bhatia

National Institute of Plant Genome Research
New Delhi

Coordinator (Evaluation)

Jawaharlal Nehru University
New Delhi
(Special Invitee)

Building Committee

Dr. Dinakar M. Salunke

Executive Director
Regional Centre for Biotechnology
Gurgaon, Haryana
(Chairman)

Prof. Jitendra P. Khurana

Professor & Coordinator (UGC-SAP)
Department of Plant Molecular Biology
University of Delhi, South Campus
New Delhi

Prof. Rajendra Prasad

School of Life Sciences
Jawaharlal Nehru University
New Delhi

Shri. J. B. Mohapatra

Financial Adviser
Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi
(December 15, 2014 to till date)

Ms. Anuradha Mitra

Financial Adviser
Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi
(Up to December 14, 2014)

M/s. S. D. Sharma & Associates

Institute's Architect
Panchkula (Haryana)

Shri. Sunil Kumar Sharma

Consultant Engineer
NIPGR, New Delhi

Shri. Sandeep Datta

Manager
NIPGR, New Delhi
(Member-Secretary)

Staff of the Institute

Scientific Staff

Prof. Akhilesh Kumar Tyagi, Director

Prof. Asis Datta, Distinguished Emeritus Scientist

Dr. Niranjana Chakraborty, Scientist – VII

Dr. Subhra Chakraborty, Scientist – VI

Dr. Debasis Chattopadhyay, Scientist – VI

Dr. Alok Krishna Sinha, Scientist – VI

Dr. Sabhyata Bhatia, Scientist – VI

Dr. Praveen Verma, Scientist – V

Dr. Manoj Prasad, Scientist – V

Dr. Jitendra K. Thakur, Scientist – IV

Dr. Gitanjali Yadav, Scientist – IV

Dr. Ashvarya Laxmi, Scientist – IV

Dr. Manoj Majee, Scientist – IV

Dr. Mukesh Jain, Scientist – IV

Dr. Naveen C. Bisht, Scientist – IV

Dr. Jagadis Gupta Kapuganti – IV

Dr. Ananda K. Sarkar, Scientist – III

Dr. Gopaljee Jha, Scientist – III

Dr. Saloni Mathur, Scientist – III

Dr. Senthil Kumar Muthappa, Scientist – III

Dr. Jitender Giri, Scientist – III

Dr. Swarup K. Parida, Scientist – III

Dr. Pinky Agarwal, Scientist – III

Dr. JyothiLakshmi Vadassery, Scientist – III

Technical Staff

Ms Umamaheswari Rajamani, Technical Staff Gr. – I

Dr. Sarjeet Singh Thakur, P. I. O. & Technical Staff Gr. – I

Shri R. S. Tomar, Technical Staff Gr. – I

Shri P. S. Negi, Technical Staff Gr. – I

Shri Sunil Kumar, Technical Staff Gr. – I

Shri Sunil Kumar Avasthi, Technical Staff Gr. – I

Dr. Santosh Kumar Gupta, Technical Staff Gr. – I

Shri Neeraj Nim, Programmer

Shri Arun Kumar, Technical Staff Gr. – II

Shri Shankar Acharya, Technical Staff Gr. – II

Shri C. Ravi Shankar, Technical Staff Gr. – II

Shri Shobharam Valmeeki, Technical Staff Gr. – II

Shri Anand Singh Rana, Technical Staff Gr. – II

Shri Ashok Kumar, Technical Staff Gr. – II

Shri Rajendra, Technical Staff Gr. – II

Shri Dinesh Mehta, Technical Staff Gr. – II

Shri Ratneshwar Thakur, Technical Staff Gr. – II

Shri Subhasish Mondal, Technical Staff Gr. – II

Shri Shailendra Kharwal, Technical Staff Gr. – III

Shri Anand Dangi, Technical Staff Gr. – III

Shri Lokesh Singh Chandolia, Technical Staff Gr. – III

Shri Brihaspati Narayan Shukla, Technician -I

Shri Arabinda Das, Multi Tasking Staff

Shri P. K. Mishra, Multi Tasking Staff

Shri B. P. Mandal, Multi Tasking Staff

Shri Tul Bahadur Thapa, Multi Tasking Staff

Shri Shyam Bahadur Gurung, Multi Tasking Staff

Ms Neeta Maurya, Multi Tasking Staff

Shri Mahender Singh, Multi Tasking Staff

Administrative & Finance Staff

Shri Sandeep Datta, Manager

Dr. V. K. Sharma, Librarian / Information Scientist

Shri Rajinder Raina, Purchase-Cum-Store Officer

Shri Sudhir Patwal, Administrative Officer

Shri Rakesh Mohan, Finance Officer

Shri Sunil Kumar Sharma, Consultant

Shri Kamal Kumar Verma, PS to Director

Ms Rashmi Singh, Management Assistant

Ms Vinita Sharma, Management Assistant

Ms Rajani Aswal, Management Assistant

Ms Sonali, Jr. Management Assistant

Shri Tapas Shit, Jr. Management Assistant

Shri Mitesh Raj Bhardwaj, Jr. Management Assistant

Shri Achint Gupta, Jr. Management Assistant

Shri Ravi Kant Singh, Jr. Engineer (Civil)

Shri Naveen Kumar Sudda, Jr. Engineer (Electrical)

Shri Devender Singh Bhandari, Assistant

Shri Ramesh Singh Chaudhary, Jr. Assistant

Shri Hari Singh Negi, Jr. Assistant

Shri Kuldeep Singh, Driver

Shri Manmohan Singh Rawat, Multi Tasking Staff

Shri Bhrigunath Manjhi, Multi Tasking Staff

Budget / Auditor's Reports & Audited Accounts

Budget

The Financial resources of the National Institute of Plant Genome Research are the core grant provided by the Govt. of India, Department of Biotechnology, comprising of Grants for creation of Capital Assets, Grants-in-Aid Salaries and Grants-in-Aid General.

The Department of Biotechnology in their projections for financial year 2014-15 have allocated grant of ₹ 2400.00 lakhs including ₹ 200.00 lakhs for infrastructure facilities in respect of NIPGR.

The source and application of funds during the financial year 2014-15 in respect of Institute is as under:

Sources of Funds :

The Govt. of India, Department of Biotechnology, released grants of ₹ 2400 lakhs during 2014-15 as detailed below :

Grants for Creation of Capital Assets	₹ 200.00 lakhs
Grants-in-Aid Salaries	₹ 600.00 lakhs
Grants-in-Aid General	₹ 1600.00 lakhs

Besides, the Institute has also earned an interest of ₹ 54, 79,847/- on bank deposits of the Institute during the year, apart from the opening balance of ₹ 2,50,78,010/- carried forward from previous year.

Application of Funds :

(As per Utilization Certificate furnished to the Department of Biotechnology for the year 2014-15) The total expenditure on research activities and infrastructure development during the year 2014-15 was ₹ 26,11,22,629/- including ₹ 3,59,75,848/-on infrastructure development.

OVER ALL EXPENDITURE AT A GLANCE		
A-Grants for creation of Capital Assets		Amount in
1.	Land & Building	1,63,26,938
2.	Equipment	1,13,87,757
3.	Furniture & Fixtures	52,49,959
4.	Books/Scientific Journals	30,11,194
Total =		3,59,75,848
B-Grants-in-Salaries		
1.	Manpower	5,93,71,990
Total =		5,93,71,990
C-Grant-in-Aid General		
1.	Consumables	4,68,67,668
2.	Contingencies	10,12,21,313
3.	Training/Networking/Fellowship	98,94,020
4.	Campus/Field Development	71,96,992
5.	Travel	5,94,798
Total =		16,57,74,791
Closing balance at the end of the year 2014-15		94, 35,432

INDEPENDENT AUDITOR'S REPORT

Report on the financial statements

We have audited the accompanying financial statements of **NATIONAL INSTITUTE OF PLANT GENOME RESEARCH** (formerly National Centre for Plant Genome Research) Aruna Asaf Ali Marg, J.N.U. Campus, New Delhi-110067, which comprise the Balance sheet as at March 31, 2015, and the Income & Expenditure Account and the Receipts & Payments Account for the year ended on that date, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation of these financial statements that gives a true and fair view of financial position and financial performance of the Institute in accordance with the Accounting Standards issued by The Institute of Chartered Accountants of India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentations of financial statements that gives a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants of India. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risk of material misstatements of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the institute's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our qualified audit opinion.

Basis for Qualified Opinion

- (i) *Provision for actuarial liability on account of gratuity and other terminal benefits for employees has been provided but not worked out as required under AS-15 "Employee Benefits" issued by The Institute of Chartered Accountants of India. In the absence of actuarial valuation as on 31.03.2015, we are not in a position to ascertain and quantify the impact thereof on the financial statements. (Also refer point no. 8 of schedule no.24 to the financial statements).*

**1-E/15, Jhandewalan Extn., New Delhi-110055, India. E-mail : info@vkdco.com
Fax : (91-11) - 23549789, Phones : (91-11) - 23528511, 23638325, 23536857, 23550475**

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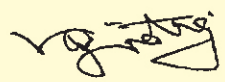
- (ii) *Pending approval of final cost of construction by building committee, Phase-II of the building has not been capitalised. Also no depreciation has been charged on the same. In the absence of working/information, we are not in a position to ascertain and quantify the impact thereof on the financial statements. (Also refer point no. 6 (b) of schedule no.24 to the financial statements).*

Qualified Opinion

In our opinion and to the best of our information and according to the explanations given to us, *except for the possible effects of the matter described in the Basis for Qualified Opinion paragraph*, the financial statements give a true and fair view in conformity with the accounting principles generally accepted in India:

- a) In the case of Balance Sheet of the state of affairs of the Institute as at 31st March, 2015;
- b) In the case of Income and Expenditure Account, of the excess of Expenditure over Income during the year ended on that date and
- c) In the case of Receipts and Payments Account, of the receipts and payments during the year ended on that date.

For V. K. DHINGRA & CO.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N


(VIPUL GIROTRA)
PARTNER
M.No. : 084312

PLACE: NEW DELHI
DATE: AUGUST 26, 2015



NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
BALANCE SHEET AS ON 31st MARCH 2015

		AMOUNT IN ₹	
LIABILITIES	Schedule	Current Year	Previous Year
Corpus/Capital Fund	1	761,268,374	826,890,734
Reserves and Surplus	2	7,271,982	8,032,698
Earmarked/Endowment Funds	3	35,776,849	30,831,282
Secured Loans and Borrowings	4	-	-
Unsecured Loans and Borrowings	5	-	-
Deferred Credit Liabilities	6	-	-
Current Liabilities and Provisions	7	78,776,467	70,746,455
TOTAL		883,093,672	936,501,169
ASSETS			
<u>Fixed Assets</u>			
Tangible Assets	8	752,441,836	790,223,612
Intangible Assets	8	2,256,587	-
Investments-From Earmarked/Endowment Funds	9	35,300,000	27,400,000
Investments- Others	10	-	-
Current Assets, Loans, Advances etc.	11	93,095,249	118,877,557
Miscellaneous Expenditure (to the extent not written off or adjusted)		-	-
TOTAL		883,093,672	936,501,169
Significant Accounting Policies and notes on accounts	24		
Contingent Liabilities	-	-	-

Schedules 1 to 24 form the Integral part of Accounts

AS PER OUR SEPARATE REPORT
OF EVEN DATE ATTACHED.

For V. K. DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER
Membership. No. 084312

PLACE: NEW DELHI
DATE: August 26, 2015

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
INCOME & EXPENDITURE FOR THE YEAR ENDED 31st MARCH 2015

AMOUNT IN ₹

INCOME	Schedule	Current Year	Previous Year
Income from Sales/ Services	12	-	-
Grants / Subsidies (Recurring)	13	220,000,204	170,000,000
Fees/ Subscriptions	14	-	-
Income from Investments (Income on Investment from Earmarked/ Endowment Fund)	15	-	-
Income from Royalty, Publication etc.	16	-	21,000
Interest Earned	17	5,479,847	11,490,824
Other Income	18	1,911,036	2,390,888
Deferred Income- Fixed Assets	18	62,766,806	75,133,953
Increase / (decrease) in stock of Finished goods and works-in-progress	19	-	-
TOTAL (A)		290,157,893	259,036,665
EXPENDITURE			
Establishment Expenses	20	60,450,670	46,315,246
Other Administrative Expenses etc.	21	166,359,933	153,644,993
Prior Period Expenses	21	4,164,236	-
Expenditure on Grants, Subsidies etc.	22	-	-
Interest	23	-	-
Depreciation (Net Total at the year-end - corresponding to Schedule-8)		62,766,806	75,133,953
TOTAL (B)		293,741,645	275,094,192
Balance being excess of Income over Expenditure (A - B)			
Balance being excess of Expenditure over Income (B - A)		(3,583,752)	(16,057,527)
Transfer to Special Reserve (Specify each)		-	-
Transfer to / from General Reserve		-	-
BALANCE BEING DEFICIT/ SURPLUS CARRIED TO CORPUS/ CAPITAL FUND		(3,583,752)	(16,057,527)
Significant Accounting Policies and notes on accounts	24	-	-
Contingent Liabilities		-	-

Schedules 1 to 24 form the Integral part of Accounts

**AS PER OUR SEPARATE REPORT
OF EVEN DATE ATTACHED.
For V. K. DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N**

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER
Membership. No. 084312

PLACE: NEW DELHI
DATE: August 26, 2015

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
RECEIPTS & PAYMENTS FOR THE YEAR ENDED 31st MARCH 2015

AMOUNT IN ₹

<u>RECEIPTS</u>	Current Year		Previous Year	
Particulars				
Opening Balance				
In Saving Account/Short Term deposits	106,599,647		90,717,071	
Reserve & Surplus	2,823,038			
Grants Received from Deptt of Biotechnology				
Non recurring	20,000,000		60,000,000	
Recurring	220,000,204		170,000,000	
Projects & Fellowships				
Sponsored Projects (Including all receipts & recoverable amounts)	79,627,589		100,561,310	
Sponsored Fellowship	35,287,587		16,905,778	
Interest Earned	5,479,847		10,720,096	
Security Deposit from Contractors	3,942,660		5,268,208	
EMD from Contractors	-		2,400,000	
Remittances	659,457			
Refund of Consumable advance	-		77,089	
Refund of Equipment advance	12,798			
Refund of Contingency advance	-		88,057	
Hostel/Mess Security	135,000		175,400	
Service Charges Received	-		21,000	
Other Income	2,029,448		2,390,888	
			-	
<u>TOTAL</u>		476,597,275		459,324,897

AS PER OUR SEPARATE REPORT
OF EVEN DATE ATTACHED.
For V. K. DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER
Membership. No. 084312

PLACE: NEW DELHI
DATE: August 26, 2015

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
RECEIPTS & PAYMENTS FOR THE YEAR ENDED 31st MARCH 2015

AMOUNT IN ₹

<u>PAYMENTS</u>	Current Year		Previous Year	
<u>Particulars</u>				
Building under Construction	16,326,938		12,042,900	
Deposits with RITES for Building	-		-	
Land	-		-	
Lab Equipment	20,517,577		20,066,910	
Office Equipment	1,482,978		956,928	
Computer/Peripherals	-		1,906,826	
Furniture & Fixture	5,249,959		32,264,485	
Books & Scientific Journals	3,011,194		3,710,764	
Vehicle	-		750,958	
<u>Manpower</u>				
Salaries and Wages	53,878,103		41,979,763	
Contribution to Provident fund	440,903		293,147	
<u>Consumables</u>				
a) Chemicals ,Glasswares & Consumables	46,143,212		34,717,613	
b) Other Lab Items	-		-	
<u>Contingencies</u>				
a) Publication of Papers	2,268,328		1,994,778	
b) Electricity and water charges	51,833,022		41,285,126	
c) Seminar,Conference & Workshops	417,013		2,380,605	
d) Maintenance of Equipment	21,450,674		18,678,519	
e) Maintenance of AC Plant	4,183,067		3,820,248	
f) Maintenance of Building	712,295		3,719,331	
g) Vehicles Running and Maintenance			-	
(i) Petrol ,Oil & Lubricants	323,854		519,801	
(ii) Maintenance	76,708		163,567	
h) Postage, Telephone and Comm. Charges				
(i) Postage & Telegrams	25,117		122,477	
(ii) Telephone & Fax	345,782		349,673	
i) Printing and Stationary	1,350,597		1,332,012	
j) Security expenses	3,456,615		2,705,989	
k) Auditors Remuneration	24,450		15,618	
l) Committee Meeting Expenses	714,087		609,220	
m) Legal fees	36,000		36,000	
n) Journals and periodicals	136,993		135,046	
o) Advertisement and Publicity	268,231		280,504	
p) Mise.contingencies	10,145,859		4,906,473	
q) Professional Charges	3,276,557		975,325	
r)Rates & Taxes	2,876,782		2,612,347	
Campus/ Field Development	7,188,553		4,838,850	
Training affiliation and Others	722,250		755,254	
NIPGR Fellowships	9,171,770		7,505,200	
Travelling and Conveyance Expenses				
(i) Travelling	950,245		120,119	
(ii) Conveyance & Transport	9,553		13,113	

Continued

<u>Others</u>				
a) Contingency Advance	48,816			
b) Consumable Advance	781,902		-	
c) Equipment advance	-		46,160	
d) Security Deposit paid	3,466,080		4,307,757	
e) Refund of Earnest Money deposit	-		2,803,847	
f) Hostel/Mess Security	166,500		152,500	
g) TDS-94C&J	-		431,791	
h) Outstanding expenses			10,719,738	
i) Remittances	659,457			
j) New Pension Scheme	18,320			
Sponsored Projects	83,053,114		63,076,341	
Sponsored Fellowship	32,621,745		22,621,627	
<u>Closing Balance</u>				
In Saving Bank Account/Short term Deposit	86,766,075		106,599,647	
TOTAL		476,597,275		459,324,897

AS PER OUR SEPARATE REPORT
OF EVEN DATE ATTACHED.

For V. K. DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER
Membership. No. 084312

PLACE: NEW DELHI
DATE: August 26, 2015

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2015

AMOUNT IN ₹

<u>SCHEDULE 1</u>	Current Year		Previous Year	
<u>CORPUS /CAPITAL FUND</u>				
Grants in Aid Non recurring				
Balance as at the beginning of the year	691,975,297		703,100,331	
Add: Contributions received during the year	20,000,000		64,008,919	
Add: Value of project equipments transferred	1,053,110			
Less : Reduced during the year	62,766,806		75,133,953	
		650,261,602		691,975,297
Fixed Assets Fund				
Balance as at the beginning of the year	133,859,477		146,242,342	
Add: Contributions received during the year	14,519,082		27,791,398	
Add: Rectified entry due to last year ommission	(1,229)		1,229	
Less: Contribution refunded during the year	(128,516)		2,028,684	
Less: Value of project equipments transferred	1,053,110			
Less:Reduced during the year	37,501,924		38,146,808	
		109,950,812		133,859,477
Research Fund				
Balance as at the beginning of the year	862,696		862,696	
Add: Contributions received during the year	-		-	
		862,696		862,696
Students & Staff Welfare Fund				
Balance as at the beginning of the year	193,264		193,264	
Add: Contributions received during the year	-		-	
		193,264		193,264
<u>BALANCE AS AT THE YEAR- END</u>		761,268,374		826,890,734

For V. K. DHINGRA & Co.
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AMOUNT IN ₹

<u>SCHEDULE 2-</u> RESERVES AND SURPLUS:	Current Year		Previous Year	
1.Capital Reserve:				
As per last Account	-		-	
Addition during the year	-		-	
Less: Deduction during the year	-		-	
		-		-
2.Revaluation Reserve:				
As per last Account	-		-	
Addition during the year	-		-	
Less: Deduction during the year	-		-	
		-		-
3.Special Reserves: 11 ISRFG FUND				
As per last Account	-		-	
Addition during the year	2,823,038		-	
Less: Deduction during the year	-		-	
		2,823,038		-
4. General Reserve:				
As per last Account	8,032,698		24,090,225	
Addition during the year			-	
Less: Deduction during the year	(3,583,752)		(16,057,527)	
Less: Short & Excess	(2)	4,448,944		8,032,698
TOTAL		7,271,982		8,032,698

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AMOUNT IN ₹

<u>SCHEDULE 3A</u>	Current Year		Previous Year	
Fund Debt Employees Provident Fund				
a) Opening balance of the fund	28,128,754		24,146,177	
b) Additions to the fund				
i) Donations/grant				
ii) Income from Investments/Savings Account	2,970,192		2,490,074	
iii) Regular Subscription/Refund of Advance received	4,737,000		4,197,650	
iv) Receipt towards Management share & Interest (Deficit only)	440,903		293,147	
Total (a+b)		36,276,849		31,127,048
c) Utilization/Expenditure towards objectives of fund	-		-	
i. <u>Capital Expenditure</u>				
* Fixed Assets	-		-	
* Others	-		-	
ii <u>Revenue Expenditure</u>				
Advance payment to Subscribers	500,000		345,000	
Final payment to Subscribers	-		2,653,294	
Total (c)		500,000		2,998,294
TOTAL - A (a+b-c) (Annexure-71)		35,776,849		28,128,754

AMOUNT IN ₹

<u>SCHEDULE 3B</u>	Current Year		Previous Year	
11th International Symposium on Rice Functional Genomics				
a) Opening balance	2,702,528		-	
b) Funds received during the year	-		14,494,759	
c) Interest received	135,510			
Total (a+b)		2,838,038		14,494,759
a) Utilization/Expenditure towards Organization of Symposium	15,000		11,792,231	
b) Fund transferred to NIPGR Specific Fund A/c	2,823,038			
Total (c)		2,838,038		11,792,231
TOTAL-B (a+b-c) (Annexure-72)		-		2,702,528
TOTAL (3A+3B)		35,776,849		30,831,282

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AMOUNT IN ₹

<u>SCHEDULE 4-</u> <u>SECURED LOANS AND BORROWINGS:</u>	Current Year		Previous Year	
1. Central Government	-		-	
2. State Government (Specify)	-		-	
3. Financial Institutions				
a) Term Loans	-		-	
b) Interest accrued and due	-		-	
4. Banks:				
a) Term Loans	-		-	
-Interest accrued and due	-		-	
b) Other Loans (Specify)	-		-	
-Interest accrued and due	-		-	
5. Other Institutions and Agencies	-		-	
6. Debentures and Bonds	-		-	
		-		-
<u>TOTAL</u>		-		-

AMOUNT IN ₹

<u>SCHEDULE 5-</u> <u>UNSECURED LOANS AND BORROWINGS</u>	Current Year		Previous Year	
1. Central Government	-		-	
2. State Government (Specify)	-		-	
3. Financial Institutions	-		-	
4. Banks:				
a) Terms Loans	-		-	
b) Other Loans (Specify)	-		-	
5. Other Institutions and Agencies	-		-	
6. Debentures and Bonds	-		-	
7. Fixed Deposits	-		-	
8. Others (Specify)	-		-	
		-		-
<u>TOTAL</u>		-		-

AMOUNT IN ₹

<u>SCHEDULE-6</u> <u>DEFERRED CREDIT LIABILITIES</u>	Current Year		Previous Year	
a. Acceptances secured by hypothecation of capital equipment and other assets	-	-	-	-
b. Others	-	-	-	-
		-		-
<u>TOTAL</u>		-		-

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AMOUNT IN ₹

SCHEDULE 7-	Current Year		Previous Year	
CURRENT LAIBILITIES AND PROVISIONS				
<u>A. CURRENT LIABILITIES</u>				
1. Acceptances	-	-	-	
2. Sundry Creditors				
a) For Goods	-		-	
b) Others	-	-	-	-
3. Advances Received				
(i) Security deposits from contractors	7,296,024		6,335,573	
Add: Variations during the year	184,588		960,451	
Less: Variations during the year	-		-	
		7,480,612		7,296,024
(ii) Earnest Money deposit	16,990		420,837	
Add: Variations during the year	-		-	
Less: Variations during the year	16,990		403,847	
		-		16,990
(iii) Hostel Security from Students	528,900		506,000	
Add: Variations during the year	-			
Less: Variations during the year	31,500		22,900	
		497,400		528,900
4. Projects Grants/Fellowships				
(i) CSIR	-		20,845	
(ii) DBT	34,313,749		36,562,261	
(iii) DST	4,131,479		2,631,071	
(iv) ICMR	-		-	
(v) NASI	45,783		7,126	
(vi) INSA	52,313		-	
(vii) Fellowships	3,274,580		2,028,138	
(Annexure-1 to 70)		41,817,904		41,249,441
5. Interest accrued but not due on :				
(a) Secured Loans /borrowings	-		-	
(b) Unsecured Loans/borrowings	-		-	
		-		-
6. Statutory Liabilities				
a) CDS	-		-	
b) Others	-		-	
		-		-
7. Other Current Liabilities:-				
Audit fees payable	22,472		22,472	
Outstanding Expenses payable	23,958,079		21,632,629	
		23,980,551		21,655,101
TOTAL (A)		73,776,467		70,746,455
<u>B. PROVISIONS</u>				
1. For Taxation	-		-	
2. Gratuity	5,000,000		-	
3. Superannuation/Pension	-		-	
4. Accumulated Leave Encashment	-		-	
5. Trade Warranties/Claims	-		-	
6. Others (Specify)	-	-	-	-
TOTAL (B)		5,000,000		-
TOTAL (A+B)		78,776,467		70,746,455

For V. K. DHINGRA & Co.
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SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st March 2015

SCHEDULE 8- FIXED ASSETS

ASSETS	RATE	W.D.V.As on 01.04.2014	Additions/Sales		Total As on 31.03.2015 Rs	Depreciation for the year Rs	W.D.V. As on 31.03.15
			Upto 30.09.14	On or After 01.10.14			
1.I.and							
a) Free Hold	0%	43,200,000	-	-	43,200,000	-	43,200,000
b) Lease hold		-	-	-	-	-	-
2.(A) Building							
a) On Freehold Land	10%	213,211,800	653,350	893,117	214,758,267	21,431,171	193,327,096
b) On Leasehold Land		-	-	-	-	-	-
c) Ownership flats/premises	10%	-	-	-	-	-	-
d) Superstructures on Land not belonging to the entity	10%	726,923	-	-	726,923	72,692	654,231
2.(B) Building (Projects)	10%	42,725,377	-	-	42,725,377	4,272,538	38,452,839
3. Plant Machinery & Equipment							
a) Lab Equipments(Core)	40%	63,195,162	1,941,183	19,662,866	84,796,697	29,986,106	54,810,591
b) Lab Equipment (Project)	40%	74,210,613	1,525,663	16,780,598	91,463,764	33,229,386	58,234,378
4. Vehicles	15%	1,628,313	-	-	1,628,313	244,247	1,384,066
5. Furniture & Fixtures	10%	41,348,197	2,905,331	2,344,628	46,598,156	4,542,584	42,055,572
6. Office Equipments	15%	5,166,779	640,824	690,022	6,315,737	895,609	5,420,127
7. Computer / Peripherals	60%	1,192,788	-	152,132	1,344,594	761,117	583,477
8. Books & Scientific Journals	60%	7,329,600	62,254	428,646	7,761,837	4,510,910	3,250,928
9. E-Journals	25%	-	-	2,578,957	2,578,957	322,370	2,256,587
Total of Current Year		493,935,552	7,728,605	43,530,966	543,898,621	100,268,730	443,629,891
Capital work in Progress	0%	296,288,060	14,780,471	-	311,068,532	-	311,068,532
Grand Total		790,223,612	22,509,076	43,530,966	854,967,153	100,268,730	754,698,423

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AMOUNT IN ₹

<u>SCHEDULE -9</u>	Current Year		Previous Year	
<u>INVESTMENTS FROM FUND DEBT EMPLOYEES</u>				
<u>PROVIDENT FUND</u>				
1. In Government Securities	-		-	
2. Other approved Securities	-		-	
3. Shares	-		-	
4. Debentures and Bonds	-		-	
5. Subsidiaries and Joint Ventures	-		-	
6. Others-Financial Institutions	35,300,000		27,400,000	
		35,300,000		27,400,000
<u>TOTAL</u>		<u>35,300,000</u>		<u>27,400,000</u>

AMOUNT IN ₹

<u>SCHEDULE 10 -</u>	Current Year		Previous Year	
<u>INVESTMENTS - OTHERS</u>				
1. In Government Securities	-		-	
2. Other approved Securities	-		-	
3. Shares	-		-	
4. Debentures and Bonds	-		-	
5. Subsidiaries and Joint Ventures	-		-	
6. Others	-		-	
		-		-
<u>TOTAL</u>		<u>-</u>		<u>-</u>

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AMOUNT IN `

<u>SCHEDULE -11</u>	Current Year		Previous Year	
<u>CURRENT ASSETS, LOANS, ADVANCES ETC.</u>				
<u>A. CURRENT ASSETS:</u>				
<u>1. Inventories:</u>				
a) Stores and Spares	-		-	
b) Loose Tools	-		-	
c) Stock-in- trade				
Finished Goods	-		-	
Work-in-progress	-		-	
Consumables	2,499,958		3,825,692	
		2,499,958		3,825,692
<u>2. Sundry Debtors</u>				
a) Debts Outstanding for a period exceeding six months	-		-	
b) Others	-		-	
		-		-
<u>3. Cash balance in hand</u> (including cheques/drafts and imprest)	-		-	
		-		-
<u>4. Bank Balances:</u>				
<u>a) With Schedules Banks:</u>				
-On Current Accounts	-		-	
-On Deposit Accounts (includes margin money)	2,823,038		10,600,000	
-On Savings Account	83,943,037		95,999,647	
-NIPGR CPF Account	476,849		728,754	
-11th ISRFG	-		2,702,528	
		87,242,924		110,030,929
<u>b) With non- Scheduled Banks:</u>				
-On Current Accounts	-		-	
-On Deposit Accounts	-		-	
-On Savings Accounts	-		-	
		-		-
<u>5. Post Office- Savings Accounts</u>	-		-	
		-		-
<u>TOTAL (A)</u>		89,742,882		113,856,621

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AMOUNT IN ₹

<u>SCHEDULE- 11</u>	Current Year		Previous Year	
<u>CURRENT ASSETS, LOANS, ADVANCES ETC.</u>				
<u>B. LOANS,ADVANCES AND OTHER ASSETS:</u>				
<u>1. Loans:</u>				
a)Staff		-		-
b)To other Entities engaged in activities/objectives similar to that of the entitiy		-		-
<u>2. Advances and other amounts recoverable in cash or in kind for value to be received</u>				
a) On Capital Account (Equipment Adv.)	-		-	
b) On Capital Account (Equipment Adv.projects)	-		-	
c) Contingencies Advance	122,743		1,813,029	
d) Consumable Advance	-		9,799	
e) Advance for assets	-		46,160	
<u>f) Security</u>				
(i) Delhi Vidyut Board	24,000		24,000	
ii) Reliance Inds Ltd.	26,000		26,000	
iii) BSES (consumption deposit)	2,142,000		2,142,000	
iv) VSNL (Internet Lease)	70,000		70,000	
(v) Relience Comm.Infrast.Ltd.(Telephone)	2,000		2,000	
vi) Queens Road Sevice Station	50,000		50,000	
vii) Tata Communications Ltd	94,688		94,688	
		2,531,431		4,277,676
<u>3. Income Accrued:</u>				
a) On Investments from Earmarked/Endowment Funds	-		-	
b) On Investments - Others	-		-	
c) On Loans and Advances	-		-	
d) Others -(M/s RITES Ltd)	743,260		743,260	
(includes income due unrealised - `Nil)				
		743,260		743,260
<u>4. Claims Receivable</u>	-		-	
<u>5. Prepaid Expenses</u>	77,676			
		77,676		-
<u>TOTAL (B)</u>		3,352,367		5,020,936
<u>TOTAL (A +B)</u>		93,095,249		118,877,557

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AMOUNT IN ₹

<u>SCHEDULE- 12</u>	Current Year		Previous Year	
<u>INCOME FROM SALES/SERVICES</u>				
1. Income from Sales				
a) Sales of Finished Goods	-		-	
b) Sales of Raw Material	-		-	
		-		-
2. Income from Services				
a) Labour and Processing Charges	-		-	
b) Professional/Consultancy Services	-		-	
c) Agency Commission and Brokerage	-		-	
d) Maintenance Services (Equip./Property)	-		-	
e) Others (Specify)	-		-	
		-		-
<u>TOTAL</u>		-		-

AMOUNT IN ₹

<u>SCHEDULE -13</u>	Current Year		Previous Year	
<u>GRANTS/SUBSIDIES</u>				
(Irrevocable Grants & Subsidies Received)		-		
a) Central Government	220,000,204		170,000,000	
b) State Government(s)	-		-	
c) Government Agencies	-		-	
d) Institutions/Welfare Bodies	-		-	
e) International Organisation	-		-	
f) Others (Specify)	-		-	
		220,000,204		170,000,000
<u>TOTAL</u>		220,000,204		170,000,000

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AMOUNT IN ₹			
<u>SCHEDULE 14 -</u>	Current Year		Previous Year
<u>FEES/SUBSCRIPTIONS</u>			
a) Entrance Fees	-		-
b) Annual Fees/Subscriptions	-		-
c) Seminar/Programme Fees	-		-
d) Consultancy Fees	-		-
e) Others (Specify)	-		-
		-	-
<u>TOTAL</u>		-	-

AMOUNT IN ₹			
<u>SCHEDULE 15-</u>	Current Year		Previous Year
<u>INCOME FROM INVESTMENTS</u>			
(Income on Invest. from Earmarked/Endow. Funds transferred to Funds)			
1) Interest			
a) On Govt. Securites	-		-
b) Other Bonds/Debentures	-		-
			-
2) Dividends			
a) On Shares	-		-
b) On Mutual Fund Securities	-		-
		-	-
3) Rents	-		-
		-	-
4) Other (Specify)	-		-
		-	-
<u>TOTAL</u>		-	-
<u>TRANSFERRED TO EARMARKED/ENDOWMENT FUND</u>			

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AMOUNT IN ₹

<u>SCHEDULE 16</u>	Current Year		Previous Year	
INCOME FROM ROYALTY, PUBLICATION ETC.				
1) Income form Royalty	-		-	-
2) Income form Publications	-		-	-
3) Service Charges	-		21,000	-
		-		21,000
<u>TOTAL</u>		-		21,000

AMOUNT IN ₹

<u>SCHEDULE 17</u>	Current Year		Previous Year	
<u>INTEREST EARNED</u>				
1) On Term Deposits:				
a) With Scheduled Banks	1,796,116		4,774,129	
b) With Non- Scheduled Banks	-		-	
c) With Instituitons	-		-	
d) Others-(M/s.RITES Ltd.)	-		4,240,634	
		1,796,116		9,014,763
2) On Savings Accounts:				
a) With Scheduled Banks	3,683,731		2,476,061	
b) With Non- Scheduled Banks	-		-	
c) Post Office Savings Accounts	-		-	
d) Others	-	3,683,731	-	2,476,061
3) On Loans:				
a) Employees/Staff	-		-	
b) Others	-		-	
		-		-
4) Interest on Debtors and Other Receivables	-		-	
		-		-
<u>TOTAL</u>		5,479,847		11,490,824
<u>Note</u> - Tax Deducted at source to be indicated				

For V. K. DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(VIPUL GIOTRA)
PARTNER
Membership. No. 084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2015

AMOUNT IN ₹

<u>SCHEDULE 18 - OTHER INCOME</u>	Current Year		Previous Year	
1) Profit on Sale/disposal of Assets:				
a) Owned assets	-		-	
b) Assets acquired out of grants or recd. free of cost	-		-	
2) Export Incentives realised	-		-	
3) Other Income				
a. Licence fee from Staff Quarters/Canteen	327,600		302,510.00	
b. Guest House Charges	276,900		378,733.00	
c. Hostel fee/Rent recovery/Admission Fee	1,187,436		1,709,645.00	
d. Miscellenous Income(Tender Fees,Sale of Scrap Material)	119,100			
4) Deferred Income - Fixed Assets	62,766,806		75,133,953	
		64,677,842		77,524,841
<u>TOTAL</u>		64,677,842		77,524,841

AMOUNT IN ₹

<u>SCHEDULE 19 - INCREASE/(DECREASE) IN STOCK OF FINISHED GOODS & WORK IN PROGRESS</u>	Current Year		Previous Year	
a) Closing Stock:				
- Finished Goods	-		-	
- Work-in-progress	-		-	
		-		-
b) Less: Opening Stock				
- Finished Goods	-		-	
- Work-in-progress	-		-	
		-		-
<u>NET INCREASE/(DECREASE) [a-b]</u>		-		-

AMOUNT IN ₹

<u>SCHEDULE 20 ESTABLISHMENT EXPENSES</u>	Current Year		Previous Year	
a) Salaries and Wages	60,009,767		46,022,099	
b) Allowances and Bonus	-		-	
c) Contribution to Provident Fund	440,903		293,147	
d) Contribution to Other Fund (Specify)	-		-	
e) Staff Welfare Expenses	-		-	
f) Expen.on Empl. Retirement and Terminal Benefits	-		-	
g) Others (Specify)	-		-	
		60,450,670		46,315,246
<u>TOTAL</u>		60,450,670		46,315,246

For V. K. DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2015

AMOUNT IN ₹

SCHEDULE 21 - OTHER ADMINISTRATIVE EXPENSES ETC.	Current Year		Previous Year	
1. Consumables				
a) Chemicals ,Glasswares & Consumables	44,215,625		44,521,151	
b) Other Lab Items	-	44,215,625	-	44,521,151
2. Contingencies				
a) Publication of Papers	1,969,178		2,603,621	
b) Electricity and water charges	52,465,042		42,407,356	
c) Seminar,Conference & Workshops	434,147		2,380,605	
d) Maintenance of Equipment	20,855,326		20,333,510	
e) Maintenance of AC Plant	4,895,006		3,820,248	
f) Maintenance of Building	4,001,609		4,435,426	
g) Vehicles Running and Maintenance				
(i) Petrol ,Oil & Lubricants	384,299		519,801	
(ii) Maintenance	122,413		163,567	
h) Postage, Telephone and Comm. Charges				
(i) Postage & Telegrams	27,556		122,477	
(ii) Telephone & Fax	340,957		376,080	
i) Printing and Stationary	1,486,974		1,332,012	
j) Security expenses	3,673,626		5,273,915	
k) Auditors Remuneration	22,472		38,090	
l) Committee Meeting Expenses	723,573		609,220	
m) Legal fees	72,000		36,000	
n) Journals and periodicals	119,719		162,023	
o) Advertisement and Publicity	296,515		348,823	
p) Mise.contingencies	5,285,051		5,298,496	
q) Rates &Taxes	2,876,782		2,612,347	
r) Professional Charges	2,396,615		1,890,267	
s) Assets written off			5,154	
t) Prior Period Maintenance Expenditure	4,164,236	106,613,096	-	94,769,038
3. Campus/Field Development	7,157,878	7,157,878	5,139,092	5,139,092
4.(a) Training affiliation and Others	722,250		755,254	
b) NIPGR Fellowships	10,855,522	11,577,772	8,327,226	9,082,480
5. Travelling and Conveyance Expenses				
(i) Travelling	950,245		120,119	
(ii) Conveyance & Transport	9,553	959,798	13,113	133,232
TOTAL		170,524,169		153,644,993

For V. K. DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N

(RAKESH MOHAN)
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(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2015

AMOUNT IN ₹

<u>SCHEDULE 22</u>	Current Year		Previous Year	
EXPENDITURE ON GRANTS,SUBSIDIES ETC.				
a) Grants given to Institutions/ Organisations	-		-	
b) Subsidies given to Institutions / Organisations	-		-	
		-		-
<u>TOTAL</u>		-		-

AMOUNT IN ₹

<u>SCHEDULE 23 - INTEREST</u>	Current Year		Previous Year	
a) On Fixed Loans	-		-	
b) On Other Loans (including Bank Charges)	-		-	
c) Others(specify)	-		-	
		-		-
<u>TOTAL</u>		-		-

For V. K. DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N

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MANAGER

(Prof.AKHILESH Kr.TYAGI)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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**ACCOUNTING POLICIES AND NOTES FORMING PARTS OF THE BALANCE SHEET AS AT
AND INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED ON 31st MARCH, 2015**

1. The annual accounts have been prepared in the revised format of accrual system of accounting, except for Interest Income, Extramural Funds and Contributory Provident Fund, which are accounted for on cash basis.
2. (a) Recurring Grants have been recognised in the Income & Expenditure account and Non-Recurring Grants have been shown as addition to grants in aid in the year of receipts.

(b) Grants for core funds relatable to depreciable fixed assets are treated as deferred income and recognised in the Income and Expenditure Account on a systematic and rational basis over the useful life of such assets i.e. such grants are allocated to income over the periods and in the proportions in which depreciation is charged. During the year income recognised in respect of such Grants amounts to ₹ 6,27,66,806/-.
3. (a) The depreciation has been provided w.e.f. the date of purchase of fixed assets as per the rates prescribed by Income Tax Act, 1961.

(b) Full depreciation is charged during the year of acquisition in case the assets is acquired in the first half and 50% of rate of depreciation for assets acquired during the second half of the financial year. No depreciation is provided during the year of disposal of assets.

(c) Depreciation of ₹ 3,75,01,924/- has been provided during the year and directly debited to fixed assets fund. These assets were created out of the Non-Recurring Grants of the projects.
4. Fixed assets have been created with grants received from the Department of Bio-Technology. The condition of these grants, inter alia, stipulates that assets will be the property of Government, who will be free to sell or otherwise dispose off the same. The Govt. of India has the discretion to gift the assets to the Institute if it considers appropriate, but no such gifts have been made so far. Therefore, in effect the ownership of the assets lies with Govt. of India and not with the Institute.

5. All purchases of chemicals, glassware, consumables and stationery have been charged to consumption at the time of purchase . However,the closing stock has been worked out on cost basis and shown in the respective schedule.The closing stock of these items amounting to ₹ 24,99,958/- was available at the end of the year.
6. (a) Construction Cost and Overheads incidental to construction of building of institute are added to the capital work in progress to be capitalized along with the building.
- (b) The cost of phase –II of the building of the Institute will be capitalized after vetting of final cost by the Building Committee and approval by the Governing Body as per Institutional norms.Pending capitalisation, no depreciation has been charged on the same during the year though the same has been put to use.
7. The Institute has a policy of allocating the overheads and transfer of expenditure from Institute to different projects at the end of year on proportionate basis after taking into account the amount of maximum permissible limits for overheads sanctioned by the funding agency in each project. During the year institute has allocated ₹ 8, 48,294/- as overheads to different projects.
8. The Institute has made a provision of ₹ 50.00 lacs towards the terminal benefits payable to staff.
9. As per approval of the competent authority a reserve fund with name 11th ISRFG Fund has been created and to be used for the purposes specified in this regard.
10. Previous year figures have been re-grouped/re-arranged wherever considered necessary.

For V. K.DHINGRA & Co.
CHARTERED ACCOUNTANTS
Firm Registration No. : 000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKILESH Kr. TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER

Membership No.084312

Place : New Delhi

Date : August 26, 2015

ANNEXURE-1(SCH.)7(4)(i)-a)

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

CSIR PROJECT

R/P entitled "Proteomic analysis of dehydration-responsive endomembrane fraction of rice (*Oryza sativa* L.)".

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	1,465		287,141	
<u>Grant- In- Aid for</u>				
i) Staff	36,400		218,400	
ii) Contingencies	98,535		600,000	
iii) Overheads	-		-	
TOTAL		136,400		1,105,541

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Staff	36,400		218,400	
ii) Contingencies	100,000		885,676	
iii) Overheads	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	-		1,465	
TOTAL		136,400		1,105,541

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

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(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

CSIR PROJECT

R/P entitled "N-acetylglucosamine catabolic pathway in pathogens of human and plant".

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	19,380		119,401	
<u>Grant- In- Aid for</u>				
i) Staff	194,350		-	
ii) Contingencies	313,954		349,175	
iii) Overheads	-		-	
TOTAL		527,684		468,576

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Staff	235,866		296,420	
ii) Contingencies	291,818		152,776	
iii) Overheads	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	-		19,380	
TOTAL		527,684		468,576

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled "Nutritional Genomics: Value Added transgenic crops for better nutrition & fungal resistance"****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c Recurring	(55,569)		(55,569)	
<u>Grant- In- Aid for</u>				
i) Manpower	-		-	
ii) Consumable	-		-	
iii) Travel	-		-	
iv) Contingencies	-		-	
TOTAL		(55,569)		(55,569)

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Manpower	-		-	
ii) Consumable	-		-	
iii) Travel	-		-	
iv) Contingencies	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c Recurring	(55,569)		(55,569)	
TOTAL		(55,569)		(55,569)

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof. AKHILESH KUMAR TYAGI)**
DIRECTOR**(VIPUL GIROTRA)**
PARTNER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre for Plant Genome Research)
NEW DELHI

DBT PROJECT

R/P entitled Isolation and characterization of early-responsive chickpea genes involved in defense/resistance in response to Ascochyta infection

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(30,036)		(30,036)	
Equipment	(48,474)		(48,474)	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	-		-	
iv) Travel	-		-	
v) Contingencies	-		-	
TOTAL		(78,510)		(78,510)

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	-		-	
iv) Travel	-		-	
v) Contingencies	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(30,036)		(30,036)	
Equipment	(48,474)		(48,474)	
TOTAL		(78,510)		(78,510)

For V.K.DHINGRA & co.
CHARTERED ACCOUNTANTS
Firm Registration No..000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre for Plant Genome Research)
NEW DELHI

DBT PROJECT

R/P entitled In Silico Bioprospecting by analysis of plant stress response pathways

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	248,054		345,762	
Equipment	(15,545)		46,525	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	-		-	
iii)Contingencies	-		-	
iv) Travel	-		-	
v) Cash Award	-		-	
TOTAL		232,509		392,287

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	(15,545)		62,070	
ii) Manpower	234,187		-	
iii)Contingencies	2,306		87,729	
iv) Travel	11,561		9,979	
v) Cash Award	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		248,054	
Equipment	-		(15,545)	
TOTAL		232,509		392,287

For V.K.DHINGRA & co.
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Establishment of a Distributed Information Sub-Centre at National Institute for Plant Genome Research, New Delhi.****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(75,737)		435,773	
Equipment	157,476		698,385	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	1,442,000		-	
iii)Contingencies	358,000		-	
iv) Travel	66,000		-	
v) Other Cost	310,000		-	
TOTAL		2,257,739		1,134,158

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment			540,909	
ii) Manpower	366,229		387,285	
iii)Contingencies	153,036		33,670	
iv) Travel	29,371		28,505	
v) Other Cost	45,362		62,050	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,506,265		(75,737)	
Equipment	157,476		157,476	
TOTAL		2,257,739		1,134,158

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Automated DNA sequencing and controlled environment plant growth chamber facility****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Savings A/C				
Equipment	(344,639)		(344,639)	
			-	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
TOTAL		(344,639)		(344,639)

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Equipment	(344,639)		(344,639)	
TOTAL		(344,639)		(344,639)

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
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DIRECTOR**(VIPUL GIOTRA)**
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DBT PROJECT****R/P entitled Biotechnological approach towards forage crop improvement (Molecular characterization of genes involved in expression of components of apomixis)****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	19,419		17,419	
Equipment	(20,980)		(20,980)	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	-		2,000	
iv) Travel	-		-	
v)Contingencies	-		-	
TOTAL		(1,561)		(1,561)

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable				
iv) Travel				
v)Contingencies	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	19,419		19,419	
Equipment	(20,980)		(20,980)	
TOTAL		(1,561)		(1,561)

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DBT PROJECTR/P entitled DNA barcoding of *Dalbergia species*

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	45,059		45,059	
Equipment	(191,459)		(191,459)	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower				
iii) Consumable				
iv) Travel				
v)Contingencies				
TOTAL		(146,400)		(146,400)

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	-		-	
iii) Consumable	-		-	
iv) Travel	-		-	
v)Contingencies	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	45,059		45,059	
Equipment	(191,459)		(191,459)	
TOTAL		(146,400)		(146,400)

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled National Plant Gene Repository****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	37,182		1,174,670	
Equipment	826		826	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	400,000		400,000	
iii) Consumable	300,000		400,000	
iv) Travel	-		-	
v)Contingencies	50,000		-	
TOTAL		788,008		1,975,496

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	826		-	
ii) Manpower	403,457		849,930	
iii) Consumable	300,248		906,885	
iv) Travel	37,418		86,342	
v)Contingencies	46,059		94,331	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		37,182	
Equipment	-		826	
TOTAL		788,008		1,975,496

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECT

R/P entitled Isolation and functional characterization of genes from necrotrophic chickpea-blight fungus *Ascochyta rabiei* which involved in pathogenesis during compatible interactions.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	83,661		169,461	
Equipment	385		385	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	-		-	
iii) Consumable	-		-	
iv) Travel	-		-	
v)Contingencies	-		-	
TOTAL		84,046		169,846

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	385		-	
ii) Manpower	(74,183)		85,800	
iii) Consumable	106,793		-	
iv) Travel	6,426		-	
v)Contingencies	44,625		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		83,661	
Equipment	-		385	
TOTAL		84,046		169,846

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DBT PROJECT****R/P entitled Functional analysis of gene regulatory networks during flower and seed development in rice .****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,368,432		1,437,280	
Equipment	-		-	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		429,000	
iii) Consumable	-		779,000	
iv) Travel	-		45,000	
v)Contingencies	-		153,000	
TOTAL		1,368,432		2,843,280

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	376,287		488,427	
iii) Consumable	789,907		759,217	
iv) Travel	49,252		31,344	
v)Contingencies	152,986		195,860	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		1,368,432	
Equipment	-		-	
TOTAL		1,368,432		2,843,280

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof. AKHILESH KUMAR TYAGI)**
DIRECTOR**(VIPUL GIROTRA)**
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled Analysis of diseases-responsive subcellular phosphoproteome in crop plants.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	403,175		790,037	
Equipment	(40,854)		(40,854)	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	-		-	
iv) Travel	-		-	
v)Contingencies	-		-	
TOTAL		362,321		749,183

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	(40,854)		-	
ii) Manpower	333,427		6,066	
iii) Consumable	(3,671)		361,212	
iv) Travel	35,000		-	
v)Contingencies	38,419		19,584	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		403,175	
Equipment	-		(40,854)	
TOTAL		362,321		749,183

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled Molecular genetics of plant development: Regulation Stem Cells and lateral organ patterning through the activity of novel genes and small RNAs.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	624,723		639,796	
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment	-			
ii) Manpower	-		990,000	
iii) Consumable	-			
iv) Travel	-			
v)Contingencies	-		500,000	
TOTAL		624,723		2,129,796

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	624,723		990,000	
iii) Consumable	-			
iv) Travel	-			
v)Contingencies	-		515,073	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		624,723	
Equipment				
TOTAL		624,723		2,129,796

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIOTRA)
PARTNER
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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NEW DELHI

DBT PROJECT

R/P entitled Next Generation Challenge Programme on Chickpea Genomics.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	8,512,467		7,570,568	
Equipment	-		-	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		4,137,850	
iii) Consumable	-		5,200,000	
iv) Travel	-		120,406	
v)Contingencies	-		382,684	
TOTAL		8,512,467		17,411,508

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	3,348,862		3,629,250	
iii) Consumable	4,488,042		4,927,562	
iv) Travel	231,641		68,359	
v)Contingencies	443,922		273,870	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		8,512,467	
Equipment	-		-	
TOTAL		8,512,467		17,411,508

For V.K.DHINGRA & co.
CHARTERED ACCOUNTANTS
Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DBT PROJECT****R/P entitled Functional study of mediator complex, a transcriptional co-activator in plant Growth & Development.****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	482,717		353,122	
Equipment			14,947	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	221,000		170,000	
iii) Consumable			600,000	
iv) Travel	517,000			
v) Contingencies				
vi) Cash Award	100,000		100,000	
TOTAL		1,320,717		1,238,069

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		14,947	
ii) Manpower	116,580		206,026	
iii) Consumable			434,379	
iv) Travel	661,017			
v) Contingencies				
vi) Cash Award	100,000		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	443,120		482,717	
Equipment	-		-	
TOTAL		1,320,717		1,238,069

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI**DBT PROJECT****R/P entitled Comparative metabolite profiling of transgenic and non-transgenic potato expressing Ama1 protein****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	25,142		82,273	
Equipment	-		-	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	500,600		91,000	
iii) Consumable	293,000		250,000	
iv) Travel	50,000		-	
v) Contingencies	60,000		20,000	
TOTAL		928,742		443,273

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	504,346		139,333	
iii) Consumable	304,958		238,654	
iv) Travel	58,546		21,320	
v) Contingencies	60,892		18,824	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		25,142	
Equipment	-		-	
TOTAL		928,742		443,273

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DBT PROJECT****R/P entitled Molecular cloning and characterization of dehydration responsive Tubby-like protein
CaTLP1****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	681,885		6,348	
Equipment	-		23,040	
<u>Grant- In- Aid for</u>				
i) Equipment	-		(23,040)	
ii) Manpower	-		593,000	
iii) Consumable	-		700,000	
iv) Travel	-		20,000	
v) Contingencies	-		60,000	
TOTAL		681,885		1,379,348

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	207,073		366,800	
iii) Consumable	399,987		304,204	
iv) Travel	24,639		-	
v) Contingencies	50,186		26,459	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		681,885	
Equipment	-		-	
TOTAL		681,885		1,379,348

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof. AKHILESH KUMAR TYAGI)**
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DBT PROJECT****R/P entitled Elucidation of protein level interactions to define arrangement of subunits in the plant mediator complex****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	24,921		83,341	
Equipment	21,898		21,898	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	325,000		302,766	
iii) Consumable	800,000		712,318	
iv) Travel	-		-	
v) Contingencies	46,500		38,309	
TOTAL		1,218,319		1,158,632

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	21,898		-	
ii) Manpower	311,580		351,000	
iii) Consumable	828,107		705,722	
iv) Travel	6,980		18,020	
v) Contingencies	49,754		37,071	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		24,921	
Equipment	-		21,898	
TOTAL		1,218,319		1,158,632

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled Molecular and biochemical study of protein-L-Isoaspartyl Methyltransferase (PIMT) and its biological role in seed vigor, viability and stress tolerance in rice

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	721,776		621,861	
Equipment	-		-	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		434,000	
iii) Consumable	-		600,000	
iv) Travel	-		13,000	
v) Contingencies	-		35,000	
TOTAL		721,776		1,703,861

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	341,875		332,248	
iii) Consumable	336,176		591,449	
iv) Travel	29,309		-	
v) Contingencies	14,416		58,388	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		721,776	
Equipment	-		-	
TOTAL		721,776		1,703,861

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DBT PROJECT

R/P entitled Mechanism of genetic interaction between CIPK6 and CIPK25 in root development

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	10,606		300,537	
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower				
iii) Consumable	300,000		-	
iv) Travel				
v) Contingencies				
TOTAL		310,606		300,537

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower				
iii) Consumable	310,606		289,931	
iv) Travel				
v) Contingencies				
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		10,606	
Equipment				
TOTAL		310,606		300,537

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DBT PROJECT

R/P entitled Mapping of Mungbean yellow Mosaic Virus resistance loci in soybean

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	20,586		(79,147)	
Equipment	(9,883)		89,117	
<u>Grant- In- Aid for</u>				
i) Equipment	-		(99,000)	
ii) Manpower	997,000		386,000	
iii) Consumable	761,000		550,000	
iv) Travel	20,000		41,000	
v) Contingencies	74,000		44,000	
TOTAL		1,862,703		931,970

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	303,508		378,003	
iii) Consumable	305,686		475,364	
iv) Travel	22,111		23,103	
v) Contingencies	24,000		44,797	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,217,281		20,586	
Equipment	(9,883)		(9,883)	
TOTAL		1,862,703		931,970

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

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NEW DELHI

DBT PROJECT

R/P entitled Regulation of root development by auxin and cytokinin mediated signaling

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,165,312		227,728	
Equipment	433		(3,572,922)	
<u>Grant- In- Aid for</u>				
i) Equipment	-		7,318,438	
ii) Manpower	-		764,700	
iii) Consumable	-		1,314,000	
iv) Travel	-		-	
v) Contingencies	-		69,000	
TOTAL		1,165,745		6,120,944

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		3,745,083	
ii) Manpower	113,970		414,533	
iii) Consumable	680,139		731,321	
iv) Travel	11,230		23,307	
v) Contingencies	38,570		40,955	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	321,403		1,165,312	
Equipment	433		433	
TOTAL		1,165,745		6,120,944

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

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DBT PROJECT

R/P entitled Functional Genomics of Nodulation in Chickpea Roots

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	672,741		610,594	
Equipment	-		-	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	-		700,000	
iv) Travel	-		50,000	
v) Contingencies	-		17,000	
TOTAL		672,741		1,377,594

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	291,361		329,806	
iii) Consumable	316,689		321,448	
iv) Travel	-		40,128	
v) Contingencies	-		13,471	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	64,691		672,741	
Equipment	-		-	
TOTAL		672,741		1,377,594

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

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NEW DELHI

DBT PROJECT

R/P entitled Study of the role Mitogen Activated Protein Kinase (MAPK) during rice root development

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	148,698		172,480	
Equipment	-			
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	228,000		278,200	
iii) Consumable	237,000		612,200	
iv) Travel	-		3,200	
v) Contingencies	25,000		43,000	
TOTAL		638,698		1,109,080

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	209,883		369,523	
iii) Consumable	323,715		526,931	
iv) Travel	-		21,025	
v) Contingencies	6,131		42,903	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	98,969		148,698	
Equipment	-		-	
TOTAL		638,698		1,109,080

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECT

R/P entitled To study the role of glucose and its interaction with hormones in controlling Arabidopsis thaliana root directional responses

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	102,889		113,003	
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	5,000		3,000	
iii) Consumable	345,000		700,000	
iv) Travel	-		28,600	
v) Contingencies	20,000		27,200	
TOTAL		472,889		871,803

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	10,322		28,035	
iii) Consumable	338,460		694,848	
iv) Travel	6,738		-	
v) Contingencies	21,600		46,031	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	95,769		102,889	
Equipment	-		-	
TOTAL		472,889		871,803

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled Identification of genes involved in regulation of Phosphate utilization by root under Water-Deficit Stress in Rice

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	191,251		427,008	
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	433,000		104,400	
iii) Consumable	615,000		669,000	
iv) Travel	-		-	
v) Contingencies	30,100		3,100	
TOTAL		1,269,351		1,203,508

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	331,229		368,410	
iii) Consumable	697,458		615,391	
iv) Travel	-		-	
v) Contingencies	41,072		28,456	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	199,592		191,251	
Equipment	-		-	
TOTAL		1,269,351		1,203,508

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
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NEW DELHI

DBT PROJECT

R/P entitled Molecular characterization of Variation in Root System Architecture among selected Indica Rice Varieties

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	322,224		79,527	
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	314,200		281,800	
iii) Consumable	700,000		700,000	
iv) Travel	-		-	
v) Contingencies	50,000		36,000	
TOTAL		1,386,424		1,097,327

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	227,756		253,961	
iii) Consumable	908,164		470,342	
iv) Travel	52,285		-	
v) Contingencies	47,420		50,800	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	150,799		322,224	
Equipment	-		-	
TOTAL		1,386,424		1,097,327

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DBT PROJECT

R/P entitled To Study the Interaction between Cytokinin and Sugar Signal Transduction Pathway in
Model Plant System Arabidopsis thaliana

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	181,289		189,339	
Equipment	(142,729)		(142,729)	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	68,000		-	
iii) Consumable	400,000		477,000	
iv) Travel	-		-	
v) Contingencies	46,800		-	
TOTAL		553,360		523,610

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	(142,729)		-	
ii) Manpower	95,613		68,387	
iii) Consumable	530,534		369,805	
iv) Travel	20,000		-	
v) Contingencies	49,942		46,858	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		181,289	
Equipment	-		(142,729)	
TOTAL		553,360		523,610

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
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(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DBT PROJECT****R/P entitled Analysis of dehydration-responsive proteome, and cloning and functional characterization of novel elements in rice****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	9,066		8,730	
Equipment	(401)		61,040	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	489,000		606,170	
iii) Consumable	260,000		349,754	
iv) Travel	15,000		17,734	
v) Contingencies	19,000		24,812	
TOTAL		791,665		1,068,240

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		61,441	
ii) Manpower	515,025		612,451	
iii) Consumable	241,307		345,321	
iv) Travel	16,568		15,100	
v) Contingencies	18,765		25,262	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	401		9,066	
Equipment	(401)		(401)	
TOTAL		791,665		1,068,240

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DBT PROJECT

R/P entitled Development of low Glucosinolate V Brassica Juncea transgenic lines using RNAi based down-regulation of glucosinolate pathway genes

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	702,684		210,757	
Equipment	55,317		88,617	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	165,802		179,900	
iii) Consumable	-		641,300	
iv) Travel	-		1,100	
v) Contingencies	-		30,100	
TOTAL		923,803		1,151,774

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		33,300	
ii) Manpower	112,439		283,200	
iii) Consumable	629,640		64,426	
iv) Travel	-		582	
v) Contingencies	23,086		12,265	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	103,321		702,684	
Equipment	55,317		55,317	
TOTAL		923,803		1,151,774

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

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NEW DELHI

DBT PROJECT

DBT-CREST award for the Year 2011-12

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	(100,188)		(100,188)	
<u>Grant- In- Aid for</u>				
i) Fellowship	153,480		-	
ii) Preparatory Allowance	-		-	
iii) Travel Cost	-		-	
TOTAL		53,292		(100,188)

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Fellowship	-		-	
ii) Preparatory Allowance	-		-	
iii) Travel Cost	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	53,292		(100,188)	
TOTAL		53,292		(100,188)

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DBT PROJECT

R/P entitled Functional Proteomic Studies in North-east Rice (Oryza sativa L.) for Dehydration Tolerance

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(14,019)		666,157	
Equipment	42,979		290,000	
<u>Grant- In- Aid for</u>				
i) Equipment	(42,979)		-	
ii) Manpower	497,000		-	
iii) Consumable	500,000		-	
iv) Travel	50,000		-	
v) Contingencies	49,979		-	
TOTAL		1,082,960		956,157

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		247,021	
ii) Manpower	525,200		235,040	
iii) Consumable	480,139		399,264	
iv) Travel	53,575		31,887	
v) Contingencies	11,690		13,985	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		(14,019)	
Equipment	12,356		42,979	
TOTAL		1,082,960		956,157

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DBT PROJECT

R/P entitled Tissue Specific Engineering of Glucosinolate Content and Profiles in Indian Oilseed Mustard (Brassica Juncea) for Higher Nutritional Value and Uncompromised Defense Response

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	312,095			
Equipment	396,239			
<u>Grant- In- Aid for</u>				
i) Equipment	-		1,000,000	
ii) Manpower	198,000		250,000	
iii) Consumable				
iv) Travel	597,000		600,000	
v) Contingencies				
vi) Cash Award	100,000		100,000	
TOTAL		1,603,334		1,950,000

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	384,482		603,761	
ii) Manpower	187,200		135,368	
iii) Consumable				
iv) Travel	571,155		402,537	
v) Contingencies				
vi) Cash Award	100,000		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	348,740		312,095	
Equipment	11,757		396,239	
TOTAL		1,603,334		1,950,000

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
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NEW DELHI**DBT PROJECT****R/P entitled G-Quadruplexes: Prevalence, Functional relevance and Epigenetic Regulation in Plants****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	402,875			
Equipment	71,011			
<u>Grant- In- Aid for</u>				
i) Equipment	-		1,000,000	
ii) Manpower	94,000		250,000	
iii) Consumable				
iv) Travel	353,000		600,000	
v) Contingencies				
vi) Cash Award	100,000		100,000	
TOTAL		1,020,886		1,950,000

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	70,971		928,989	
ii) Manpower	173,948		94,120	
iii) Consumable				
iv) Travel	488,867		353,005	
v) Contingencies				
vi) Cash Award	100,000		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	187,060		402,875	
Equipment	40		71,011	
TOTAL		1,020,886		1,950,000

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DBT PROJECT****R/P entitled Gold nanoparticles based simple, quick and onsite early diagnostic kit for apple scab disease****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	545,485			
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	129,000		280,800	
iii) Consumable	143,000		500,000	
iv) Travel	18,000		30,000	
v) Contingencies	25,000		50,000	
TOTAL		860,485		860,800

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	198,900		129,140	
iii) Consumable	512,467		143,112	
iv) Travel	28,580		17,902	
v) Contingencies	49,825		25,161	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	70,713		545,485	
Equipment				
TOTAL		860,485		860,800

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof. AKHILESH KUMAR TYAGI)**
DIRECTOR**(VIPUL GIROTRA)**
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NEW DELHI

DBT PROJECT

R/P entitled Biotechnological approaches to improve nutritional and post-harvest quality, drought tolerance and pathogen resistance in edible crops

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,592,574			
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	1,045,000		1,965,000	
iii) Consumable	2,884,000		2,884,000	
iv) Travel	-		50,000	
v) Contingencies	94,000		100,000	
TOTAL		5,615,574		4,999,000

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	1,482,125		544,678	
iii) Consumable	2,213,002		2,767,716	
iv) Travel	36,940		-	
v) Contingencies	100,052		94,032	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,783,455		1,592,574	
Equipment				
TOTAL		5,615,574		4,999,000

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

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NEW DELHI

DBT PROJECT

R/P entitled Functional genomics approaches in understanding the regulation of synthesis and accumulation of apocarotenoids in saffron crocus (*Crocus sativus* L.)

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,537,226			
Equipment	50,000			
<u>Grant- In- Aid for</u>				
i) Equipment	(50,000)		850,000	
ii) Manpower	126,000		280,800	
iii) Consumable	1,495,000		1,500,000	
iv) Travel	50,000		50,000	
v) Contingencies	49,000		50,000	
TOTAL		3,257,226		2,730,800

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		800,000	
ii) Manpower	207,115		66,929	
iii) Consumable	1,331,428		235,587	
iv) Travel	12,887		18,670	
v) Contingencies	39,678		22,388	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,666,118		1,537,226	
Equipment	-		50,000	
TOTAL		3,257,226		2,730,800

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

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MANAGER

(Prof. AKHILESH KUMAR TYAGI)
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DBT PROJECT

R/P entitled Understanding synergistic response of Arabidopsis plants exposed to drought and bacterial pathogen.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	881,880			
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	1,131,667		990,000	
iii) Consumable				
iv) Travel	650,000		1,000,000	
v) Contingencies				
TOTAL		2,663,547		1,990,000

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	1,100,000		728,750	
iii) Consumable				
iv) Travel	1,268,945		379,370	
v) Contingencies				
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	294,602		881,880	
Equipment				
TOTAL		2,663,547		1,990,000

For V.K.DHINGRA & co.
CHARTERED ACCOUNTANTS
Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER
Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECT

R/P entitled Analysis of diversity in yield components (seed size and weight) at transcriptome and epigenome levels for association/genetic mapping of selected loci in rice and chickpea.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	14,507,813			
Equipment	17,500,000			
<u>Grant- In- Aid for</u>				
i) Equipment	8,706,000		17,500,000	
ii) Manpower	2,362,000		2,503,200	
iii) Consumable	16,938,000		17,500,000	
iv) Travel	19,000		150,000	
v) Contingencies	200,000		300,000	
TOTAL		60,232,813		37,953,200

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	16,706,745		-	
ii) Manpower	2,050,271		857,109	
iii) Consumable	12,038,470		5,052,313	
iv) Travel	70,330		-	
v) Contingencies	230,692		35,965	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	19,637,050		14,507,813	
Equipment	9,499,255		17,500,000	
TOTAL		60,232,813		37,953,200

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECT

DBT-CREST award for the Year 2011-12

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	251,903			
<u>Grant- In- Aid for</u>				
i) Fellowship	316,836		792,000	
ii) Preparatory Allowance	5,316		30,000	
iii) Travel Cost	(35,590)		90,000	
TOTAL		538,465		912,000

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Fellowship	251,903		540,097	
ii) Preparatory Allowance	-		30,000	
iii) Travel Cost	(30,899)		90,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	317,461		251,903	
TOTAL		538,465		912,000

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIOTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled Identification and characterization of effectors from necrotrophic blight fungus *Ascochyta rabiei* and their targets from the chickpea.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment	1,308,000			
ii) Manpower	624,000			
iii) Consumable	800,000			
iv) Travel	40,000			
v) Contingencies	50,000			
TOTAL		2,822,000		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	800,000			
ii) Manpower	403,587			
iii) Consumable	678,859			
iv) Travel	-			
v) Contingencies	44,965			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	386,589			
Equipment	508,000			
TOTAL		2,822,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled Characterization of ubiquitin/26S proteasome pathway-related genes by VIGS in tomato during ToLCNDV infection.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment	700,000			
ii) Manpower	561,600			
iii) Consumable	700,000			
iv) Travel	30,000			
v) Contingencies	50,000			
TOTAL		2,041,600		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	151,320			
iii) Consumable	623,767			
iv) Travel	13,417			
v) Contingencies	24,464			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	528,632			
Equipment	700,000			
TOTAL		2,041,600		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled Introgression of begomovirus resistance genes in tomato (*Solanum lycopersicum* L.) using MAS and Genomic approach.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment	597,000			
ii) Manpower	780,000			
iii) Consumable	1,100,000			
iv) Travel	40,000			
v) Contingencies	50,000			
TOTAL		2,567,000		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	54,553			
iii) Consumable	148,897			
iv) Travel	-			
v) Contingencies	-			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,766,550			
Equipment	597,000			
TOTAL		2,567,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
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(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DBT PROJECT****R/P entitled Understanding the molecular intricacies of Rice-Rhizoctonia interactions.****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment	2,500,000			
ii) Manpower	998,400			
iii) Consumable	1,500,000			
iv) Travel	50,000			
v) Contingencies	50,000			
TOTAL		5,098,400		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	-			
iii) Consumable	-			
iv) Travel	-			
v) Contingencies	-			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	2,598,400			
Equipment	2,500,000			
TOTAL		5,098,400		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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NEW DELHI

DBT PROJECT

R/P entitled Interaction between two rice mitogen activated protein kinase and its possible in plant defense.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower				
iii) Consumable	500,000			
iv) Travel				
v) Contingencies				
TOTAL		500,000		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower				
iii) Consumable	46,470			
iv) Travel				
v) Contingencies				
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	453,530			
Equipment				
TOTAL		500,000		-

For V.K.DHINGRA & co.
CHARTERED ACCOUNTANTS
Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled " Elucidating immune-related pathostress-responsive ECM reportier in legume and tuber crops by comparative proteomic analysis".

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
<u>Grant- In- Aid for</u>				
i) Fellowship	300,000			
ii) Consumable				
iii) Travel	600,000			
iv) Contingencies				
TOTAL		900,000		

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Fellowship	275,000			
ii) Consumable				
iii) Travel	599,512			
iv) Contingencies				
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	25,488			
TOTAL		900,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

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MANAGER

(Prof. AKHILESH KUMAR TYAGI)
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(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DBT PROJECT

R/P entitled Investigation the role of PROTEIN-L-ISOASPARTYL METHYLTRANSFERASE (PIMT) in plant stress adaptation.

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
<u>Grant- In- Aid for</u>				
i) Equipment	530,000			
ii) Manpower	-			
iii) Consumable	-			
iv) Travel	-			
v) Contingencies	-			
TOTAL		530,000		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	-			
iii) Consumable	-			
iv) Travel	-			
v) Contingencies	-			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-			
Equipment	530,000			
TOTAL		530,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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NEW DELHI

DST PROJECT

R/P entitled Financial Assistance for a award of J.C.Bose Fellowship to Prof. Akhilesh Kumar Tyagi

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	119,251		252,160	
<u>Grant - In - Aid for</u>				
i) Fellowship	300,000		300,000	
ii) Consumable				
iii) Travel	900,000		740,000	
iv)Contingencies				
v)Overheads	60,000		60,000	
TOTAL		1,379,251		1,352,160

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Fellowship	300,000		300,000	
ii) Consumable				
iii) Travel	572,962		872,909	
iv)Contingencies				
v)Overheads	60,000		60,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	446,289		119,251	
TOTAL		1,379,251		1,352,160

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

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NEW DELHI

DST PROJECT

A'(WOS-A) entitled Functional characterization of mitogen activated protein kinase-3 (OsMPK3) in rice

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	46,517		96,582	
Equipment	500		500	
<u>Grant - In - Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		420,000	
iii) Consumable	-		110,000	
iv) Travel	-		-	
v)Contingencies	-		20,000	
vi)Overheads	-		100,000	
TOTAL		47,017		747,082

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	500		-	
ii) Manpower	-		420,000	
iii) Consumable	6,460		147,744	
iv) Travel	40,000		-	
v)Contingencies	57		32,321	
vi)Overheads	-		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		46,517	
Equipment	-		500	
TOTAL		47,017		747,082

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
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NEW DELHI

DST PROJECT

WOS-A entitled Role of amino acids in morphogenesis of Candida albicans

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	12,761		51,370	
Equipment				
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower	-		220,000	
iii) Consumable	-		138,000	
iv) Travel	-		-	
v)Contingencies	-		10,000	
vi)Overheads	-		82,000	
TOTAL		12,761		501,370

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	2,861		211,333	
iii) Consumable	402		177,821	
iv) Travel	9,457		7,480	
v)Contingencies	41		9,975	
vi)Overheads	-		82,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		12,761	
Equipment				
TOTAL		12,761		501,370

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DST PROJECT

R/P entitled Role of homeobox genes in abiotic stress responses in rice

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	36,055		543,347	
Equipment	47,003		27,852	
<u>Grant - In - Aid for</u>				
i) Equipment	-		-	
ii) Manpower	700,000		100,000	
iii) Consumable	640,000		560,000	
iv) Travel	30,000		-	
v)Contingencies	30,000		40,000	
vi)Overheads	100,000		100,000	
TOTAL		1,583,058		1,371,199

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	47,003		(19,151)	
ii) Manpower	715,023		499,683	
iii) Consumable	642,990		655,289	
iv) Travel	45,058		14,472	
v)Contingencies	32,984		37,848	
vi)Overheads	100,000		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		36,055	
Equipment	-		47,003	
TOTAL		1,583,058		1,371,199

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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NEW DELHI

DST PROJECT

R/P entitled Genomic Approaches for Stress Tolerant Chickpea

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,328,875		393,434	
Equipment				
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower	-		370,200	
iii) Consumable	-		2,504,960	
iv) Travel	-		-	
v)Contingencies	-		-	
vi)Overheads	-		131,840	
TOTAL		1,328,875		3,400,434

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	249,080		291,200	
iii) Consumable	1,033,737		1,648,519	
iv) Travel	-		-	
v)Contingencies	-		-	
vi)Overheads	-		131,840	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	46,058		1,328,875	
Equipment				
TOTAL		1,328,875		3,400,434

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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DIRECTOR(VIPUL GIOTRA)
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NEW DELHI**DST PROJECT****R/P entitled Investigation of cross talk between MAP Kinase and light signaling pathways in Arabidopsis thaliana****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	211,094		353,235	
Equipment	119,793		119,793	
<u>Grant - In - Aid for</u>				
i) Equipment	-		-	
ii) Manpower	240,000		100,000	
iii) Consumable	600,000		570,000	
iv) Travel	30,000		-	
v)Contingencies	30,000		30,000	
vi)Overheads	100,000		100,000	
TOTAL		1,330,887		1,273,028

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	109,200		102,658	
iii) Consumable	338,422		719,847	
iv) Travel	22,534		-	
v)Contingencies	20,380		19,636	
vi)Overheads	100,000		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	620,558		211,094	
Equipment	119,793		119,793	
TOTAL		1,330,887		1,273,028

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI**DST PROJECT****R/P entitled Innovation in Science Pursuit for Inspired Research (INSPIRE)****Faculty Award to Dr. Rohini Garg****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	762,126		601,239	
Equipment	334,966		176,539	
<u>Grant - In - Aid for</u>				
i) Equipment	198,061		245,000	
ii) Manpower	1,024,404		991,680	
iii) Consumable				
iv) Travel	339,534		420,000	
v)Contingencies				
vi)Overheads	28,294		35,000	
TOTAL		2,687,385		2,469,458

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	344,063		86,573	
ii) Manpower	1,016,223		983,760	
iii) Consumable				
iv) Travel	299,943		267,033	
v)Contingencies				
vi)Overheads	28,294		35,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	809,898		762,126	
Equipment	188,964		334,966	
TOTAL		2,687,385		2,469,458

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER
Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DST PROJECT****R/P entitled SERB Woman Excellence Award to Dr. Gitanjali Yadav****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	114,392			
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower				
iii) Consumable	400,000		500,000	
iv) Travel				
v)Contingencies				
vi)Overheads	100,000		100,000	
TOTAL		614,392		600,000

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower				
iii) Consumable	460,217		385,608	
iv) Travel				
v)Contingencies				
vi)Overheads	100,000		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	54,175		114,392	
TOTAL		614,392		600,000

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DST PROJECT****R/P entitled SERB Woman Excellence Award to Dr. Saloni Mathur****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u> With Bank in Saving A/c				
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower				
iii) Consumable	500,000			
iv) Travel				
v)Contingencies				
vi)Overheads	100,000			
TOTAL		600,000		-

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower				
iii) Consumable	345,236			
iv) Travel				
v)Contingencies				
vi)Overheads	100,000			
<u>CLOSING BALANCE</u> With Bank in Saving A/c	154,764			
TOTAL		600,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DST PROJECT****R/P entitled SERB Woman Excellence Award to Dr.Pinky Agarwal****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u> With Bank in Saving A/c				
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower				
iii) Consumable	500,000			
iv) Travel				
v)Contingencies				
vi)Overheads	100,000			
TOTAL		600,000		-

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower				
iii) Consumable	73,995			
iv) Travel				
v)Contingencies				
vi)Overheads	100,000			
<u>CLOSING BALANCE</u> With Bank in Saving A/c	426,005			
TOTAL		600,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
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MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DST PROJECT

R/P entitled "Dissecting physiological and molecular responses adapted by chickpea plants exposed to concurrent drought stress and bacterial pathogen infection by using transcript profiling and VIGS"

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
<u>Grant - In - Aid for</u>				
i) Equipment	-			
ii) Manpower	420,000			
iii) Consumable				
iv) Travel	630,000			
v)Contingencies				
vi)Overheads	100,000			
TOTAL		1,150,000		-

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	361,290			
iii) Consumable				
iv) Travel	57,618			
v)Contingencies				
vi)Overheads	100,000			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	631,092			
Equipment	-			
TOTAL		1,150,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER
Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DST PROJECT

R/P entitled "Uncovering the unique stress tolerance mechanisms of contrasting chickpea genotypes against simultaneous drought stress and pathogen infection: An approach based on miRNA-induced gene silencing"

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
<u>Grant - In - Aid for</u>				
i) Equipment	73,000			
ii) Manpower	660,000			
iii) Consumable				
iv) Travel	267,000			
v)Contingencies				
vi)Overheads	100,000			
TOTAL		1,100,000		-

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower				
iii) Consumable				
iv) Travel				
v)Contingencies				
vi)Overheads	100,000			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	927,000			
Equipment	73,000			
TOTAL		1,100,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER
Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

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NEW DELHI

DST PROJECT

R/P entitled Max Plank Fellowship

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u> With Bank in Saving A/c				
<u>Grant - In - Aid for</u> i) Travel	75,000			
TOTAL		75,000		-

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Travel	57,360			
<u>CLOSING BALANCE</u> With Bank in Saving A/c	17,640			
TOTAL		75,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DST PROJECT

R/P India South Africa Joint Workshop on Agriculture Biotechnology

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u> With Bank in Saving A/c				
<u>Grant - In - Aid for</u> i) Contingencies for Workshop	500,000			
TOTAL		500,000		-

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Contingencies for Workshop	388,681			
ii) Refund to DST	111,319			
<u>CLOSING BALANCE</u> With Bank in Saving A/c	-			
TOTAL		500,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
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DIRECTOR(VIPUL GIROTRA)
PARTNER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

NASI PLATINUM JUBILEE CHAIR

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	7,126			
<u>Grant - In - Aid for</u>				
i) Salary	1,752,074		1,606,400	
ii) Contingencies	277,926		114,854	
TOTAL		2,037,126		1,721,254

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Salary	1,748,800		1,599,274	
ii) Contingencies	242,543		114,854	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	45,783		7,126	
TOTAL		2,037,126		1,721,254

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIOTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**INSA Project**

R/P entitled Comparative Analysis of Plant Organellar Genes with their Nuclear and free-living counterparts to understand genome organization, gene content and Evolutionary Patterns of origin and continuity

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
<u>Grant - In - Aid for</u>				
i) Manpower	84,000			
ii) Travel	22,700			
iii) Contingencies	133,300			
iv) Overheads	60,000			
TOTAL		300,000		-

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Manpower	42,000			
ii) Travel	20,945			
iii) Contingencies	124,742			
iv) Overheads	60,000			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	52,313			
TOTAL		300,000		-

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre for Plant Genome Research)
NEW DELHI

FELLOWSHIP GRANT CSIR

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	618,997		2,395,675	
Amt.received from CSIR for Research Fellowships & Associatships	13,597,385		6,558,521	
TOTAL		14,216,382		8,954,196

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	12,902,801		8,335,199	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	1,313,581		618,997	
TOTAL		14,216,382		8,954,196

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre for Plant Genome Research)
NEW DELHI

FELLOWSHIP GRANT UGC

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	458,924		2,556,978	
Amt.received from UGC for Research Fellowships & Associatships	5,485,392		3,689,702	
TOTAL		5,944,316		6,246,680

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	5,761,506		5,787,756	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	182,810		458,924	
TOTAL		5,944,316		6,246,680

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre for Plant Genome Research)
NEW DELHI

FELLOWSHIP GRANT DBT

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	602,492		634,669	
Amt.received from DBT for Research Fellowships & Associatships	7,254,723		5,103,632	
TOTAL		7,857,215		5,738,301

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	6,362,853		5,135,809	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	1,494,362		602,492	
TOTAL		7,857,215		5,738,301

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIOTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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NEW DELHI

DBT POSTDOCTORAL FELLOWSHIP GRANT

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	143,902		575,372	
Amt.received from DBT for Research Fellowships & Associatships	-		817,600	
TOTAL		143,902		1,392,972

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	143,902		1,249,070	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	-		143,902	
TOTAL		143,902		1,392,972

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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NEW DELHI

FELLOWSHIP GRANT ICMR

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	155,099		117,091	
Amt.received from ICMR for Research Fellowships & Associatships	354,000		251,897	
TOTAL		509,099		368,988

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	225,272		213,889	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	283,827		155,099	
TOTAL		509,099		368,988

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER

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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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NEW DELHI

FELLOWSHIP GRANT TWAS

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD FROM 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	48,724		129,202	
Amt.received from ICGEB for Research Fellowships & Associatships	108,271		484,426	
TOTAL		156,995		613,628

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	156,995		564,904	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	-		48,724	
TOTAL		156,995		613,628

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIOTRA)
PARTNER

Membership No.084312

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**RECEIPT AND PAYMENT ACCOUNT OF NIPGR EMPLOYEES CONTRIBUTORY PROVIDENT FUND ACCOUNT****FOR THE PERIOD 1st APRIL 2014 TO 31st MARCH 2015**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
In Savings Account	728,754		1,746,177	
In Fixed Deposit	27,400,000		22,400,000	
<u>SUBSCRIPTIONS</u>				
(i) Amount of Regular Subscription	4,296,000		3,788,400	
(ii) Refund of advances received from Subscribers	441,000		409,250	
Amount received from NIPGR Core grant to meet Institute's liability towards Contribution & Deficit of Interest	440,903		293,147	
<u>INTEREST EARNED</u>				
Savings Account	2,970,192		2,490,074	
TOTAL		36,276,849		31,127,048

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Advances paid to Subscribers	500,000		345,000	
Full & Final payment of Subscribers	-		2,653,294	
	-		-	
<u>CLOSING BALANCE</u>				
In Savings Account	476,849		728,754	
In Fixed Deposit	35,300,000		27,400,000	
TOTAL		36,276,849		31,127,048

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No..000250N

(RAKESH MOHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR(VIPUL GIROTRA)
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NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
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NEW DELHI

11th International Symposium on Rice Functional Genomics

FOR THE PERIOD 1st APRIL 2014 TO 31st MARCH 2015

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With bank Saving A/c	2,702,528			
1.Contribution from Government Institutions			3,840,000	
2. Sponsorship (Industries & Corporates)			4,867,147	
3.Registration Fee	-		5,684,400	
4.Interest	135,510		103,212	
TOTAL		2,838,038		14,494,759

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
1.Symposium Management Expenses	-		11,003,174	
2.Boarding & Lodging	-		118,114	
3.Postage Charges			10,311	
4.Travel Expenses	-		660,360	
5.Contingencies	15,000		272	
6.Fund transferred to NIPGR Specific Fund A/c	2,823,038			
<u>CLOSING BALANCE</u>				
In Savings Account	-		2,702,528	
TOTAL		2,838,038		14,494,759

For V.K.DHINGRA & co.

CHARTERED ACCOUNTANTS

Firm Registration No.:000250N

(RAKESH MOHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH KUMAR TYAGI)
DIRECTOR

(VIPUL GIROTRA)
PARTNER

Membership No.084312

COMMENTS ON AUDITOR'S REPORT ON ACCOUNTS FOR THE YEAR ENDED MARCH 31, 2015

Para

1. Provision for actuarial liability on account of gratuity and other terminal benefits for employees has been provided but not worked out as required under AS-15 "Employee Benefits" issued by The Institute of Chartered Accountants of India. In the absence of actuarial valuation as on 31.03.2015, we are not in a position to ascertain and quantify the impact thereof on the financial statements (Also refer point no.8 of schedule no.24 to the financial statement).
2. Pending approval of final cost of construction by Building Committee, Phase-II buildings have not been capitalized. Also no depreciation has been charged on the same. In the absence of actuarial valuation as on 31.03.2015, we are not in a position to ascertain and quantify the impact thereof on the financial statements (Also refer point no.6 (b) of schedule no.24 to the financial statement).

Reply

1. The provision for retirement benefits in respect of NIPGR Employees has been made on the basis of actuarial valuation, done in the past and as per grant received for this purpose from DBT. The suggestions of audit to make provision in this regard, based on actuarial valuation of each year, has been noted for future compliance.
2. The final cost of phase-II buildings of the Institute will be capitalized after vetting of final cost by the Building Committee and approval by the Governing Body as per Institutional norms. Since, the final bill of the construction cost has not been received from the Project Management Consultants (M/s RITES Ltd), the cost of phase-II buildings could not be finalized during the year, hence, no depreciation has been charged during the year 2014-15, though the building have been put to use. The matter is being actively pursued with M/s RITES Ltd, and it is expected that the requisite information/details will be received in the current fiscal and capitalization of the building cost will be effected in the Annual Accounts for the Financial Year 2015-16.

(Rakesh Mohan)
Finance Officer

(Sandeep Datta)
Manager

(Prof. Akhilesh Kumar Tyagi)
Director