

Contents

<u>S.No.</u>	<u>Item</u>	<u>Page No.</u>
1.	Mandate	1
2.	Preamble	3
3.	Highlights of the Scientific Achievements	7
4.	Publications and Patents	29
5.	Activities of the Institute	41
6.	Committees of the Institute	75
7.	Staff of the Institute	83
8.	Budget/Auditor's Report & Audited Accounts	89

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, popularly known as NIPGR, was established in 1998 with the basic objective of promoting and coordinating research of high caliber in basic and applied plant biology. In a short span of just fourteen years, the institute has made its own name in biological research, and has become a premier institution for plant biology. The institute has 20 staff scientists leading their own scientific research groups to address unique and diversified aspects of basic and applied plant science. The research programmes being pursued in the institute are grouped in the areas like Computational Biology, Genome Analysis & Molecular Mapping, Molecular Mechanisms of Abiotic Stress Response, Nutritional Genomics, Plant Development and Architecture, Molecular Breeding, Plant Immunity, and other Emerging Areas. In the year of 2011-2012, research personals working at NIPGR have published 81 papers in reputed refereed journals. Moreover, in the same year, five national/international patents were filed. Our scientific work has been recognized by several awards, honors and invitations to national and international events.

Research in the area of computational biology revolves around the complex dynamic systems governing the patterns observed across various processes in the life of a plant. Insights have been gained into the isoprenoid based stress responses through a complex regulatory network co-ordinating the dynamics between the mevalonate and methyl-erythritol phosphate pathways. Similarly, the molecular frameworks have been investigated in *Arabidopsis* by an integrated computational systems analysis of 'Floral Transition'. In order to create a genetic map, deep sequencing of the whole genome of chickpea ICC4958, being done using the next generation sequencing (NGS) technologies, is at an advanced stage. The deep sequencing of the genome and the transcriptome of a wild relative of chickpea has been done and SNPs and SSRs have been extensively identified and used in linkage mapping. An inter-specific linkage map of chickpea has been generated. This contains 406 loci distributed onto 8 linkage groups which spanned 1497.7cM with an average marker density of 3.68 cM. In foxtail millet, 147 functional SSR markers have been developed. The efficacies of the microsatellite containing genomic sequences were established by superior primer designing ability (69%), PCR amplification efficiency (85.5%) and polymorphic potential (52%).

Geographical distribution and productivity of crop species are greatly affected by adverse environmental conditions. Therefore, a better understanding of stress response in plants is the key to decipher the regulatory mechanism of better adaptation. A number of groups in the institute are putting effort to understand the molecular mechanisms of stress response. Transgenic rice lines overexpressing OsiSAP1/11 and OsiRLCK253 have been demonstrated to be tolerant to water-deficit stress. Moreover, yield protection was observed under stress condition for OsiSAP1 transgenic rice. Target genes for these components have been identified. Work on at least three selected transcription factors has been initiated to explore the transcriptional regulatory network during abiotic stress responses in rice. Involvement of components of MAP kinase cascade, OsMKK6 and possibly OsMPK3, in UV induced transcript accumulation of genes of phytoalexin biosynthesis in rice has been

demonstrated. The functional analysis of an auxin-responsive CC-type glutaredoxin gene revealed its role in abiotic stress responses. Plant response to Phosphorus (P) deficiency has been studied at morphological, physiological and molecular levels in rice. Results indicate reduced plant growth and P accumulation in both root and shoot under P deficiency. Genes responsive to P deficiency have been identified and are being analyzed. In chickpea, characterization of nuclear proteome and secretome has been undertaken to unravel intricacies of protein level dynamics in abiotic stress. A differentially expressed transcript during abiotic stress, encoding a putative WD protein (*Setaria italica* WD40; *SiWD40*), was identified in foxtail millet. Role of DREs in the expression of *SiWD40* during environmental stress is suggested. The allele-specific marker (ASM) has been validated in a core set of 170 foxtail millet accessions through single marker regression analysis. The *SiDREB2* associated trait contributed to ~27% of the total variation among the 170 accessions indicating it to be a major QTL for dehydration tolerance. A total of 14 potential novel stress associated miRNAs were also identified by *in silico* analysis in *S. italica*.

The institute is running many programmes that focus on increasing the nutritional value of crops, fruits and vegetables. A major approach has been the improvement of the amino acid composition of carbohydrate-rich staple crops by overexpressing seed protein gene *AmA1*. Stable lines of several crops including rice and potato, over-expressing *AmA1* have been generated, and their different generations are being analyzed. Detailed characterization of transgenic soybean expressing an oxalate catabolizing enzyme showed much reduction in the oxalic acid content while the OXDC engineered T3 lines of *Lathyrus* showed 80% reduction in seed ODAP content. Further, proteomic characterization of OXDC-tomato identified few OXDC-responsive candidate proteins. Fruit-specific promoters are the prerequisite for genetic manipulation of fruit quality traits. Thus, functional characterization of α -D-mannosidase and β -hexosaminidase gene promoters is in progress to gain insight into transcriptional regulation of ripening-related genes in climacteric and non-climacteric fruits. *Brassica juncea* is second most important oilseed crop of Indian subcontinent, which is highly rich and divergent in glucosinolates, the amino-acid derived secondary metabolites. A RNAi line of *BjMyb28* has been shown to have significantly low glucosinolate levels in the seeds.

A number of research projects in the institute are focused to study plant development and architecture. Sugar and phytohormone interact extensively to control plant growth and development. Various molecular, physiological and cell biological approaches have been employed to accomplish a thorough analysis of the nature of interaction between sugar-auxin, sugar-brassinosteroid and sugar-cytokinin signaling pathways in a model plant system *Arabidopsis thaliana*. Functional characterization of glucose and BR-regulated genes, encoding for expressed protein with unknown function, is under progress. Postembryonic main root and root branches constitute the root system architecture of higher plant. Small RNAs, such as tasiRNA, regulate root architecture through target and non-target ARF genes. Novel genes and small RNAs with potential role in root development have been identified using microarray and LCM-microarray approaches. Functional analysis of candidate genes is being done. Seed storage proteins (SSPs) are essential components of the rice seed, providing nutrition not only to the germinating seed but also to humans. An analysis of the rice genome done at NIPGR shows that it encodes for 16 globulins, 28 prolamins and 15 albumins, many of which have been newly annotated. Since majority of SSPs co-express with five NAC transcription factors, experiments are going on to prove the role of these NACs in SSP gene

regulation. In this respect, six promoters of SSPs and of all the five NACs have been cloned upstream to a *GUS* reporter to check for overlap in their expression patterns. Further experiments on gene-promoter interactions and generation of transgenic plants will help elucidate the role of NACs in regulation of SSP encoding genes. Further, transcription factors showing seed-specific expression patterns are being analyzed for function by transgenic and association mapping approaches.

Studying the immune system of plants is of paramount importance. To understand the molecular mechanism of virus tolerance in tomato, the abundance of viral genomic replicative intermediate molecules and virus-directed short interfering viral RNAs (siRNAs) by host plant in a naturally tolerant cultivar LA 1777 and a susceptible cultivar 15 SBSB at different time points after agroinfection were studied. A correlation of less abundance of viral replicative intermediate in tolerant cultivar with a relatively higher accumulation of virus-specific siRNAs has been demonstrated. Based on these evidences, a putative mechanism for ToLCNDV tolerance in the tolerant genotype is proposed. A comparative proteomics approach, using 2DE coupled with LC-MS-MS, identified potential patho-stress responsive protein candidates from low oxalate fungal tolerant tomato expressing oxalate decarboxylase enzyme. Characterization of the ECM proteome in plants holds the promise of increasing our understanding about the gene's function. More than thousand patho-stress responsive ECM proteins from chickpea were identified. These might be involved in plant immune response. To study the natural resistance/susceptibility of chickpea against *Ascochyta rabiei*, the transcriptome of infected chickpea plants was sequenced using 454 pyrosequencing technologies. Selected members of few important gene families viz. glutaredoxins, MAP kinase and WRKY were analyzed for their role during plant immune response. Genes involved in conferring resistance against oxidative stress in *Ascochyta rabiei*, were isolated by Suppression Subtractive Hybridization (SSH) strategy. In depth characterization of a few selected genes like *ArOYE1*, *ArAP1*, *ArAOX1* and *Ar93* has revealed novel mechanisms necessary for fungal infection.

The research programmes at NIPGR are aimed to understand the structure, expression and function of genes in plant genomes. We believe that the research programmes running in the institute are contributing significantly to the better understanding of plant biology and paving the way for development of useful products. Dr. Jitendra K. Thakur, other scientists and members of administrative and technical divisions have contributed enthusiastically in preparation of the report and it is my pleasure to acknowledge the same.

Akhilesh Kumar Tyagi
Professor and Director

Highlights of the Scientific Achievements

Highlights of the Scientific Achievements

The highlights of the scientific achievements of the institute in 2011-2012 are given below:

A. COMPUTATIONAL BIOLOGY

Computational analysis of plant stress responses

Research in the area of Isoprenoid based stress responses has resulted in a significant improvement in our understanding of the fundamental terpenoid biosynthetic pathways (Mevalonic acid pathway; MVA and Methyl erythritol pathway; MEP) and the complex regulatory network controlling these pathways, using an integrated systems approach. A scan of the *Arabidopsis thaliana* and *Oryza sativa* pathway interactions and expression, to identify gene families enriched for induction during stress, revealed the existence and involvement of novel transcription factors and several lectins. Overall, the data shows that *Arabidopsis* has 68 genes from eight family of lectins upregulated with isoprenoid biosynthetic pathway during various expression studies, while in case of rice; 1-Deoxy-D-xylulose 5-phosphate synthase (DXPS) enzyme of the MEP pathway has the maximum number of positively correlated lectins among all the enzymes of these pathways. This enzyme has also shown upregulation in various biotic stress conditions as suggested by MPSS data analysis. The data suggest that GNA related lectins and legume lectins play substantial roles in isoprenoid related stress responses, and efforts to further characterize these roles for each lectin identified are currently underway.

Computational genomics and systems biology

Advancement in the area of complex network analysis and computational genomics has enabled analysis of variable genome compositions in addition to physiological aspects like plant development and reproductive fitness. In the genome composition context, differential trends were identified in codon usage patterns in Viridiplantae chloroplast genomes represented by 147 organisms from nine different taxa. Codon bias was found to be significantly correlated with gene expression, and all taxa showed significant differentiating features when compared with each other. The data provide evidence that natural selection can also play an important role in shaping the codon usage in chloroplast genomes. In the area of systems biology, investigation into the process of floral transition at a genome-wide network level was initiated in *Arabidopsis thaliana* with LEAFY (LFY) as the master regulator. LFY is a transcription factor with protein binding function that expresses widely in both vegetative and reproductive tissues, and plays an important role as a switch that triggers flower formation by interacting and coordinating between several other genes. Apart from floral development, the newly deciphered LFY network led to the identification of groups of

'High Confidence' genes, involved in unexpected plant processes such as Stress Responses, Plant Immunity and Vegetative growth. It has been suggested earlier that defense responses are ancestral LFY roles. Our results confirm, and massively expand, the known floral network of *Arabidopsis thaliana* besides providing new insights into the molecular basis of diverse floral morphologies.

B. GENOME ANALYSIS AND MOLECULAR MAPPING

Chickpea genome sequence analysis and its alignment to genetic map

To enhance the productivity of chickpea (*C. arietinum* L.), an important pulse crop, its whole genome sequencing and *de novo* assembly leading to a comprehensive understanding of DNA variability, gene content and gene organization within the chickpea genome, is in progress. The deep sequencing of the whole genome of chickpea cv. ICC4958 was done primarily by 454/Roche GS FLX Titanium platform. Several runs of different whole genome shotgun (WGS) libraries and mate-pair (MP) libraries generated a total of 38.29 million filtered reads with 13.354 Gb high quality bases. Illumina GA IIx short read sequencing platform was used to sequence two small-insert libraries to produce 49.5 Gb paired-end (PE) sequence data. These data produced about 500 Mb assembled sequence in 176734 fragments. More than 80% of the sequence reads aligned to the assembly with an average read depth of 15X. Two genomic DNA libraries were sequenced by SOLiD4.0 platform to generate 28 Gb of paired-end sequence and was used to map the assembly for validation. In addition, two genomic DNA libraries of the wild chickpea genotype *C. reticulatum* PI489777 were sequenced using the SOLiD4.0 platform to identify single nucleotide polymorphisms (SNPs) by mapping these reads to the assembled sequence of ICC4958. Analysis revealed a total of 861366 SNPs and 2075 polymorphic simple sequence repeats (SSRs) between the wild and cultivated genotypes. From these, a set of 768 candidate SNP loci (CaSNPs) were selected from the same number of large contigs to ensure wide genome coverage. The first chickpea 768-OPA, (CpOPA-I) was custom designed and subsequently utilized for genotyping of the 129 RILs of the inter-specific mapping population (*C. arietinum* ICC4958 X *C. reticulatum* PI489777) using the Illumina GoldenGate Genotyping Technology (GGGT). Downstream analysis of genotyping data revealed 697 SNPs to be clearly clustered thereby demonstrating a success rate of 90.75% for the Illumina GGGT in chickpea.

The high resolution genetic map was constructed using the genotyping data of the 697 SNPs along with the genotyping data of 368 co-dominant markers mapped earlier in the laboratory. Linkage analysis and map generation resulted in defining map positions of 1063 markers distributed over 8 linkage groups spanning 1808.7 cM with an average inter-marker distance of 1.7 cM. Further, the transcriptome of wild chickpea, *C. reticulatum* (PI489777), a progenitor of chickpea, was sequenced by GS-FLX 454 technology. It was assembled into 37,265 transcripts with an average length of 946 bp. Putative functions could be assigned to 28,062 (75.3%) transcripts. Overall, the genes/conserved domains and transcription factors involved in diverse biological/cellular processes and pathways were well represented in the

transcripts. A total of 4072 SSRs could be identified in these transcript sequences of which 561 were polymorphic. In addition, a total of 36,446 SNPs were identified between *C. arietinum* and *C. reticulatum*. Several of the SSRs and SNPs were associated with tissue-specific and transcription factor encoding transcripts. Further, the estimation of synonymous substitution rates of orthologous transcript pairs suggested that the speciation event for divergence of *C. arietinum* and *C. reticulatum* may have happened approximately ~0.53 million years ago. Additionally, the expression of lineage-specific chickpea transcripts (3632 chickpea-specific and 741 legume-specific) was quantified using RNA-seq data which revealed 71 legume specific and 287 chickpea-specific transcripts exhibiting tissue-specific expression. The largest number of transcripts was specifically expressed in flower bud and young pod suggesting their involvement in the regulation of cellular processes in specific tissues. Moreover, since quality control (QC) of sequence data generated from NGS technologies is extremely important for meaningful downstream analysis, an application called the NGS QC Toolkit, for quality check and filtering of high-quality data was developed (<http://www.nipgr.res.in/ngsqctoolkit.html>). The key features of the toolkit include parallelization, paired-end data processing, homopolymer trimming, auto detection of FASTQ file variants, removal of adaptor/primer contamination and processing of compressed zip files. Further the construction and development a Genome Browser for chickpea is in active development stage, with completion of the Data Creation and Loading pipelines. Benchmarking, configuration and customization of the Browser have been done using the largest contig available. Currently, two major interfaces to the browser are under construction, namely Blast and Taxonomic Information. Users can select a gene to view detailed information for the nucleotide and encoding proteins like chromosome, start position, end position, protein sequence, function, catalytic activity, co-factor, domains etc. The information in this menu will increase with the availability of fully annotated data.

Generation of genomic resources for molecular mapping in chickpea

High throughput genomic resources such as molecular markers, ESTs, cDNAs, transcripts and genetic linkage maps are being generated in chickpea (*Cicer arietinum* L.), the third most important grain legume crop of the world. About 278 novel genomic STMS markers were developed utilizing microsatellite enriched libraries. For development of transcriptomic markers, large scale EST generation was done from various stages of developing seeds of chickpea which resulted in 8700 ESTs and this resource was utilized for the development of different gene based molecular markers. Hence in all, 905 EST based functional markers including 421 EST-SSRs, 273 PIPs, 109 ESTPs and 102 SNPs have been developed for use in mapping and other applications. An inter-specific linkage map of chickpea was constructed using an internationally accepted reference mapping population arising out of a cross of *C. arietinum* (ICC4958) x *C. reticulatum* (PI489777). For this, a set of 770 co-dominant markers were used for analysis of parental polymorphism of which 260 markers (33.76%) were found to be polymorphic. In addition, 102 SNPs were also analyzed of which 58 SNPs could be genotyped with the Illumina GoldenGate assay. Thus, in all, 318 (36.5%) polymorphic markers which included 52 EST-SSRs, 51 ITPs, 25 ESTPs, 58 SNPs, 2 MtESTs, and 130 gSSRs were

genotyped across the RIL population and the genotypic data was integrated with data derived from 108 previously mapped genomic STMS loci. On the inter-specific map generated, 406 loci were mapped onto 8 linkage groups that spanned 1497.7 cM with an average marker density of 3.68 cM. The present map represented 303 new marker positions of which 177 were gene based and 126 were gSSRs.

High-throughput transcriptome analysis of chickpea seeds at various stages of development was done using the next generation sequencing platform (Roche/454). The sequence data generated consisted of a total of 1,380,469 reads comprising of 388,035,323 bases and the average read length was 342.4. These reads were assembled into 86905 contigs with the average contig size of 437.6 and N50 length was 441. Functional annotation of the transcripts revealed that the developing chickpea seed has an abundance of transcripts (~ 13.4%) that regulate catalytic activities followed by the transcripts pertaining to cellular processes (~9.6%) and DNA binding (~9.2%). The transcription factor families and stage-specific genes were identified.

The symbiosis between leguminous chickpea and rhizobial bacteria *Mesorhizobium ciceri* species results in the formation of a nitrogen fixing organ, the nodule, which leads to symbiotic nitrogen fixation. The transcriptome of the nodule was sequenced by NGS to obtain 10,29,584 reads from the 3 stages of the nodulating tissue whereas 3,30,667 reads were obtained from the control (uninfected) root tissue. The high quality reads were used for assembly of each individual stage to obtain the unigenes which are being annotated and analysed.

Further, high throughput sequencing of the transcriptome and its *de novo* assembly was carried out for gene discovery and marker development in lentil, another important legume. Illumina paired-end sequencing of the lentil transcriptome resulted in ~12 million high quality reads comprising about 25.7 GB data which was assembled into 41990 non-redundant high quality (>100bp) transcripts of average length 798 with N50 value of 1426. Similarity search with the unigenes of other sequenced plant genomes including legumes resulted in maximum similarity with the *Medicago* ESTs (65.39%) followed by the model legume *Glycine* (65.21%). BLASTX results revealed similarity at protein level of 67.05% with the known proteins of *Glycine*, 61.36% with *Populus* proteins followed by 59.91% with *Jatropha* and 59.04% with *Arabidopsis* in the Uniprot database ($\leq 1E-08$). Functional annotation using Gene Ontology (GO) terms resulted in the distribution of the sequences in the GO functional categories of biological process (33.28%), cellular components (20.81%) and molecular function (33.85%). Mining the dataset for the presence of SSRs resulted in a total of 8722 from which 4882 SSRs were designed and 96 primer pairs were validated and utilized for analysis of genetic diversity across lentil genotypes. Moreover, these SSR markers along with the ~623 genomic SSR markers developed earlier are being used for the genotyping in the mapping population (Precoc X L830).

Identification of functionally relevant genes and alleles for traits contributing to higher pod and seed yield in chickpea

With the objective of identifying novel genes and alleles regulating the seed size/weight and pod number in *desi* and *kabuli* chickpea, an integrated approach of candidate gene-based association analysis, traditional bi-parental linkage mapping, differential expression profiling and classical genetic inheritance studies has been implemented. A large number of informative genic and genomic microsatellite and single nucleotide polymorphism (SNP) markers developed from the next-generation whole genome *de novo* transcriptome and genomic sequences of chickpea have been validated and genotyped further in seed and pod trait-specific natural association mapping panel and bi-parental mapping populations developed currently at NIPGR field. Correlation of these genotyping information with the phenotypic characteristics of natural and mapping populations identified three informative microsatellite markers in transcription factor genes showing *strong genetic association* with seed size/weight and pod number in *desi* and *kabuli* chickpea.

Sequence based novel genomic microsatellite markers for robust genotyping purposes in foxtail millet [*Setaria italica* (L.) P. Beauv.]

147 functional SSR markers were developed in foxtail millet. The efficacies of the microsatellite containing genomic sequences were established by superior primer designing ability (69%), PCR amplification efficiency (85.5%) and polymorphic potential (52%). The result thus demonstrates the applicability of microsatellite markers in various genotyping applications, determining phylogenetic relationships and comparative mapping in several important grass species.

Mapping of monoterpenoid indole alkaloid (MIA) yield related quantitative trait loci in *Catharanthus roseus*

Catharanthus roseus is the resource of anticancer therapeutics vinblastine (VB) and vincristine (VC), antihypertensive drug ajmalicine (A) and antianxiety drug serpentine (S). VB and VC are semisynthesized from vindoline (V) and catharanthine (C) the natural precursors accumulated in leaves and/or roots of *C. roseus*. To assist marker assisted selection of high yielders of V, C, S and A in segregating populations, MIA amounts were treated as quantitative traits (QT). Using a phenotyped recombinant inbred line population from a designed cross, DNA markers linked to QT were identified to define QT loci (QTL)/genes/alleles favourable for high expression of QT. Thus 42 QTL relating to 13 QT affecting MIA yield were identified and mapped on 178 DNA marker framework genetic map and were also validated.

C. MOLECULAR MECHANISMS OF ABIOTIC STRESS RESPONSE

Functional analysis of water-deficit responsive genes from rice

Transgenic rice lines overexpressing OsiSAP1/11 and OsiRLCK253 were found to be tolerant to water-deficit stress and yield protection was observed under stress condition for OsiSAP1

transgenic rice. Target genes for these components were identified. Investigations have also been initiated to analyse function of complete SAP gene family.

Water-deficit stress and regulation of nutrient (Pi) utilization in rice

Soil in many parts of India is critically low in essential minerals like, phosphorus (P) and this problem is further compounded by shrinking natural water resources. Plant root system is key to design strategies for crop improvement for both efficient water and nutrient utilization. Well-developed root system with specific adaptations like root hairs will provide more surface area for water and nutrient absorption. As an initial step we have devised a system for growing plants under P deficiency in hydroponics and quantification of P content in root and shoot. Plants grown in such system were used for whole genome transcriptome analysis using microarray to understand the genetic basis of differential tolerance to P deficiency in different rice genotypes. So far we have identified some key genes responsible for P uptake like P transporters and phosphatases in a known P deficiency tolerant genotype. A comprehensive comparative analysis of affected transcriptome is under way to elucidate the genetic network responsible for low P tolerance in rice. These genes would be explored for raising transgenic plants for functional analysis.

Exploring transcriptional regulatory network during water-deficit and high salinity stress in rice

Abiotic stresses such as water-deficit and high salinity affect adversely the rice productivity worldwide. The transcription factors play important roles in the regulation of gene expression in response to abiotic stresses and are powerful targets for genetic engineering of stress tolerance. Among the several target transcription factors short-listed, work has been initiated on two homeobox and one NAC domain transcription factors. Various *cis*-regulatory stress-responsive elements were enriched in their promoter sequences. These genes were highly up-regulated at seedling, mature and reproductive stages of development under various stress conditions and were nuclear-localized. The up-regulation of these genes in the presence of exogenous stress hormone, abscisic acid, suggested their role in ABA-dependent abiotic stress response pathway. The raising of overexpression transgenic *Arabidopsis* and rice plants has been undertaken.

Characterization of Mitogen Activated Protein Kinase (MAPK) cascade in rice

The role of mitogen activated protein kinase (MAPK) was elucidated during UV mediated induction of genes involved in biosynthesis of phytoalexins (PA) in rice. Pharmacological experiments revealed that the inhibitors of MAPK enzyme activity also inhibited the induction PA genes by UV stress. Using a combination of in-gel kinase, in-vitro phosphorylation and immunokinase assays, OsMPK3 and OsMKK6 were identified as the specific members of MAPK module in rice having role in UV mediated induction of PA genes. Stable transgenic rice over-expressing constitutive active form of OsMKK6 showed higher accumulation of PA genes during UV stress and also by the infection by blast fungus, *Magnaporthe oryzae*.

Interestingly, transcription factors, OsTGAP1 and OsWRKY89, known to have role in regulating PA biosynthesis genes and induction under UV stress, respectively also showed higher accumulation in the transgenic rice. A possible interaction between TGAP1 and OsWRKY89 with OsMAPKs was shown using yeast two-hybrid analysis and in-vitro phosphorylation assay.

Molecular genetic analyses and systems biology of auxin signaling networks in plants

Phytohormone auxin has been implicated in developmental processes and abiotic stress responses in plants. One of auxin-responsive genes, glutaredoxin, differentially expressed during development and stress conditions has been selected for functional analysis. The glutaredoxin-GFP fusion protein was found to be localized in nucleus as well as cytoplasm. The analysis of overexpression transgenic *Arabidopsis* plants exhibited reduced sensitivity of transgenic lines for root growth to auxin. Further, the transgenic lines clearly exhibited reduced sensitivity to ABA, salt and oxidative stresses for inhibition of seed germination and root growth as compared to wild type. All the transgenic lines outperformed the wild-type in leaf disc assays with the leaves showing less signs of loss of chlorophyll at various concentrations of NaCl and hydrogen peroxide. These results confirmed the enhanced ability of transgenic lines to tolerate various stresses.

Defining function of an unknown protein for abiotic stress tolerance

Stress causes cellular damage by increasing reactive oxygen species (ROS) content within the cell, which subsequently leads to accumulation of toxic aldehyde and ketone molecule. As a response to stresses, plants induce expression and/or activate scavenging enzymes, which catalyzes conversion of the toxic molecules to non-toxic products. In a previous study, gene expression profiles of two chickpea varieties with contrasting drought-tolerance phenotypes in response to water-deficit stress were analyzed. Transcript profiles identified 312 ESTs with very high fold of expression in the tolerant variety. Out of those, 36 (12%) could not be functionally annotated by sequence homology search, and therefore, denoted as 'unclassified'. We tested the capabilities of ten such genes of providing osmotolerance in yeast. One of the genes was found to support growth of the transformed yeast in 500 mM sodium chloride. Amino acid sequence analysis revealed that the corresponding protein, though shows a very little overall sequence homology with yeast and plant aldo-keto reductases (AKR) of short chain dehydrogenase/reductase (SDR) family, possesses the conserved amino acids present in the SDR catalytic site and the conserved crucial amino acids for NADPH-binding. Sequence homology search identified five different transcripts in chickpea transcriptome and several cDNAs from other plants encoding similar proteins. Enzymatic assay performed with the bacteria-expressed protein and seventeen different substrates commonly used to assay AKRs showed a very high NADPH-dependent enzymatic activity of the protein with xylose being the preferred substrate. Substitution of active site amino acid with alanine by site directed mutagenesis caused total abolition of enzymatic activity. Aldo-keto reductases were shown to improve stress-tolerance in plants by

detoxification of toxic keto-group-containing substances. Therefore, it is proposed that the gene identified in chickpea and its uncharacterized homologues in chickpea and other plants encodes a novel family of short chain dehydrogenase/reductase.

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

Myo-inositol participates in many different aspects of plant physiology including plant stress adaptation. Previously, two divergent genes/cDNAs (*CaMIPS1* and *CaMIPS2*) encoding *myo* inositol 1 phosphate synthase (MIPS) from chickpea were isolated and characterized. Here we demonstrate that *CaMIPS2* is an early dehydration responsive gene and is also rapidly induced by exogenous ABA application. The regulations of expression of these two genes have been studied by examining their promoter activity through GUS reporter gene. For functional studies of these genes, *CaMIPS1* and *CaMIPS2*, were successfully complemented and shown to rescue the defect of seedling growth and altered seed phenotype of *Atmips1* mutant. *Arabidopsis* transgenic plant overexpressing *CaMIPS1* or *CaMIPS2* exhibited better growth responses than vector control when exposed to salinity and dehydration stress and such tolerance of transgenic plants were correlated with increased accumulation of inositol content. Remarkably, *CaMIPS2* transgenic lines performed better in all attributes than *CaMIPS1* transformants under such stress conditions.

Characterization of the nuclear proteome of a dehydration-sensitive cultivar of chickpea and comparative proteomic analysis with a tolerant cultivar

Water-deficit or dehydration hampers plant growth and development, and shrinks harvest size of major crop species worldwide and therefore, a better understanding of dehydration response is the key to decipher the molecular mechanism of better adaptation. In this study, the proteome of hypersensitive chickpea cultivar (ICCV-2) was generated from nuclei-enriched fractions. The LC-ESI-MS/MS analysis led to the identification of 94 dehydration-responsive proteins presumably associated with different metabolic pathways. Nuclear localization of three candidate proteins was validated by transient expression assay using fluorescent reporter marker. The ICCV-2 proteome was then compared with that of a tolerant c.v. JG-62. The differential display of the proteomes and *in silico* analysis revealed cultivar-specific differential expression of many proteins. The differential dehydration tolerance could be attributed to differential expression of many structural proteins and the proteins involved in stress adaptation, notably the ROS catabolizing enzymes. These findings might expedite the functional determination of the dehydration-responsive proteins and their prioritization as potential molecular targets for better adaptation.

Characterization of the secretome of chickpea suspension culture reveals pathway abundance and the expected and unexpected secreted proteins

Plant secretomics is an emerging area of the plant proteomics that essentially describes the global analysis of the proteins secreted into the extracellular space at any given time, and

under certain conditions via various secretory mechanisms. The secretome plays critical roles in a wide range of cellular processes, such as structural integrity and biogenesis. To better understand the secretome, we used callus culture of chickpea to isolate and identify secreted proteins as a step towards determining their functions. Proteomic analysis led to the identification of 773 proteins, presumably involved in a variety of functions. Bioinformatic analysis confirmed 724 proteins, accounting for 94% of the identified proteins, as constituents of the secretome. Analysis of the secretome revealed the presence of several proteins of unknown function and a large number of classical and nonclassical secreted proteins. This represents the first comprehensive secretome of a legume, which genome is yet to be sequenced. Comparative analysis of the chickpea secretome with those of *Medicago*, *Arabidopsis*, and rice revealed that a majority of identified proteins are seemingly species-specific.

Molecular cloning and characterization of stress related genes from foxtail millet, *Setaria italica* (L.)

A differentially expressed transcript, encoding a putative WD protein (*Setaria italica* WD40; *SiWD40*), was identified in foxtail millet. We report that DREs may probably regulate expression of *SiWD40* during environmental stress. Our study thus provides a vital clue for near future research on the stress-regulation of WD proteins

We also report on identification of a novel DNA-binding site, [C/G][A/T][T/A][G/C]TC[C/G][A/T][C/G][G/C] for SiNAC by electrophoretic mobility shift assay. The SiNAC-GST protein could bind to the NAC recognition sequence *in vitro* as well as to sequences where some bases had been reshuffled. The results presented here contribute to the understanding of the DNA-binding specificity of SiNAC protein.

Validation of the allele-specific marker (ASM) in a core set of 170 foxtail millet accessions through single marker regression analysis is reported. The regression of lipid peroxidation (LP), on the ASM suggested that the *SiDREB2* associated trait contributed to ~27% of the total variation in LP among the 170 accessions indicating it to be a major QTL for dehydration tolerance. Thus, this ASM can be used for marker-aided breeding and allele-mining for dehydration tolerance in foxtail millet.

Pleiotropies associated with genomic DNA hypomethylation in *glycophytic salinity response* (gsr) mutants of *Catharanthus roseus*

Floricultural-cum-medicinal plant *Catharanthus roseus* is serving as a model plant for the analysis of secondary metabolome and gene regulatory network for the secondary metabolism. For the forward genetics of the system, *glycophytic salinity response* (gsr) mutants were isolated and are undergoing characterization. Three mutants and their doubles have been compared with wild type morphologically, anatomically, for expression of alkaloids, osmoprotectants, expression of scores of genes and for DNA methylation. Genome-wide

differential hypomethylation appears to be associated with pleiotropies demonstrated by the mutants.

D. NUTRITIONAL GENOMICS

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

Huge post-harvest losses are incurred due to excessive softening of fruits during ripening process. Therefore, it is highly desirable that fleshy fruit softening is slowed down without affecting normal ripening process. Successful efforts to control fruit ripening are based on either reducing the biosynthesis of plant hormone ethylene and/or slowing down the rate of fruit softening by targeting genes involved in cell wall modification. However, these approaches have limited implication to nonclimacteric fruits which do not respond to ethylene during ripening and different genes need to be targeted for the different categories of fruits. Thus, identification of a common mechanism that is conserved in different types of fruits would provide new opportunities for controlling fruit softening. Earlier we have reported enhancement of tomato shelf life by suppressing *N*-glycans processing enzymes such as α -D-mannosidase and β -hexosaminidase in both climacteric as well as nonclimacteric fruits. In order to gain insight into the conserved transcriptional regulation of both climacteric and nonclimacteric fruits, we functionally characterized the gene promoters. Our results suggests that α -D-mannosidase and β -hexosaminidase promoters are fruit ripening specific and can be used for fruit ripening specific gene expression studies for crop improvement

Genetically modified crops expressing *AmA1* for better nutrition

Humans require a diverse and nutritionally well-balanced diet to maintain optimal health and depend largely on plants for their daily nutritional requirements. Moreover, a large proportion of the world's population is undernourished. Thus, nutritional improvement of crop plants is an urgent worldwide health issue as basic nutritional requirements for much of the world's population are still not met. Protein deficiency is the most crucial factor that affects physical growth and development and that increases morbidity and mortality especially in developing countries. Efforts have been made to improve protein quality and quantity in crop plants but with limited success. The conventional and non-conventional carbohydrate-rich staple crops like rice, wheat, potato, cassava, and sweet potato contain very limited amount of protein. Moreover, these crops do not contain some of the essential amino acids very much needed for human nutrition. Towards this, we have been involved in protein improvement programme in these crops using a seed protein gene *AmA1*. We have successfully developed and characterized the stable lines of *AmA1*-potato which are safe for consumption. With the success in the improvement of protein quality and quantity in potato parallel to this, improvement of nutritional quality of other carbohydrate rich crops like rice, sweet potato and cassava were attempted. T3 homozygous lines of the transgenic rice expressing *AmA1* gene were developed. Detail molecular characterization of T3 transgenic lines of two commercial indica rice cultivars showed stable expression of *AmA1* while biochemical analyses of T3

seeds showed increase in the level of total protein. In addition, transgenic sweet-potato lines expressing AmA1 under root specific promoter have been developed.

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

Oxalic acid is one of the most important nutritional stress factor. Oxalates in animals including humans mostly originate from the diet, especially through ingestion of fruits, leafy vegetables, cereal grains and legumes. Oxalate-rich food crops when consumed in large quantities cause primary and secondary hyperoxaluria in humans, which results in impaired renal function. Although, catabolic pathway of oxalate is present in bacteria, fungi, and plants, unfortunately there is no such pathway in vertebrates including humans. Degradation of oxalic acid by decarboxylation is a substrate-specific reaction wherein oxalate decarboxylase (OXDC) efficiently catalyzes oxalic acid into formic acid and CO₂. Thus introduction of OXDC in vegetables like spinach and crop plants such as tomato, pea-nut and soybean, which are considered to be the main source of oxalate in typical Indian diet, looks promising. We earlier demonstrated that the *Flammulina velutipes* OXDC enzyme was successfully targeted to tomato cell vacuoles, indicating its stability at low pH resulted in significant reduction in oxalate content upto 90%. Biochemical analyses revealed the decrease in oxalate in OXDC-tomato was correlated with concomitant increase in calcium, iron and citrate. Further, detailed characterization of transgenic soybean expressing the oxalate catabolizing enzyme showed much reduction in the oxalic acid content. To investigate the role of OXDC; a comparative proteomic profiling was carried out of OXDC-fruit with the control fruit which shows change in proteome map.

Expression of oxalate decarboxylase to reduce neurotoxin risk factor

Grasspea (*Lathyrus sativus*) is a hardy legume with high percentage (28%) of good quality protein and minerals. However, the presence of neurotoxins such as beta N-oxalyl- α - β -diaminopropionic acid and β -N-oxalyl amino-L-alanine cause neurolathyrism when grass pea is consumed as food. Oxalic acid is the precursor of these neurotoxins. Thus reducing oxalic acid content in this crop by expressing OXDC is an important strategy to decrease neurotoxin level. Towards this we have developed and characterized transgenic grasspea lines expressing *Flammulina velutipes* OXDC gene constitutively. Functional characterization of stable T1 and T2 transgenic lines showed that the expression of OXDC was able to reduce the neurotoxin ODAP in leaf and seed tissue. In furthering the work, we have developed the T3 lines that showed normal phenotype in comparison to the control lines. Biochemical analysis of T3 transgenic events with stable expression of the transgene showed significant reduction in seed ODAP content in comparison to their wild type counterpart. Further, we have developed the T4 lines and the molecular analysis of these lines is currently under progress.

Understanding the molecular-genetic mechanism of glucosinolate biosynthesis in *Brassica juncea*: Development of low glucosinolate lines in *B. juncea*

Indian mustard (*B. juncea* L.) is the second most important oilseed crop of Indian subcontinent, which has significantly high amount of anti-nutritive glucosinolate components

in the seed meal. Major thrusts of our lab are focused towards understanding the gene regulatory networks of glucosinolate biosynthesis in *B. juncea* and use this information to engineer the low glucosinolate content. We have also developed a series of knock-down constructs based on RNAi strategy for selected homologs of glucosinolate pathway genes. A large number of transgenic lines having significant reduction of total seed- and leaf-glucosinolate as well as component glucosinolate were obtained. Remarkably, the seed-glucosinolate levels of some of these lines are less than the internationally acceptable limits ($30 \mu\text{moles g}^{-1}$ seed weight). Currently, we are engaged in the generation advancement vis-à-vis agronomical assessment of the homozygous stock of low glucosinolate lines.

E. PLANT DEVELOPMENT AND ARCHITECTURE

Functional analysis of selected genes during seed development in rice

Quantitative estimate of expression of seed-specific Mediator complex subunits was made and two subunits were localised to the nucleus. RNA interference for OsGW2 resulted in increased grain size and weight in short and long grain rice. Seed-regulated transcription factor genes have been analysed to discover SNPs of utility for genetic and association mapping of seed-related traits.

Analysis of SSP encoding genes in rice and their regulatory NAC transcription factors

An HMM analysis of the rice genome with the consensus model sequence for albumins, globulins and prolamins led to the identification of 15, 16 and 28 encoding genes, respectively. Out of these, 12 were new. Domain analysis showed the presence of defining domains in all of them. MEME motif analysis could be correlated with the groupings in the phylogenetic tree. Meta-analysis of their expression profiles in Rice Oligonucleotide Array Database showed high levels of expression during rice seed development. Further, promoters for six seed storage protein (SSP) encoding genes and five NAC transcription factors, which are coexpressed, have been cloned in the gateway vector pMDC164, for determination of promoter activity.

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

Microarray analysis of glucose and BR-regulated genes previously suggested that presence of glucose globally antagonizes BR-induced changes in gene expression. Functional characterization of some of the glucose and BR-regulated genes encoding for expressed proteins with unknown function At1g66890, At5g22580 is underway.

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

Whole genome transcript analysis previously suggested that glucose agonistically regulated 89% of cytokinin-regulated genes while only very few (11%) were antagonistically regulated.

Functional characterization of glucose and cytokinin-regulated gene encoding for expressed protein (At5g11070) with unknown function is underway.

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

Whole genome studies have previously revealed that a huge number of genes are simultaneously affected by sugar and auxin and may account for a number of common responses affected both by sugar and auxin. Functional characterization of some of the glucose and auxin regulated expressed genes encoding for proteins with unknown function is underway. Overexpression of gene At3g42800 causes longer roots and more lateral root production, while mutant line produces smaller roots and less laterals as compared to WT seedlings. Further work is being carried-out to understand the molecular basis of this phenotype. The role of glucose and its interaction with hormones in controlling *Arabidopsis* root directional response is also being carried out.

Regulation of lateral root stem cells and root architecture

The plant root and lateral roots (LR/lateral organs) are ultimately derived from few root stem cells residing in the root apical meristem. Initiation of lateral roots (LR) happens through the reprogramming of a few pericycle cells of the xylem pole, which specifies LR founder cells. We are specifically interested to identify and understand the function of novel components (including small regulatory RNAs) of the molecular signaling network that regulate root architecture and LR development. In the report of last year, a tasiRNA biogenesis mutant showing altered root architecture had been described, where the role of both target and non-target ARF (AUXIN RESPONSE FACTORS) genes had been indicated. Probable involvement of shoot organ patterning genes such as, HD-ZIP IIIs (PHB, PHV, REV etc.), FILAMENTOUS FLOWER (FIL) etc. in root development had been hypothesized.

Using miRNA-microarray, we have identified miRNAs potentially acting in siRNA pathway, which have been categorized into developmental regulators (43%), stress responsive (21%) and novel ones (36%). Novel genes acting in tasiRNA pathway has been identified using microarray analysis. Functional validation of selected candidate genes/miRNA is ongoing to explore their potential role in small RNA mediated root development. To identify genes potentially required for root growth, LCM-Microarray (Laser Capture Microdissection-Microarray) has been done. Preliminary data has been obtained for understanding probable conservation of small RNA mediated root developmental pathway between monocot and dicot plants. To identify genes required for better root architecture formation in rice, roots of some indica rice cultivars with contrasting root phenotypes are being studied; functional genomics approach is being used in this context. The above knowledge could be used to develop crop with more efficient root system architecture.

Molecular, biochemical and functional characterization of Protein L-Isoaspartyl Methyltransferase (PIMT) from plants and its biological role in seed vigor, viability and stress tolerance

Accumulation of spontaneously damaged isoaspartyl containing proteins in seeds often adversely affects their vigor and viability. The Protein L- Isoaspartyl Methyltransferase (EC 2.1.1.77) (PIMT) repairs such damage by catalyzing the conversion of abnormal L isoaspartyl residues to their normal aspartyl residues. The PIMT1 & 2 genes from chickpea have previously been cloned from our lab.

Further, we demonstrated that *CaPIMT2* gene is differentially regulated by stresses and ABA, and also *PIMT2* might contribute more towards repairing abnormal protein during the dry state of seed or dormancy period while *PIMT1* is possibly more important during germination.

Confocal visualization of stably expressed GFP fused PIMT proteins and cell fractionation-immunoblot analysis revealed that apart from plasma membrane, both *CaPIMT2* isoforms localize predominantly in nucleus however *CaPIMT1* localizes in cytosol. Remarkably, *CaPIMT2* enhances seed vigor and longevity by repairing abnormal isoaspartyl residues predominantly in nuclear proteins upon seed specific expression in *Arabidopsis thaliana* while *CaPIMT1* enhances seed vigor and longevity by repairing such abnormal proteins mainly in the cytosolic fraction.

Role of CaPKS2 in root development

Calcium has emerged as a ubiquitous second messenger to a multitude of plant response to external stimuli. Recently, a group of calcium-sensing proteins have been identified in plants and named as calcineurin B-like proteins (CBL). CIPKs (CBL-interacting protein kinases) represent targets of calcium signals sensed and transduced by CBL proteins. A gene (*CaPKS2*), which showed high expression in the drought-tolerant chickpea cultivar in response to water deficit, has been identified as homologue of a CIPK (*AtPKS2*) in *Arabidopsis*. *CaPKS2* increased root length of the transgenic tobacco lines. *Arabidopsis* mutant plants with no expression of *AtPKS2* gene were found compromised in root growth. The *AtPKS2* mutant was less efficient in transporting auxin. Tissue-specific expression of *CaPKS2/AtPKS2* and the root phenotype of *AtPKS2* mutant suggest *PKS2* has a role in root development.

Regulatory mechanisms in the genetic determination of bifacial lateral organs in *Pisum sativum*

Lateral organs - stipules, leaves, inflorescences and flowers - are all amenable for the underlying gene regulatory network in *Pisum sativum*. Forward genetics approach has allowed finding of functions of *UNI*, *AF*, *TL*, *MFP* and *INS* genes in leaf morphogenesis, of *COCH* and *ST* genes in stipule morphogenesis and repressive role of *COCH* gene on *UNI* for normal differentiation of leaves, inflorescences and flowers. Phenotype of leaf and stipule mutants and variants induced by auxin transport inhibitors in *P. sativum* compared with leaf

and stipule variation in extant angiosperms has allowed two important conclusions about the origin of variation in stipules and leaves: (a) all sessile leaves have origin in stipules and vice versa; and (b) compound leaf was the original form of leaf from which simple and other forms of leaves arose. The parental forms had the gene regulatory network of *P. sativum* for both stipules and leaves.

F. PLANT IMMUNITY

Role of cytokinins in priming plant immunity via the activation of mitogen activated protein kinases

While analyzing the role of rice MAPKs against pathogen in a transiently transformed tobacco leaves, it was observed that *Agrobacterium tumefaciens* strain GV3101 used as control also showed defense and delayed senescence. *Agrobacterium* strain GV3101 is known to produce cytokinin. When LBA4404, a *Agrobacterium* strain deficient in producing cytokinin was used, the disease symptoms were observed in a transient assay system in tobacco leaves. Interestingly cytokinin producing strain, GV3101 activated MAPK kinase activity while, LBA4404 failed to activate the MAP kinases. Initial results indicate role of cytokinin in priming plant immunity via activation of MAP kinase. Further experiments are underway to validate the findings *in-planta*.

Identification and isolation of genes involved in immune response pathway in chickpea and rice

Plants frequently encounter different pathogen stresses that adversely affect growth, development and more importantly the overall productivity. Several of these stresses are united by the fact that at least part of their detrimental effect on plant performance is caused by the deregulation of the immune status. Legumes and cereals share the major part of crop production of which chickpea and rice are crops of primary importance. However, they are continuously challenged with diverse pathogens of which fungal wilt caused by *Fusarium oxysporum* and fungal blight caused by *Magnaporthe grisea* are most important. Our laboratory focusses on understanding the molecular basis of disease vs. immune response in order to identify the key determinants and regulatory mechanism in host-pathogen interaction using chickpea-*Fusarium* and rice-*Magnaporthe* as model systems. The physiological responses to combat patho-stress arise out of changes in the cellular protein profiles. Therefore, recently we have focused our study on differential sub-cellular proteome during host-pathogen interaction. ECM/cell wall primarily serves a dual function, as a cell support system and for signalling during development and stress. Characterisations of the ECM proteome in plants hold the promise of increasing our understanding about the gene's function. We have compared the ECM proteome of six plants. In our study, cross-species as well as cross-condition comparisons of ECM proteomes in vascular plants illustrate the divergence in protein profiles within only a few social classes. Nonetheless, a large number of proteins were unique or novel to each of the plant species, organs, stages of development and

different stresses. It may be thought that the ubiquitously present classes of proteins are the essential proteins for sustenance while the unique classes bring out the condition-specific special function. Further, more than thousand patho-stress responsive ECM proteins from chickpea were identified those might be involved in plant immune response.

Induced immune response of chickpea to a necrotrophic pathogen *Ascochyta rabiei*

Understanding the dynamic relationship of two opposite mechanisms (pathogenesis and plant immunity) and application of this acquired knowledge for crop improvement is central to the larger goal of 'Evergreen Revolution'. We are using an important legume crop chickpea (*Cicer arietinum*) and its devastating necrotrophic fungal pathogen *Ascochyta rabiei* as plant-pathogen system to elucidate the mechanism of induced immune response. Our aim is to study the role of compatible interaction associated dynamic transcriptome in basal defense signaling and metabolic changes of chickpea. We also aim to find out the sequence variations under quantitative trait loci (QTL) responsible for *Ascochyta* blight resistance in tolerant varieties of chickpea. Initially, we have isolated about 250 unigenes by PCR based suppression subtractive hybridization (SSH) strategy. To gain a broader picture of the compatible interaction, the chickpea transcriptome was sequenced using 454 pyrosequencing technology. The comparative study of selected family members from defense associated genes will further help in understanding plant defense mechanisms and some of these genes will serve as 'candidate genes' for the crop improvement. For the large scale transcriptome analysis during compatible interaction, six cDNA libraries of chickpea were generated using the RNA samples of three different time intervals after fungal spore inoculation and their respective controls. After 454 FLX sequencing, 4,78,780 raw reads were obtained which were assembled using various computational programs. The average length of contigs was highest in Newbler (755 bp) followed by MIRA (630 bp) and TGICL (585 bp). The data is presently being analyzed to obtain a global profile of genes during compatible interactions.

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

The capability of a pathogenic fungus to cause disease requires the competence to survive in the hostile environment of the host. To evade this immune system of plants, pathogens have developed an arsenal of molecules that are collectively referred as effectors. Although various effectors have been characterized in biotrophic and hemi-biotrophic phytopathogens, there are very few reports of these proteins in necrotrophic fungi. Since necrotrophic fungi are insensitive to the hypersensitive response, therefore, it was reasoned that there will be some intrinsic defense mechanism in *A. rabiei* which allows it to survive under these conditions in the host. Hence, to isolate the genes involved in conferring resistance against oxidative stress, transcript profiling of *A. rabiei* was done using Suppression Subtractive Hybridization (SSH) strategy. A subtractive cDNA library was constructed after menadione (a superoxide free radical generator) treatment that resulted in the isolation of 128 unigenes. We have

selected a few of them for functional characterization during chickpea-*Ascochyta* interactions. A gene coding for old yellow enzyme (OYE) showed loss of virulence in the knock-out *A. rabiei* lines. A few others like AP1 transcription factor (ArAP1), BAR domain containing protein (Ar72) and Protein phosphatase (ArPP2A) are also being characterized for its role during pathogenesis. In addition, we also aim for the identification of candidate effectors which helps the pathogen in disease establishment and virulence. A novel putative effector gene, Ar93 was isolated and presently being characterized for its significance during pathogenesis.

Dynamics of defense related components in two contrasting genotypes of tomato upon infection with *Tomato Leaf Curl New Delhi Virus*

To understand the molecular mechanism of virus tolerance in tomato, the abundance of viral genomic replicative intermediate molecules and virus-directed short interfering viral RNAs (siRNAs) by host plant in a naturally tolerant cultivar LA 1777 and a susceptible cultivar 15 SBSB at different time points after agroinfection were studied. We showed that less abundance of viral replicative intermediate in tolerant cultivar may have a correlation with a relatively higher accumulation of virus-specific siRNAs. Based on these direct and indirect evidences, we have proposed a putative mechanism for ToLCNDV tolerance in the tolerant genotype.

Genetically modified crops expressing *OXDC* with enhanced tolerance against fungal pathogenicity

Oxalic acid, besides being a major antinutrient factor in many crops, has been implicated in pathogenesis of several phytopathogenic fungi e.g. *Sclerotinia sclerotiorum*, *S. rolfsii*, *S. cepivorum* and *Whetzelinia sclerotiorum*. *Sclerotinia* causes substantial loss in crop production each year, throughout the world, causing almost 85% losses of economically important crops that includes 42 varieties, 408 species, 278 genera and 75 families. Thus, introduction of an enzyme that can specifically degrade oxalic acid in these food crops would help to improve the fungal tolerance. Hence, *OXDC* has become a potential choice as donor gene for genetic improvement for patho-stress adaptation. In the previous reports, we showed that an oxalate degrading gene *OXDC* can be expressed functionally in food crops such as tomato. Biochemical characterization and bioassay of the transgenic plants suggest that *OXDC*-tomato lines are more resistant to fungal infection. Further, to understand, the transgene induced molecular mechanism for the increased pathogen tolerance in transgenic plants, a comparative proteomic approach has been applied in mature tomato fruit upon pathogen challenge using two-dimensional gel electrophoresis (2-DE). Proteomics analysis using LC-MS-MS identified the potential patho-stress responsive protein candidates from low oxalate fungal tolerant tomato expressing oxalate decarboxylase enzyme.

G. EMERGING AREAS

Mediator subunit AtMED15 of Arabidopsis causes flocculation in yeast

Mediator is a gigantic modular multiprotein complex required for regulation of transcription of RNA polymerase II dependent genes. Similarity between the primary amino acid sequences of MED subunits across different kingdoms is very low, raising a question on the functional conservation of these individual subunits. We expressed *AtMed15* of *Arabidopsis* in *gal11Δ* strain of *Saccharomyces cerevisiae*, and found that *AtMed15* could not complement the function of *ScGal11* for its involvement in galactose utilization as carbon source and resistance against cycloheximide. However, expression of *AtMed15* in yeast changed the morphology of the cells. The cells adhered strongly on the surface of the agar media, and showed robust flocculation in the liquid media, suggesting its probable role in cell-cell and cell-surface adhesion. Moreover, there was increased ethanol production in the early phases of growth of yeast expressing *AtMed15*, suggesting its probable importance in brewery industry.

Molecular and functional characterization of Δ7-sterol-C-5-desaturase to explore its importance in plants

Modification of cuticular wax layer which helps to reduce transpirational water loss from the primary plant surface is one of the important strategies to improve drought tolerance. Δ7-sterol-C-5- desaturase is a gene essential to ergosterol biosynthesis pathway in mammals, yeast and plants. Δ7-sterol-C-5- desaturase has N-terminal sequence homology to other enzymes involved in epicuticular wax biosynthesis. We have cloned and characterized FvC5SD gene from an edible mushroom *Flammulina velutipes*. This gene has been constitutively expressed in transgenic tomato plants to modify plant sterol composition and content as well as its performance towards biotic and abiotic stresses.

Development of *Cleome viscosa* as a biodiesel crop

Currently oils extracted from algae and seeds/fruits harvested from perennial plantations of palms, *Pongamia* and *Jatropha* are being used for the production of biodiesel. Annual weed species *Cleome viscosa* was evaluated as a biodiesel resource. An accession of it yielded about 1 ton seeds per hectare. The oil content was 23% and quality-wise matched the soybean oil. Biodiesel prepared from oil met most of the specifications of ASTM and ISB. This plant offers potential and needs to be domesticated.

Characterization of miRNA generating complex in *Oryza sativa*

MicroRNAs (miRNAs) are generated by the action of miRNA-generating complex by sequential cleavage of primary miRNA (pri-miRNA) transcript, leading to precursor miRNA (pre-miRNA) and further cleavage by the same complex to generate mature miRNA (miRNA). We devised a radio-biochemical assay to check the activity of miRNA generating complex in rice using a synthetic pre-miRNA as substrate. Interestingly, the activity of miRNA generating complex could be inhibited with general and MAPK specific inhibitors. These results indicate

role of MAPK in regulating activity of miRNA generating complex in rice. An attempt was also made to biochemically purify the complex using column chromatography. Further characterization of miRNA generating complex and the role of MAP kinase in its regulation is underway.

Breeding of high grain yield and drought tolerant genotype(s) of bread wheat *Triticum aestivum* suitable for autumn cropping in the autumn-cum-winter tandem wheat cropping system

Increasing demand for wheat grain, climate change and deficit of irrigation water for kharif rice in north-west India have necessitated change from rice-wheat cropping system to wheat-wheat tandem cropping. The latter has been successfully developed with the identification of suitable photoperiod-insensitive wheat cultivars. To develop new cultivars, $F_{2:4}$ RILs from WR544 $\times$ NP846 cross were characterized for autumn and winter cropping in field conditions and adaptation to hot and cold conditions at the flowering and grain maturation times and pre flowering drought conditions in phytotron. Several promising high grain yielding lines that are early flowering due to desirable vernalization- and photoperiod-insensitive alleles and combine tolerance to both low and high temperature conditions during vegetative growth, flowering and grain maturity periods and drought conditions have been isolated.

Publications and Patents

Publications

2012

1. Agrawal GK, Sarkar A, Agrawal R, Ndimba BK, Tanou G, Dunn MJ, Kieselbach T, Cramer R, Wienkoop S, Chen S, Rafudeen MS, Deswal R, Barkla BJ, Weckwerth W, Heazlewood JL, Renaut J, Job D, Chakraborty N and Rakwal R (2012) Boosting the globalization of plant proteomics through INPPO: current developments and future prospects. **Proteomics** 12: 359-368.
2. Bhattacharjee A and Jain M (2012) Homeobox genes as potential candidates for crop improvement under abiotic stress. In: Tuteja N, Gill SS (eds), **Crop Improvement Under Adverse Conditions**. Springer Science+Business Media, New York, USA, (In Press).
3. Choudhary S, Guar R, Gupta S and Bhatia S (2012) EST-derived genic molecular markers: development and utilization for generating an advanced transcript map of chickpea. **Theor. Appl. Genet.** 124: 1449-1462.
4. Chaudhary S, Pandey R, Tripathi BN, Goel R and Kumar S (2012) Detection and mapping of quantitative trait loci for the contents of the terpenoid indole alkaloids, vindoline and catharanthine, in the leaves of *Catharanthus roseus* using bulk segregant analysis. **Journal of Horticultural Sci. and Biotechnol.** 87: 179-185.
5. Das M, Banerjee S, Dhariwal R, Vyas S, Mir RR, Topdar N, Kundu A, Khurana JP, Tyagi AK, Sarkar D, Sinha MK, Balyan HS and Gupta PK (2012) Development of SSR markers and construction of a linkage map in jute. **J. Genet.** 91: 21-31.
6. Gupta S, Ghose TK, Jaiswal JP and Prasad M (2012) Molecular marker systems and compilation of genetic linkage maps of cultivated plants. In: Kumar A, Arora S, Ambwani S (eds), **Biotechnology in Medicine and Agriculture: Principles and Practices**. IK International Publishers, New Delhi (In Press).
7. Gupta S, Kumari K, Sahu PP, Vidapu S and Prasad M (2012) Sequence based novel genomic microsatellite markers for robust genotyping purposes in foxtail millet [*Setaria italica* (L.) P. Beauv.]. **Plant Cell Reports** 31: 323-337.
8. Hampp C, Richter A, Osorio S, Zellnig G, Sinha AK, Jammer A, Fernie AR, Grimm B and Roitsch T (2012) Establishment of a photoautotrophic cell suspension culture of *Arabidopsis thaliana* for photosynthetic, metabolic, and signaling studies. **Mol. Plant** 5: 524-527.

9. Islam MN, Nizam S and Verma PK (2012) A highly efficient *Agrobacterium* mediated transformation system of chickpea wilt pathogen *Fusarium oxysporum* f. sp. *ciceri* using DsRed-Express to follow root colonization. **Microbiol. Res.** 167: 332-338.
10. Jain M (2012) Next-generation sequencing technologies for gene expression profiling in plants. **Brief. Funct. Genomics** 11: 63-70.
11. Jaiswal P, Cheruku JR, Kumar K, Yadav S, Singh A, Kumari P, Dube SC, Upadhyaya KC and Verma PK (2012) Differential transcript accumulation in chickpea during early phases of compatible interaction with a necrotrophic fungus *Ascochyta rabiei*. **Mol. Biol. Rep.** 39: 4635-4646.
12. Kamthan M, Mukhopadhyay G, Chakraborty N, Chakraborty S and Datta A (2012) Quantitative proteomics and metabolomics approaches to demonstrate N-acetyl-D-glucosamine inducible amino acid deprivation response as morphological switch in *Candida albicans*. **Fungal Genet. Biol.** 49: 369-378.
13. Korekar G, Sharma RK, Kumar R, Meenu, Bisht NC, Srivastava RB, Ahuja PS and Stobdan T (2012) Identification and validation of sex-linked SCAR markers in dioecious *Hippophae rhamnoides* L. (Elaeagnaceae). **Biotechnol. Lett.** 34: 973-978.
14. Kumar A, Sharma V, Khan M, Tripathi BN and Kumar S (2012) *Pisum sativum* wild-type and mutant stipules and those induced by an auxin transport inhibitor demonstrate the entire diversity of laminated stipules observed in angiosperms. **Protoplasma** (In Press).
15. Kumar K and Verma PK (2012) Genomics of filamentous phytopathogens: new insight in pathogenesis and virulence. In: Chowdappa, P (ed), **Molecular Approaches for Plant Fungal Disease Management**. Westville Pub., New Delhi, India, pp 133-150.
16. Kumar K and Verma PK (2012) Plant pathogen interactions: crop improvement under adverse conditions. In: Tuteja N, Gill SS (eds), **Crop Improvement Under Adverse Conditions**. Springer Science, New York, USA, (In Press).
17. Kumar K, Wankhede DP and Sinha AK (2012) Signal convergence through the lenses of MAP kinases: paradigms of stress and hormone signaling in plants. **Frontiers in Biology** (In Press).
18. Kumar R, Agarwal P, Tyagi AK and Sharma AK (2012) Genome-wide investigation and expression analysis suggest diverse roles of auxin-responsive GH3 genes during development and response to different stimuli in tomato (*Solanum lycopersicum*). **Mol. Genet. Genomics** 287: 221-235.
19. Kumar R, Sharma MK, Kapoor S, Tyagi AK and Sharma AK (2012) Transcriptome analysis of *rin* mutant fruit and in silico analysis of promoters of differentially regulated

genes provides insight into LeMADS-RIN-regulated ethylene-dependent as well as ethylene-independent aspects of ripening in tomato. **Mol. Genet. Genomics** 287: 189-203.

20. Kumar S, Jaggi M and Sinha AK (2012) Ectopic overexpression of vacuolar and apoplastic *Catharanthus roseus* peroxidases confers differential tolerance to salt and dehydration stress in transgenic tobacco. **Protoplasma** 249: 423-432.
21. Kumar S, Sharma V, Chaudhary S, Kumar A and Kumari R (2012) Agronomic characteristics of autumn and winter seeded photoperiod insensitive spring wheat in agro-climate of north-west India. **Proc. Ind. Natl. Sci. Acad.** 78: 71-89.
22. Kumar S, Sharma V, Chaudhary S, Tyagi A, Mishra P, Priyadarshini A and Singh A (2012) Genetics of flowering time in bread wheat *Triticum aestivum*: complementary interaction between vernalization-insensitive and photoperiod-insensitive mutations imparts very early flowering habit to spring wheat. **J. Genet.** 91: 33-47.
23. Kushwaha H, Gupta S, Singh VK, Bisht NC, Sarangi BK and Yadav D (2012) Cloning, in silico characterization and prediction of three dimensional structure of SbDof1, SbDof19, SbDof23 and SbDof24 proteins from sorghum [*Sorghum bicolor* (L.) Moench]. **Mol. Biotechnol.** (In Press).
24. Mir RR, Kumar N, Jaiswal V, Girdharwal N, Prasad M, Balyan HS and Gupta PK (2012) Genetic dissection of grain weight in bread wheat through quantitative trait locus interval and association mapping. **Mol. Breed.** 29: 963-972.
25. Mishra RK, Gangadhar BH, Nookaraju A, Kumar S and Park SW (2012) Development of EST-derived SSR markers in pea (*Pisum sativum*) and their potential utility for genetic mapping and transferability. **Plant Breeding** 131: 118-124.
26. Nizam S, Verma S, Singh K, Aggarwal R, Srivastava KD and Verma PK (2012) High reliability transformation of the wheat pathogen *Bipolaris sorokiniana* using *Agrobacterium tumefaciens*. **J. Microbiol. Methods** 88: 386-392.
27. Patel RK and Jain M (2012) NGS QC Toolkit: A toolkit for quality control of next generation sequencing data. **PLoS One** 7: e30619.
28. Puranik S and Prasad M (2012) Role of NACs in regulation of abiotic stress responses in plants. In: Goyal A, Maheshwari P (eds), **Current Advances in Plant Science**. Bentham Science Publishers, USA (In Press).
29. Puranik S, Sahu PP, Srivastava PS and Prasad M (2012) NAC proteins: regulation and role in stress tolerance. **Trends Plant Sci.** (In Press).

30. Ray S, Kapoor S and Tyagi AK (2012) Analysis of transcriptional and upstream regulatory sequence activity of two environmental stress-inducible genes, *NBS-Str1* and *BLEC-Str8*, of rice. **Transgenic Res.** 21: 351-366.
31. Sahu PP, Gupta S, Malaviya DR, Roy AK, Kaushal P and Prasad M (2012) Transcriptome analysis of differentially expressed genes during embryosac development in apomeiotic non parthenogenetic interspecific hybrid of *Pennisetum glaucum*. **Mol. Biotechnol.** (In Press).
32. Sahu PP, Rai NK, Puranik S, Roy A, Khan M and Prasad M (2012) Dynamics of defense related components in two contrasting genotypes to tomato upon infection with tomato leaf curl New Delhi virus. **Mol. Biotechnol.** (In Press) DOI 10.1007/s12033-011-9481-8.
33. Sharma R, Agarwal P, Ray S, Deveshwar P, Sharma P, Sharma N, Nijhawan A, Jain M, Singh AK, Singh VP, Khurana JP, Tyagi AK and Kapoor S (2012) Expression dynamics of metabolic and regulatory components across stages of panicle and seed development in *indica* rice. **Funct. Integr. Genomics** (In Press).
34. Sharma V, Chaudhary S, Srivastava S, Pandey R and Kumar S (2012) Characterization of variation and quantitative trait loci related to terpenoid indole alkaloid yield in a recombinant inbred line mapping population of *Catharanthus roseus*. **J. Genet.** 91: 49-69.
35. Sharma V, Sinha AK, Chaudhary S, Priyadarshini A, Tripathi BN and Kumar S (2012) Genetic analysis of structure and function of stipules in pea (*Pisum sativum*). **Proc. Ind. Natl. Sci. Acad.** 78: 9-34.
36. Sharma V, Tripathi BN and Kumar S (2012) Organ-wise homologies of stipule, leaf and inflorescence between *Pisum sativum* genetic variants, *Delonix regia* and *Caesalpinia bonduc* indicate parallel evolution of morphogenetic regulation. **Plant Syst. Evol.** (In Press).
37. Singh K, Nizam S, Sinha M and Verma PK (2012) Comparative transcriptome analysis of the necrotrophic fungus *Ascochyta rabiei* during oxidative stress: insight for fungal survival in the host plant. **PLoS One** 7: e33128.

2011

38. Agrawal GK, Bourguignon J, Rolland N, Ephritikhine G, Ferro M, Jaquinod M, Alexiou KG, Chardot T, Chakraborty N, Jolivet P, Doonan JH and Rakwal R (2011) Plant organelle proteomics: collaborating for optimal cell function. **Mass Spectrometry Reviews** 30: 772-853.

39. Agrawal L, Sharma A, Narula K, Datta A, Chakraborty N and Chakraborty S (2011) Insights into genetic engineering of crop plants for improved protein and molecular mechanism of transgene function. In: Muralidharan K, Siddiq EA (eds), National Symposium on **Genomics and Crop Improvement: Relevance and Reservations**. Institute of Biotechnology, Acharya NG Ranga Agricultural University, Rajendranagar, Hyderabad, India, pp 387-391.
40. Agarwal P, Kapoor S and Tyagi AK (2011) Transcription factors regulating the progression of monocot and dicot seed development. **BioEssays** 33: 189-202.
41. Bhardawaj D, Sheikh AH, Sinha AK and Tuteja N (2011) Stress induced beta subunit of heterotrimeric G-proteins from *Pisum sativum* interacts with mitogen activated protein kinase. **Plant Signal. Behav.** 6: 287-292.
42. Bhushan D, Jaiswal DK, Ray D, Basu D, Datta A, Chakraborty S and Chakraborty N (2011) Dehydration-responsive reversible and irreversible changes in the extracellular matrix: comparative proteomics of chickpea genotypes with contrasting tolerance. **J. Proteome Res.** 10: 2027-2046.
43. Chattopadhyay A, Subba P, Pandey A, Bhushan D, Kumar R, Datta A, Chakraborty S and Chakraborty N (2011) Analysis of the grasspea proteome and identification of stress-responsive proteins upon exposure to high salinity, low temperature, and abscisic acid treatment. **Phytochemistry** 72: 1293-1307.
44. Chaudhary S, Sharma V, Prasad M, Bhatia S, Tripathi BN, Yadav G and Kumar S (2011) Characterization and genetic linkage mapping of the horticulturally important mutation leafless inflorescence (lli) in periwinkle *Catharanthus roseus*. **Scientia Horticulturae** 129: 142-153.
45. Chaudhary SR, Bisht NC, Thompson R, Todorov O and Pandey S (2011) Conventional and novel Gy protein families constitute the heterotrimeric G-protein signaling network in soybean. **PLoS One** 6: e23361.
46. Chauhan H, Khurana N, Tyagi AK, Khurana JP and Khurana P (2011) Identification and characterization of high temperature stress responsive genes in bread wheat (*Triticum aestivum* L.) and their regulation at various stages of development. **Plant Mol. Biol.** 75: 35-51.
47. Dasgupta S, Bhattacharya S, Maitra S, Pal D, Majumdar SS and Datta A (2011) Mechanism of lipid induced insulin resistance: activated PKC ϵ is a key regulator. **Biochem. Biophys. Acta** 1812: 495-506.

48. Dhariwal R, Vyas S, Bhaganagare GR, Jha SK, Khurana JP, Tyagi AK, Prabhu KV, Balyan HS and Gupta PK (2011) Analysis of differentially expressed genes in leaf rust infected bread wheat involving seedling resistance gene Lr28. **Func. Plant Biol.** 38: 479-492.
49. Dwivedi S, Upadhyay H, Senthilvel S, Hash C, Fukunaga K, Diao X, Santra D, Baltensperger D and Prasad M (2011) Millets: genetic and genomic resources. In: Janick J (ed), Vol. 35: **Plant Breeding Reviews**. John Wiley & Sons, Inc., USA, pp 247-375.
50. Garg R and Jain M (2011) Pyrosequencing data reveals tissue-specific expression of lineage-specific transcripts in chickpea. **Plant Signal. Behav.** 6: 1868-1870.
51. Garg R, Patel RK, Jhanwar S, Priya P, Bhattacharjee A, Yadav G, Bhatia S, Chattopadhyay D, Tyagi AK and Jain M (2011) Gene discovery and tissue-specific transcriptome analysis in chickpea with massively parallel pyrosequencing and web resource development. **Plant Physiol.** 156: 1661-1678.
52. Garg R, Patel RK, Tyagi AK and Jain M (2011) De novo assembly of chickpea transcriptome using short reads for gene discovery and marker identification. **DNA Res.** 18: 53-63.
53. Gaur R, Sethy NK, Choudhary S, Shokeen B, Gupta V and Bhatia S (2011) Advancing the STMS genomic resources for defining new locations on the intraspecific genetic linkage map of chickpea (*Cicer arietinum* L.). **BMC Genomics** 12: 117.
54. Goel R, Goel D, Chaudhary S, Sharma V and Kumar S (2011) Cropping of the artemisinin (antimalarial drug) yielding *Artemisia annua* cultivars, over a ten year period in the agroclimate of north-west India, has not led to the species becoming a weed. **National Academy of Science Letters** 34: 307-315.
55. Ghawana S, Paul A, Kumar H, Kumar A, Singh H, Bhardwaj PK, Rani A, Singh RS, Raizada J, Singh K and Kumar S (2011) An RNA isolation system for plant tissues rich in secondary metabolites. **BMC Res. Notes** 4: 85.
56. Gosh S, Meli VS, Chakraborty N, Chakraborty S and Datta A (2011) Genetic engineering of fruits and vegetables for long shelf life. In: Muralidharan K, Siddiq EA (eds), National Symposium on **Genomics and Crop Improvement: Relevance and Reservations**. Institute of Biotechnology, Acharya NG Ranga Agricultural University, Rajendranagar, Hyderabad, India, pp 417-421.
57. Ghosh S, Meli VS, Kumar A, Thakur A, Chakraborty N, Chakraborty S and Datta A (2011) The N-glycan processing enzymes {alpha}-mannosidase and {beta}-D-N-

acetylhexosaminidase are involved in ripening-associated softening in the non-climacteric fruits of *Capsicum*. **J. Exp. Bot.** 62: 571-582.

58. Ghosh S, Rao KH, Sengupta M, Bhattacharya SK and Datta A (2011) Two gene clusters co-ordinate for a functional N-acetylglucosamine catabolic pathway in *Vibrio cholerae*. **Mol. Microbiol.** 80: 1549-1560.
59. Giri J (2011) Glycinebetaine and abiotic stress tolerance in plants. **Plant Signal. Behav.** 6: 1746-1751.
60. Giri J, Vij S, Dansana PK and Tyagi AK (2011) Rice A20/AN1 zinc-finger containing stress-associated proteins (SAP1/11) and a receptor-like cytoplasmic kinase (OsRLCK253) interact via A20 zinc-finger and confer abiotic stress tolerance in transgenic *Arabidopsis* plants. **New Phytol.** 191: 721-732.
61. Gujaria N, Kumar A, Dauthal P, Dubey A, Hiremath P, Bhanu Prakash A, Farmer A, Bhide M, Shah T, Gaur PM, Upadhyaya HD, Bhatia S, Cook DR, May GD and Varshney RK (2011) Development and use of genic molecular markers (GMMs) for construction of a transcript map of chickpea (*Cicer arietinum* L.). **Theor. Appl. Genet.** 122: 1577-1589.
62. Gupta S, Kumari K, Das J, Lata C, Puranik S and Prasad M (2011) Development and utilization of novel intron length polymorphic markers in foxtail millet [*Setaria italica* (L.) P. Beauv.]. **Genome** 54: 586-602.
63. Gupta S, Wardhan V, Verma S, Gayali S, Rajamani U, Datta A, Chakraborty S and Chakraborty N (2011) Characterization of the secretome of chickpea suspension culture reveals pathway abundance and the expected and unexpected secreted proteins. **J. Proteome Res.** 10: 5006-5015.
64. Hyun TK, Kumar K, Rao KP, Sinha AK and Roitsch T (2011) Role of α -tocopherol in cellular signaling: α -tocopherol inhibits stress-induced mitogen activated protein kinase activation. **Plant Biotechnology Reports** 5: 19-25.
65. Jaggi M, Kumar S and Sinha AK (2011) Overexpression of an apoplastic peroxidase gene CrPrx in transgenic hairy root lines of *Catharanthus roseus*. **Applied Microbiology and Biotechnology** 90: 1005-1016.
66. Jain M (2011) A next-generation approach to the characterization of a non-model plant transcriptome. **Current Science** 101: 1435-1439.
67. Kapoor S, Khurana R, Baranwal V, Agarwal P, Ray S and Tyagi A (2011) Genome-wide strategies for genetic enhancement of rice. In: Muralidharan K, Siddiq EA (eds), National Symposium on **Genomics and Crop Improvement: Relevance and Reservations**.

Institute of Biotechnology, Acharya NG Ranga Agricultural University, Rajendranagar, Hyderabad, India, pp 11-25.

68. Kumar K, Rao KP, Biswas D and Sinha AK (2011) Rice WNK1 is regulated by abiotic stress and involved in internal circadian rhythm. **Plant Signal. Behav.** 6: 316-320.
69. Kumar R, Tyagi AK and Sharma AK (2011) Genome-wide analysis of auxin response factor (ARF) gene family from tomato and analysis of their role in flower and fruit development. **Mol. Genet. Genomics** 285: 245-260.
70. Kumar S, Jaggi M, Taneja J and Sinha AK (2011) Cloning and characterization of two new Class III peroxidase genes from *Catharanthus roseus*. **Plant Physiology and Biochemistry** 49: 404-412.
71. Kumar S, Sharma V, Chaudhary S, Kumari R, Kumari N and Mishra P (2011) Interaction between COCHLEATA and UNIFOLIATA genes enables normal flower morphogenesis in the garden pea, *Pisum sativum*. **J. Genet.** 90: 309-314.
72. Kushwah S, Jones AM and Laxmi A (2011) Cytokinin interplay with ethylene, auxin and glucose signaling controls *Arabidopsis* seedling root directional growth. **Plant Physiol.** 156: 1851-1866.
73. Kushwah S, Jones AM and Laxmi A (2011) Cytokinin-induced root growth involves actin filament reorganization. **Plant Signal. Behav.** 6: 1848-1850.
74. Kushwaha HR, Kumar G, Verma PK, Singla-Pareek SL and Pareek A (2011) Analysis of a salinity induced BjSOS3 protein from *Brassica* indicate it to be structurally and functionally related to its ortholog from *Arabidopsis*. **Plant Physiology and Biochemistry** 49: 996-1004.
75. Lata C, Jha S, Dixit V, Sreenivasulu N and Prasad M (2011) Differential antioxidative responses to dehydration-induced oxidative stress in core set of foxtail millet cultivars [*Setaria italica* (L.)]. **Protoplasma** 248: 817-828.
76. Lata C, Bhutty S, Bahadur RP, Majee M and Prasad M (2011) Association of SNP in a novel DREB2-like gene SiDREB2 with stress tolerance in foxtail millet [*Setaria italica* (L.)]. **J. Exp. Bot.** 62: 3387-3401.
77. Lata C and Prasad M (2011) Role of DREBs in regulation of abiotic stress responses in plants. **J. Exp. Bot.** 62: 4731-4748.
78. Lata C, Yadav A and Prasad M (2011) Role of transcription factors in abiotic stress tolerance. In: Venkateswarlu B, Shankar A (eds), **Abiotic Stress Response in Plants**. INTECH Open Access Publishers, Rijeka, Croatia, pp 269-296.

79. Mathur S, Vyas S, Kapoor S and Tyagi AK (2011) The mediator complex in plants: structure, phylogeny and expression profiling of representative genes in a dicot (*Arabidopsis*) and a monocot (rice) during reproduction and abiotic stress. **Plant Physiol.** 157: 1609-1627.
80. Patel RK and Jain M (2011) PlantRGS: a web server for the identification of most suitable candidate reference genes for quantitative gene expression studies in plants. **DNA Res.** 18: 463-470.
81. Prasad M (2011) Solanaceae Conferance: a report on the 7th Solanaceae Conferance (SOL) held during 5-9 September 2010 at Dundee, Scotland. **Current Science** 100: 610-612.
82. Puranik S, Jha S, Srivastava PS, Sreenivasulu N and Prasad M (2011) Comparative transcriptome analysis of contrasting foxtail millet cultivars in response to short-term salinity stress. **J. Plant Physiol.** 168: 280-287.
83. Puranik S, Bahadur RP, Srivastava PS and Prasad M (2011) Molecular cloning and characterization of a membrane associated NAC family gene, SiNAC from foxtail millet [*Setaria italica* (L.) P. Beauv.]. **Mol. Biotechnol.** 49: 138-150.
84. Puranik S, Kumar K, Srivastava PS and Prasad M (2011) Electrophoretic mobility shift assay reveals a novel recognition sequence for *Setaria italica* NAC protein. **Plant Signal. Behav.** 6: 1588-1590.
85. Rao KP, Vani G, Kumar K, Wankhede DP, Mishra M, Gupta M and Sinha AK (2011) Arsenic stress activates MAP kinase in rice roots and leaves. **Arch. Biochem. Biophys.** 506: 73-82.
86. Ray S, Dansana PK, Giri J, Deveshwar P, Arora R, Agarwal P, Khurana JP, Kapoor S and Tyagi AK (2011) Modulation of transcription factor and metabolic pathway genes in response to water-deficit stress in rice. **Funct. Integr. Genomics** 11: 157-178.
87. Sehgal A, Khurana JP, Sethi M and Ara H (2011) Occurrence of unique three-celled megagametophyte and single fertilization in an aquatic angiosperm-*Dalzellia zeylanica* (Podostemaceae-Tristichoideae). **Sexual Plant Reprod.** 24: 199-210.
88. Shokeen B, Choudhary S, Sethy NK and Bhatia S (2011) Development of SSR and gene-targeted markers for construction of a framework linkage map of *Catharanthus roseus*. **Ann. Bot.** 108: 321-336.
89. Sinha AK, Jaggi M, Raghuram B and Tuteja N (2011) Mitogen-activated protein kinase signaling in plant under abiotic stress. **Plant Signal. Behav.** 6: 196-203.

90. Swapna L, Khurana R, Vijaya Kumar S, Tyagi AK and Rao KV (2011) Pollen-Specific expression of *Oryza sativa* Indica pollen allergen gene (*OS/PA*) promoter in rice and *Arabidopsis* transgenic systems. **Mol. Biotechnol.** 48: 49-59.
91. Verma PK and Nizam S (2011) Genome sequencing and its reference to plant pathogens. In: Thind TS, Jain RK, Sharma P, Khurana SMP, Aggarwal R, Sharma RK, Singh D, Dubey SC, Kumar A (compiled by), **Plant Pathology in India: Vision 2030**. Indian Phytopathological Society, New Delhi, India, pp186-190.
92. Yadav RK and Chattopadhyay D (2011) Enhanced viral intergenic region specific siRNA accumulation and DNA methylation correlates with resistance against a geminivirus. **Mol. Plant Microbe Interactions** 24: 1189-1197.

Patents

1. Bisht NC and Augustine R (2012) Compositions and methods for production of transgenic plants having reduced glucosinolate levels [Indian Patent Application No. 363/DEL/2012].
2. Datta A, Ghosh S, Ghosh S, Kongara HR and Kamthan M (2012) Mutant micro-organisms and uses thereof [Indian Patent Application No. 622/DEL/2012].
3. Majee M and Verma P (2012) Seed vigor associated polynucleotide sequences from chickpea and uses thereof [Indian Patent Application No. 23/DEL/2012].
4. Datta A, Chakraborty S, Chakraborty N, Ghosh S and Meli SV (2011) Polynucleotide sequence of fruit softening associated α -mannosidase and its uses for enhancing fruit shelf life [US Patent Application No. 13/003, 203 and European Patent Application No. 09787597.5].
5. Datta A, Chakraborty S, Chakraborty N, Meli SV and Ghosh S (2011) Polynucleotide sequence of fruit softening associated β -D-N-acetylhexosaminidase and its uses for enhancing fruit shelf life [US Patent Application No. 13/003,051 and European Patent Application No. 09787598.3].

Technology/Products Developed/Transferred

1. The allele-specific marker developed for dehydration tolerance in foxtail millet is being used for allele mining and marker-aided breeding of foxtail millet by the Tamil Nadu Agricultural University (TNAU), Coimbatore, Tamil Nadu, India.
2. Low glucosinolate Indian *B. juncea* line(s), having total seed-glucosinolate content less than the internationally acceptable limit (30 μ moles g^{-1} dry seed weight), has been developed.

Activities of the Institute

Honours / Awards

Prof. Akhilesh K. Tyagi

- ❖ Sushil Kumar Mukherjee Commemoration Lecture Award by ISCA, January 5, 2012.

Prof. Asis Datta

- ❖ G.M. Modi Science award for innovative Science and Technology, 2011.
- ❖ Life time achievement award, Biotech Research Society, 2011.
- ❖ Priyadarshini Gold Medal award for outstanding achievements, 2011.

Dr. Alok K. Sinha

- ❖ Elected fellow of National Academy of Sciences, India (NASI), 2011.

Dr. Gitanjali Yadav

- ❖ Medal for Young Scientist, Indian National Science Academy, 2011.
- ❖ Haryana Yuva Vigyan Ratna Award, Haryana State Council for Science and Technology, India, 2010-11.

Dr. Manoj Majee

- ❖ Medal for Young Scientist, Indian National Science Academy, 2011.
- ❖ Young Scientist Platinum Jubilee Award, National Academy of Sciences (NASI), 2011.

Dr. Mukesh Jain

- ❖ DBT-CREST Award, Department of Biotechnology, Government of India, 2010-11.
- ❖ BOYCAST Fellowship, Department of Science & Technology, Government of India, 2010-11.

Dr. Swarup K. Parida

- ❖ Young Scientist Platinum Jubilee Award, National Academy of Sciences (NASI), 2011.

Dr. Pinky Agarwal

- ❖ INSA Young Scientist's Award, 2012.

International Visits

Prof. Akhilesh K. Tyagi

- ❖ Visited Bangladesh on behalf of the Indian National Science Academy (INSA) to promote scientific cooperation between Bangladesh Academy of Sciences and INSA, and also to deliver a talk, May 8 – 11, 2011.
- ❖ Visited Taipei, Taiwan to participate and deliver a Plenary Lecture in the 9th International Symposium on Rice Functional Genomics, November 7 - 9, 2011.

Dr. Subhra Chakraborty

- ❖ Visited Geneva, Switzerland to attend HUPO 2011 10th World Congress, Switzerland, September 3-7, 2011.

Dr. Debasis Chattopadhyay

- ❖ Visited University of North Carolina, Chapel Hill, North Carolina, USA, August 15, 2011 – November 14, 2011.

Dr. Alok K. Sinha

- ❖ Visited Prof Dierk Scheel's laboratory at Leibniz Institute for Plant Biochemistry, Halle Germany as Alexander von Humboldt fellow, March 3, 2011 to May 31, 2011.

Dr. Mukesh Jain

- ❖ Visiting Scientist at the University of Georgia, USA, November 1, 2011 – till date.

Dr. Jitender Giri

- ❖ Visiting Scientist at Prof. Jonahan Lynch's lab at Penn State University, USA to gain experience in studying root traits for P absorption from soil, March 1, 2012 - till date.

Invited Lectures

Prof. Akhilesh K. Tyagi

- ❖ National Academy of Agricultural Sciences, NASC, New Delhi, June 22, 2011.
- ❖ Indian Agricultural Research Institute, New Delhi, September 5, 2011.
- ❖ Birla Institute of Technology, Ranchi, September 28, 2012.
- ❖ Institute of Himalayan Bioresource Technology (IHBT), Palampur, October, 2011.
- ❖ Academic Staff College, JNU, New Delhi, January 9, 2012.
- ❖ Punjabi University, Patiala, February 24, 2012.
- ❖ Devi Ahilya University, Indore, February 27, 2012.
- ❖ Delhi University South Campus, March 16, 2012.

Prof. Asis Datta

- ❖ Delivered the 54th Foundation Day Lecture, CSIR-NEERI, Nagpur, April 8, 2011.
- ❖ Delivered Lecture as Chief Guest at the 69th CSIR Foundation Day Central Salt & Marine Chemicals Research Institute at Bhavnagar, Gujarat, September 26, 2011.
- ❖ Delivered lecture on “Promoting Science Education & Research: A Science –Society Approach” in the 99th Indian Science Congress held at Bhubaneshwar, December 23, 2011.
- ❖ Delivered lecture in the Nineteenth Foundation Day Oration of Tezpur University, January 21, 2012.
- ❖ Delivered lecture on “Molecular Biology Creators – door they open for the society” at DST INSPIRE Science Camps at Ravenshaw University, Cuttack, Odisha, March 21-22, 2012.
- ❖ Delivered valedictory address at the Seminar on Human Consciousness as Chief Guest at the inaugural ceremony of Science EXPO-2012 held at Regional Science City, Lucknow, February 5, 2012.

Dr. Niranjan Chakraborty

- ❖ Delivered lecture at the II Annual Indian Proteomics Conference (IPCON-2011), New Delhi, April 4, 2011.
- ❖ Delivered lecture in the CEP course on Proteomics at Defense Research & Development Establishment (DRDE), Gwalior, August 1, 2011.
- ❖ Delivered lecture at the 2nd International Symposium on Mass Spectrometry in Life Sciences at the National Centre for Biological Sciences (NCBS), Bangalore, August 25, 2011.
- ❖ Delivered lecture at the HUPO 2011 World Congress at Geneva, Switzerland,

September 4, 2011.

- ❖ Delivered lecture in the Workshop on Plant Biotechnology at the Department of Molecular Biology and Biotechnology, Tezpur University, Assam, November 15, 2011.
- ❖ Delivered lecture at the International Conference on OMD and IIIrd Annual Meeting of Proteomic Society of India (PSI) at Saha Institute of Nuclear Physics (SINP), Kolkata, December 18, 2011.
- ❖ Delivered lecture in the 78th Orientation Course at Academic Staff College (ASC), Jawaharlal Nehru University, New Delhi, February 10, 2012.
- ❖ Delivered lecture at the National Seminar on 'Genomics and Proteomics in Plant Science' at the Centre of Advance Study, Department of Botany, Calcutta University, March 09, 2012.
- ❖ Delivered lecture at the UGC-SAP workshop on Challenges in Molecular Biology and Biotechnology at the Department of Molecular Biology, South Campus, University of Delhi, March 27, 2012.

Dr. Subhra Chakraborty

- ❖ Delivered lecture in the CEP course on Proteomics at Defence Research & Development Establishment (DRDE), Gwalior, August 1, 2011.
- ❖ Delivered lecture at DAE-BRNS Life Sciences Symposium on “Advances in Molecular and Cell Biology of Stress”, Bhabha Atomic Research Centre, Mumbai, October 12-14, 2011.
- ❖ Delivered lecture at Indo-German Symposium on “Molecular Plant Physiology”, Indian National Science Academy (INSA), New Delhi, October 18-20, 2011.
- ❖ Delivered 8th P. Chatterjee Memorial Lecture, Department of Botany, University of Calcutta, November 9, 2011.
- ❖ Delivered lecture in Theoretical and Practical Course “Plant Adaptation Responses towards Abiotic Stress” at ICGEB, New Delhi, November 29, 2011.
- ❖ Delivered lecture at Indo-Taiwan Workshop on “Genomic approaches for functional food and nutritional improvement of crop plants”, New Delhi, December 13-14, 2011.
- ❖ Delivered lecture at International Conference on Omics Meets Disease and IIIrd Annual Meeting of Proteomic Society India at SINP, Kolkata, December 15-18, 2011.
- ❖ Delivered lecture at 17th Refresher Course in Life Sciences, Academic Staff College, JNU, January 17, 2012.

Dr. Debasis Chattopadhyay

- ❖ Next Generation Sequencing and its application in Genomics and Epigenomics, JNU Academic Staff College, 2011.
- ❖ Role of CIPK6 in root development and stress: Department of Biology, University of North Carolina, Chapel Hill, USA, 2011.

Dr. Alok K. Sinha

- ❖ Delivered lecture on “Mitogen activated protein kinase cascade in rice” at Leibniz Institute of Plant Biochemistry, Halle, Germany, May 13, 2011.
- ❖ Delivered lecture on “Unravelling complexity of mitogen activated protein kinase in rice” at Molecular Biology & Genetic Eng. Deptt. G.B.Pant University, Pantnagar, Uttarakhand, September 24, 2011.
- ❖ Deliver talk on “A Novel Interaction of Mitogen Activated Protein Kinases in *Oryza sativa*”, LSS-2011 Symposium on “Advances in Molecular and Cell Biology of Stress Responses” in BARC, Mumbai, October 12-14, 2011.
- ❖ Delivered lecture on “Unravelling complexity of mitogen activated protein kinase in rice” at Academic Staff College, JNU, New Delhi, January 19, 2012.

Dr. Praveen Verma

- ❖ Functional Genomics of Chickpea-*Ascochyta* Interactions: New Insights for Fungal Pathogenesis and Effectors, in 80th Annual Meeting of the Society of Biological Chemists (India), Central Institute of Medicinal and Aromatic Plants, Lucknow, November 12-15, 2011.
- ❖ Functional Genomics of Plant-Pathogen interactions: New Insights for Effectors and the Genes Involved in Pathogenesis, in National Symposium on Biology of Infection, Immunity and Disease Control in Pathogen-Plant Interactions and 64th IPS meeting, University of Hyderabad, December 2-4, 2011.
- ❖ Genome Sequencing and its Reference to Plant Pathogens, in Brain Storming Session on Plant Pathology in India: Vision 2030, University of Hyderabad, December 2, 2011.
- ❖ Functional Genomics of Plant-Fungus Interactions: Investigating the Role of Fungal Genes in Pathogenesis and Effector Functions, in 3rd Global Conference of the Indian Society of Mycology and Plant Pathology on Plant Pathology for Food Security, Maharana Pratap University of Agriculture & Technology, Udaipur, January 10-13, 2012.
- ❖ The Plant Immune System, in Refresher Course in Life Sciences, Academic Staff College, Jawaharlal Nehru University, January 18, 2012.
- ❖ Functional Genomics of Chickpea in Response to Fungal Infection, in International Conference on Perspectives in Phyllosphere Biology, Amity Institute of Biotechnology, Noida, February 15-17, 2012.
- ❖ New function of an old enzyme: Role of ArOYE1 in fungal pathogenesis and virulence, in UGC-Resource Networking National Symposium on Microbes in Health and Agriculture, School of Life Sciences, Jawaharlal Nehru University, New Delhi, March 12-13, 2012.
- ❖ Functional Genomics of Chickpea in Response to Fungal Infection: New Insights for the Genes Involved in Secondary Metabolism and Plant Defense, in National Seminar on Current Trends in Secondary Plant Metabolites Research, Department of Biotechnology, Jamia Hamdard University, New Delhi, March 19-20, 2012.

Dr. Manoj Prasad

- ❖ Delivered lecture in National Training Course on “Molecular Marker-Assisted Breeding in Vegetable Crops” at Indian Institute of Vegetable Research (IIVR), Varanasi, UP, May 27, 2011.
- ❖ Delivered lecture in National Conference on “Forage resource and livestock for livelihood, environment and nutritional security” at Indian Grassland & Fodder Research Institute, Jhansi, UP, September 10, 2011.
- ❖ Delivered lecture in the symposium 'Sanjeevani- The Botanical Society' at Hindu College, Delhi University, New Delhi, October 22, 2011.
- ❖ Delivered lecture in Indo-US workshop on “Development and Use of Molecular Markers for Crop Improvement at NASC Complex, Dev Prakash Shastry Marg, New Delhi, October 30, 2011.
- ❖ Delivered lecture in National Conference on “Recent Advances in Plant Biotechnology: towards next green revolution” at Bharathidarshan University Campus, Tiruchirapalli, Tamil Nadu, February 9, 2012.
- ❖ Delivered lecture in “International Conference on Plant Biotechnology for Food Security: New Frontiers-2012” at NASC Complex, Dev Prakash Shastry Marg, New Delhi, February 23, 2012.
- ❖ Delivered lecture in National Conference on 'Medicinal Plant Research in India' at Jamia Hamdard University, New Delhi, March 17, 2012.
- ❖ Delivered lecture in National Conference on 'Breeding for Abiotic Stresses in Crop Plants' at Department of Plant Breeding and Genetics Agricultural College and Research Institute, Tamil Nadu Agricultural University Madurai, March 22, 2012.

Dr. Jitendra Kr. Thakur

- ❖ Delivered a lecture in continuing education programme organized by Defence Institute of Physiology & Applied Science, New Delhi, November 23, 2011.
- ❖ Delivered lecture in 7th International Conference on Yeast Biology organized by TIFR, Mumbai and IIT-Bombay, Mumbai, December 11, 2011.

Dr. Mukesh Jain

- ❖ Delivered lecture on 'A next generation approach to the characterization of chickpea transcriptome' at Indian Institute of Science, Bangalore, July 9, 2011.
- ❖ Delivered lecture on 'Next generation sequencing technologies-introduction and applications in transcriptome characterization' at ICgeb, New Delhi, September 30, 2011.

Dr. Ananda K. Sarkar

- ❖ Stem cell regulation and small RNA mediated organ patterning in higher plants at NIBMG, Kalyani, West Bengal, July 27, 2011.
- ❖ Stem cell regulation and small RNA mediated patterning of organs/architecture in higher plants at BCKV, Kalyani, West Bengal, July 29, 2011.
- ❖ Stem Cell Regulation and small RNA Mediated Patterning of Organs & Architecture of Higher Plants at IISER-K & MPI-CE, Indo-German Meeting, Kolkata, December 13, 2011.
- ❖ Stem Cell Regulation and small RNA Mediated Organ Patterning in Higher Plants at XXXV All India Cell Biology Conference & Symposium on Membrane Dynamics & Disease; NISER, Bhubaneswar, December 17, 2011.
- ❖ Stem Cell Regulation in Higher Plants at 17th refresher course in life sciences, Academic Staff College, JNU, January 16, 2012.
- ❖ Stem Cell Regulation in Higher Plants at Biospark-2012, 10th annl. Res. Fest., SLS, JNU on March 15, 2012.

Participation in National/International Conference/Workshops

Prof. Akhilesh K. Tyagi

- ❖ Chaired a session in the Symposium on “Development and use of molecular markers for crop improvement” jointly organized by the Washington State University, Indo-US Science & Technology Forum, New Delhi and Department of Biotechnology, Govt. of India at NASC Complex, New Delhi, October 29, 2011.
- ❖ Symposium on “Sustainable Management of Diversity using Science & Technology” organized by the National Academy of Sciences, India (NASI) held at University of Kerala, Trivendrum, November 25-26, 2011.
- ❖ Chaired a session and delivered a talk in the Conference on “Plant Biotechnology for Food Security: New Frontiers” organized by the Society for Plant Biochemistry and Biotechnology at NASC Complex, Pusa, New Delhi, February 22 – 23, 2012.

Prof. Asis Datta

- ❖ Chaired the technical Session of seminar on “Future prospects on Diagnostics, Bio-similars and Vaccines industry in Indian Context” at PHD House, New Delhi, June 24, 2011.
- ❖ Chief Guest at the National Conference on Advancement in Convergence of Technologies organized by Amity University, Haryana, Gurgaon, Manesar, on September 8, 2011.
- ❖ International Conference on Emerging Trends on Food and Health Security in Cold Desert held at Defence Institute of High Altitude Research, DRDO, Leh- Ladakh, September 23-25, 2011.
- ❖ Chaired the Session in the Symposium on “Sustainable Management of Biodiversity using Science & Technology” at University of Kerala, Trivandrum, November 24-25, 2011.
- ❖ Special invitation to attend Regional Meeting of Centers of Expertise in Tropical Diseases at Faridabad, India, November 28-30, 2011.
- ❖ GRC-2011 held at Khimsar Fort, Khimsar, Rajasthan, December 1-5, 2011.

Dr. Niranjana Chakraborty

- ❖ Participated in the II Annual Indian Proteomics Conference (IPCON-2011), New Delhi, April 3-5, 2011.
- ❖ Participated in the 2nd International Symposium on Mass Spectrometry in Life Sciences at the National Centre for Biological Sciences (NCBS), Bangalore, August 23-26, 2011.

- ❖ Participated in the HUPO 2011 World Congress at Geneva, Switzerland, September 4-7, 2011.
- ❖ Participated in the 'Workshop on Plant Biotechnology' at the Department of Molecular Biology and Biotechnology, Tezpur University, Assam, November 15-17, 2011.
- ❖ Participated in the 'International Conference on OMD and IIIrd Annual Meeting of Proteomic Society of India (PSI)' at Saha Institute of Nuclear Physics (SINP), Kolkata, December 15-18, 2011.

Dr. Subhra Chakraborty

- ❖ Participated in CEP course on “Proteomics”, Defence Research & Development Establishment (DRDE), Gwalior, August 1, 2011.
- ❖ Participated in HUPO 2011 10th World Congress at Geneva, Switzerland, September 3-7, 2011.
- ❖ Participated in DAE-BRNS Life Sciences Symposium on “Advances in Molecular and Cell Biology of Stress”, Bhabha Atomic Research Centre, Mumbai, October 13, 2011.
- ❖ Participated in Indo-German Symposium on “Molecular Plant Physiology”, Indian National Science Academy (INSA), New Delhi, October 18-20, 2011.
- ❖ Participated in 8th P. Chatterjee Memorial Lecture, Department of Botany, University of Calcutta, November 9-10, 2011.
- ❖ Participated in Indo-Taiwan Workshop on “Genomic approaches for functional food and nutritional improvement of crop plants”, New Delhi, December 13-14, 2011.
- ❖ Participated in International Conference on Omics Meets Disease and IIIrd Annual Meeting of Proteomic Society India at SINP, Kolkata, December 15-18, 2011.

Dr. Alok K. Sinha

- ❖ Participated in LSS-2011 Symposium on “Advances in Molecular and Cell Biology of Stress Responses” in BARC, Mumbai, October 12-14, 2011.
- ❖ Poster presentation on “MAP kinases mediated miRNA regulation in *Oryza sativa*” at the 80th Annual Meeting of the Society of Biological Chemists (SBC) held at CSIR-CIMAP, Lucknow, November 12-15, 2011.
- ❖ Poster Presentation on “Identification and Characterisation of Novel Interacting Partners of Mitogen Activated Protein Kinases in *Oryza sativa*” at the 80th Annual Meeting of the Society of Biological Chemists (SBC) held at CSIR-CIMAP, Lucknow, November 12-15, 2011.

Dr. Praveen Verma

- ❖ 80th Annual Meeting of the Society of Biological Chemists (India), Central Institute of Medicinal and Aromatic Plants, Lucknow, November 12-15, 2011.

- ❖ National Symposium on Biology of Infection, Immunity and Disease Control in Pathogen-Plant Interactions and 64th IPS meeting, University of Hyderabad, December 2-4, 2011.
- ❖ Brain Storming Session on Plant Pathology in India: Vision 2030, University of Hyderabad, December 2, 2011.
- ❖ 3rd Global Conference of the Indian Society of Mycology and Plant Pathology on Plant Pathology for Food Security, Maharana Pratap University of Agriculture & Technology, Udaipur, January 10-13, 2012.
- ❖ Refresher Course in Life Sciences, Academic Staff College, Jawaharlal Nehru University, January 18, 2012.
- ❖ International Conference on Perspectives in Phyllosphere Biology, Amity Institute of Biotechnology, Noida, February 15-17, 2012.
- ❖ UGC-Resource Networking National Symposium on Microbes in Health and Agriculture, School of Life Sciences, Jawaharlal Nehru University, New Delhi, March 12-13, 2012.
- ❖ National Seminar on Current Trends in Secondary Plant Metabolites Research, Department of Biotechnology, Jamia Hamdard University, New Delhi, March 19-20, 2012.

Dr. Manoj Prasad

- ❖ Participated in panel discussion on "Biomolecular Research & Informatics: Future in India" at the AJC Bose Auditorium, Presidency University, Kolkata, February 27, 2012.

Dr. Jitendra Kr. Thakur

- ❖ Participated in Continuing Education Programme on Cutting Edge Technologies in Genomics and Proteomics organized by Defence Institute of Physiology & Applied Science, New Delhi, November 21-25, 2011.
- ❖ Participated in 7th International Conference on Yeast Biology organized by TIFR, Mumbai and IIT-Bombay, Mumbai, December 10-13, 2011.

Dr. Mukesh Jain

- ❖ 22nd Mid-Year Meeting of Indian Academy of Sciences, Indian Institute of Science, Bangalore, July 8-9, 2011.
- ❖ National Workshop on "Genome Annotation", ICGEB, New Delhi, September 29-30, 2011.
- ❖ Indo-German Symposium on "Plant Biology", INSA, New Delhi, October 18-20, 2011.
- ❖ Plant & Animal Genome XX, San Diego, California, USA, January 14-18, 2012.

Dr. Ananda K. Sarkar

- ❖ Indo-German Meeting, IISER-K & MPI-CE, Kolkata on December 13, 2011.
- ❖ XXXV All India Cell Biology Conference & Symposium on Membrane Dynamics & Disease; NISER, Bhubaneswar, December 17, 2011.
- ❖ Biospark-2012, 10th Annual Res. Fest., SLS, JNU, March 15, 2012.

Visitors to the Institute

- ❖ **Dr. Bernard de Gues**, Director, Technology Top Institute Green Genetics and **Dr. Ernst van den Ende**, Managing Director, Plant Sciences Research Group, Wageningen University, Netherlands visited NIPGR on October 4, 2011 to get the perspective for research collaboration in the area of plant sciences disciplines, green genetics, physiology, phytopathology, etc.
- ❖ **Shri Vilasrao Deshmukh, Hon'ble Minister for Science & Technology and Earth Sciences, Government of India** visited NIPGR on October 13, 2011 to interact with the faculty, students, researchers and staff of NIPGR. The Director apprised the Minister about the research being carried out at NIPGR. The Hon'ble Minister was very pleased to see the central facilities of NIPGR and admired the researchers and scientists for their excellent work.



- ❖ **Mr. Reginald Walters**, Managing Director, SQC Pty Ltd., Adelaide, Australia and **Mr. Sailendra Bhaskar**, President, Aban Informatics Pvt. Ltd., Chennai visited NIPGR to discuss some research work with the Director, NIPGR on October 18, 2011.
- ❖ **Prof. Maurice Moloney**, Director & Chief Executive; **Prof. Peter R. Shewry**, Associate Director; **Prof. Martin AJ Parry**, Head, Department of Plant Sciences, Rothamsted Research, Harpenden, Hertfordshire, UK visited NIPGR on November 28, 2011 to learn about relevant research in NIPGR and to identify opportunities for collaboration.
- ❖ A Tunisian delegation led by **Prof. Jalel Ezzine**, Director General International Cooperation, Ministry of Higher Education and Scientific Research, Tunisia visited NIPGR on December 19, 2011 to discuss some scientific issues with the Director. The other members of the delegation included **Prof. Lassad Asmi**, President of Carthage University; **Prof. Ahmed Dhouib**, Director General of Innovation, Ministry of Industry and Technology; **Prof. Henda Triki**, Institut Pasteur; **Prof. M. Ilyes Hamza**, Director of the National Institute of Agronomic Research, Tunisia and **Mr. Afif Traouli**, Deputy Head of Mission, Embassy of Tunisia at New Delhi.
- ❖ **Mr. Steve Kroft**, President and CEO, Conviron Canada visited NIPGR on March 6, 2012 to discuss with the Director and other Scientist of NIPGR the custom-made requirement of NIPGR Plant Growth Facility.

Study Tours at the Institute

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

1. B. Tech. (Bioinformatics) and B. Tech. (Biotechnology) students of Tamil Nadu Agricultural University, Coimbatore on August 29, 2011.
2. M.Sc. (Biotechnology) students from Modern College, Pune on September 28, 2011.
3. M.Sc. and B.Sc. students from Dr. N.G.P. Arts & Science College, Coimbatore, Tamil Nadu on October 3, 2011.
4. B.Sc. (Biotechnology & Genetics) students from Seshadripuram First Grade College, Bangalore on November 29, 2011.
5. M.Sc. students from North Eastern Hill University, Shillong on February 1, 2012.

Symposia/Workshop/Special Lectures Organized

Annual Student Research Symposium – SciEfflux-2011 (July 22-23, 2011)

The Institute organized a two day Student Research Symposium during July 22-23, 2011. 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-2011



Inauguration of Annual Student Research Symposium – SciEfflux-2011

Indo-German Symposium on Plant Biology (October 18-20, 2011)

Indo-German Symposium on “Plant Biology” was jointly organized by the Indian National Science Academy (INSA) and the German National Academy of Sciences, Leopoldina during October 18 – 20, 2011 at INSA. The Symposium was co-sponsored by the German Research Foundation (DFG), New Delhi and the National Institute of Plant Genome Research, New Delhi. A number of eminent researchers from India and Germany (including some NIPGR Scientists) were invited to present their research work based on the thematic areas. The Symposium was started with a special lecture by Prof. Sudhir K. Sopory, Vice-Chancellor, Jawaharlal Nehru University, New Delhi on the evening of October 18, 2011 at DFG.

Foundation Day (November 30th, 2011)

The Institute celebrated its 13th Foundation Day by organizing “J. C. Bose Memorial Lecture” on Wednesday, November 30, 2011. On this occasion, Prof. R. B. Singh, President, National Academy of Agricultural Sciences, New Delhi, delivered the lecture on “Towards an Evergreen Revolution”. Besides, researchers/students of the Institute were facilitated with medals/mementos for the best scores in Ph.D. course work and for best presentation in Students Research Symposium 2011. The invited guests from nearby institutions as well as staff and students of the Institute attended the function.



Prof. R.B. Singh honoured by Prof. Akhilesh K. Tyagi after delivering the 13th J.C. Bose Memorial Lecture on the occasion of Foundation Day of NIPGR

Silver Jubilee Function of the establishment of Department of Biotechnology, Government of India (February 17 & February 21, 2012)

NIPGR celebrated the Silver Jubilee of the establishment of Department of Biotechnology, Government of India at its premises by organizing two one-day functions on February 17 & 21, 2012. The function included a debate competition on February 17, 2012 on the topic entitled “To benefit from technology, knowledge is the necessity” based on the current and future concerns in science, particularly regarding ways and means of application of science & technology. Dr. Pinky Agarwal conducted the Debate Competition. Students at B.Sc. level from various colleges of the University of Delhi were invited who exchanged their views in 'favour' and 'against' the topic.

On February 21, 2012, Prof. M.K. Bhan, Secretary, DBT and Chairman, Governing Body of NIPGR very kindly delivered the introductory address. A poster competition was also organized amongst the researchers/students of NIPGR on the two contemporary themes, viz. “Bioeconomy” and “Biopiracy”. This was followed by three invited lectures by eminent Scientists of India. The first lecture was delivered by Dr. Amit Ghosh, Emeritus Scientist, National Institute of Cholera & Enteric Diseases, Kolkata on the topic entitled “Creativity: Enhancing it”. Another talk was delivered by noted social worker and Padma Shri, Dr. Anil P. Joshi, Himalayan Environmental Studies & Conservation Organization, Uttarakhand on the topic entitled “Common mistake”. The third lecture was delivered by Professor Usha Vijayraghavan, Indian Institute of Science, Bangalore on the topic entitled “Building a flower: Learning the ABCs of flowering regulators in model plants”.



Participants

At the end of the day, the “best speakers” from the debate competition and “best posters” (one on each theme) from the poster competition were conferred with the Winner's Certificates and token cash prizes, and all the participants of debate competition were also given the Certificate of Participation by Dr. (Mrs.) Manju Sharma, former Secretary, DBT, who also expressed her views on the spectacular growth of DBT since its inception and admired the progress of NIPGR as well.

Monthly Seminar Series (2011-2012)

The Institute organized the "Monthly Seminar Series" (initiated in the year 2009) in the year 2011-12 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. A. K. Singh Indian Agricultural Research Institute, (IARI)	Marker assisted breeding in rice	May 18, 2011
Dr. Parul Khurana Indiana University East, School of Natural Science and Mathematics	Characterization of several Arabidopsis villin isoforms	July 20, 2011
Dr. R. Kota	Syngenta biotechnology: exploring new avenues for partnerships	Aug 04, 2011
Dr. Vanitharani Ramachandran University of California (Riverside)	microRNA turnover and function in plants	Oct 17, 2011
Prof. Dr. Andreas Graner Leibniz Institute of Plant Genetics and Crop Plant Research (IPK, Germany)	Development of strategies for a genomics informed utilization of plant genetic resources	Oct 18, 2011
Prof. Dierk Scheel Leibniz Institute of Plant Biochemistry (Germany)	Calcium and MAP kinase signaling in plant immunity	Oct 21, 2011
Prof. Dr. Klaus Palme A. L. University of Freiburg (Germany)	Signalling pathways regulating postembryonic <i>de novo</i> organ formation in plants	Dec 20, 2011
Dr. Senthil-Kumar Muthappa Nobel Foundation (Ardmore, OK, USA)	Nonhost resistance - how do plants defend against a wide range of invading bacterial pathogens	Feb 09, 2012

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 135 students have registered for the Programme leading to Ph. D. degree to JNU since the Academic year 2001-2002, and out of these, 40 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 2011-12

Sl. No.	Name of the Student	Name of the Supervisor/ Joint Supervisor
1.	Mr. Rajeev Ranjan	Prof. Akhilesh Kumar Tyagi
2.	Ms. Sweta Das	Prof. Akhilesh K. Tyagi & Dr. Pinky Agarwal
3.	Mr. Saurabh Gayali	Dr. Niranjana Chakraborty
4.	Mr. Vikash Dwivedi	Dr. Debasis Chattopadhyay
5.	Ms. Pallavi Sinha	Dr. Alok Krishna Sinha
6.	Ms. Savithri Purayannur	Dr. Praveen Verma
7.	Ms. Nilam Nayan Borah	Dr. Praveen Verma
8.	Ms. Garima Pandey	Dr. Manoj Prasad
9.	Ms. Namisha Sharma	Dr. Manoj Prasad
10.	Mr. Vinay Kumar	Dr. Jitendra K. Thakur
11.	Mr. Prafull Salvi	Dr. Manoj Majee
12.	Mr. Rama Sankar	Dr. Mukesh Jain
13.	Mr. Gulab Chand Arya	Dr. Naveen C. Bisht
14.	Mr. Roshan Kumar	Dr. Naveen C. Bisht
15.	Ms. Banita Kumari	Dr. Ananda K. Sarkar
16.	Ms. Poonam Mehra	Dr. Jitender Giri
17.	Mr. Bipin Kumar Pandey	Dr. Jitender Giri
18.	Ms. Iny Elizabeth Mathew	Dr. Pinky Agarwal
19.	Ms. Alice Kujur	Dr. Swarup K. Parida

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:

Sl. No.	Name of the Student	Thesis Title	Name of the Supervisor / Joint Supervisor
1.	Mr. Saurabh Yadav	Molecular studies on signaling during Cicer/ Ascochyta Interactions: Characterization of some of the genes involved in early events	Dr. Praveen Verma
2.	Mr. Vinay Kumar	Development of oxalate free soybean using OXDC gene from <i>F. velutipes</i>	Prof. Asis Datta and Dr. Subhra Chakraborty
3.	Ms. Charu Lata	Transcript profiling of dehydration stress in foxtail millet (<i>Setaria italica</i> L.) and cloning characterization of a stress related gene	Dr. Manoj Prasad
4.	Ms. Ayushi Jha	Studies on $\Delta 7$ -sterol-C-5-desaturase from <i>Flammulina velutipes</i>	Prof. Asis Datta
5.	Mr. Dhammaprakash Wankhede	Study of the interactome map among the members of Mitogen activated Protein Kinase (MAPK) cascade in <i>Oryza sativa</i>	Dr. Alok Krishna Sinha
6.	Mr. Rajiv Kumar Yadav	Characterization of Yellow Mosaic Virus Infection in Soybean	Dr. Debasis Chattopadhyay
7.	Ms. Nazia Abbas	Molecular and functional analyses of ZBF3/CAM7 in Arabidopsis seedling development	Dr. Sudip Chattopadhyay
8.	Mr. Hathi Ram	Molecular and genetic interactions of ZBF2/GBF1 with regulatory components of light signaling in <i>Arabidopsis Thaliana</i>	Dr. Sudip Chattopadhyay
9.	Mr. Kunal Singh	Functional genomics studies on pathogenesis of chickpea blight fungus <i>Ascochyta rabiei</i>	Dr. Praveen Verma

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

<u>Research Associates</u>	
Ayushi Kamthan	Shilpi Nidhi
Deepti Jain	Shubhra Rastogi
Dhammaprakash P. Wankhede	Shweta Jha
Divya S. Bhat	Sourabh Saxena
Geeta Prakash	Subhasis Samanta
Hanumanta Rao	Tanvir UI Hasan
Hussain Ara	Vinay Kumar Tyagi
Kamal Kumar	Yashpal Khajuria
Kunal Kumar	
Maneesha S. Saxena	
Mohan Kamthan	
Nazrul Islam	
Pradipto Mukhopadhyay	
Rohini Garg	
Sanjay Ghawana	
Sarika Gupta	
Sarita Bhutty	
<u>Project Fellows</u>	
Aditi Agarwal	Priyanka Verma
Anil Kumar	Pushp Priya
Anshika Tyagi	Raghavendra Sharma
Arvind Kumar	Rajesh Pujari
Bharati Garg	Rajiv Kumar Yadav
Deepak Bajaj	Rashmi Gaur
Ganga Jena	Rashmi Kumari
Gaurav Agarwal	Ravi K. Patel
Gopal Mishra	Renu Kumari
Jitender Kr. Verma	Richa Pasrija
Kajal Kumari	Shalu Jhanwar
Kamlesh Kumar Soni	Sharat Chandra
Manisha Sinha	Shubhendu Shekhar
Manju Yadav	Suchismita Das
Niraj Shah	Sudip Ghosh
Paridhi Mehta	Swati Chaudhary
Pragati Kumari	Swati Puranik
Pranav Pankaj Sahu	Vandana Mishra
Pratima Sharma	Vishakha Sharma

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.	Ananya Ray	Amity University, Noida.
2.	Ankita Priya	Banasthali University, Rajasthan.
3.	Chandana Pandey	Jamia Millia Islamia University, New Delhi.
4.	Chikkla Hannah	Indira Gandhi National Open University, New Delhi.
5.	Krutika Bhavishi	BITS, PILANI.
6.	Kshitij Tandon	Lovely Professional University, Punjab.
7.	Lalitesh Kushwaha	Devi Ahilya Vishwavidyalaya, Indore.
8.	Manjari Mittal	Banasthali University, Rajasthan.
9.	Manoj Jain	Jaipur National University, Jaipur.
10.	Moumita Maity	Haldia Institute of Technology, West Bengal.
11.	Nahid Tabassum	Jamia, Millia Islamia, New Delhi.
12.	Nikita Sharma	KIIT University, Bhubaneswar.
13.	Parul	Banaras Hindu University, Varanasi, Uttar Pradesh.
14.	Pranav Bhaskar	Devi Ahilya Vishwavidyalaya, Indore.
15.	Priyanika Ghorai	West Bengal University of Technology (WBUT).
16.	Ravi Ranjan Singh	Lovely Professional University, Punjab.
17.	Rohan Bhatia	Amity University, Uttar Pradesh.
18.	R. Karpagam	Anna University, Chennai.
19.	Saloni Salaria	Amity Institute of Biotechnology, Amity University, Noida.
20.	Shaifaly Parmar	Banasthali University, Rajasthan.
21.	Swati Garg	Ch. Charan Singh University, Uttar Pradesh.
22.	Tanzeel	Jamia Millia Islamia University, New Delhi.
23.	Vidushi Kapoor	Vellore Institute of Technology, Vellore.
24.	Yadvendra Singh Chattha	Indira Gandhi National Open University, New Delhi.
25.	Yashika Rastogi	G.B. Pant Engineering College, Uttarakhand.

Facilities established at the Institute

NIPGR Sub-DIC Facility

This year, the BTISNET facility at NIPGR has completed its first five years as a Distributed Information Sub Centre (DISC). The aim of the center is 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. Major activities planned for the next five years include bioinformatics training and development of software, databases and other tools required for creating infrastructure in the field of plant genomics, proteomics and plant molecular biology. NIPGR Sub-DIC regularly conducts workshops and training programs to make users aware of available facilities in plant computational biology and its applications and to share and distribute the plant related databases and information. All students who have undergone Traineeship or Studentship at NIPGR Sub-DIC in the past five years are currently pursuing their PhDs abroad, or have been absorbed at project positions in different research laboratories across the country. The trainees are able to find placement with the help of the rigorous program at the Sub-DIC. At present, the Sub-DIC is involved in development of a database of small nucleolar RNAs in plants, a software program for identification and classification of Plant Terpene Synthases and a Linux based Software Package for Complex Network Analysis (CNA). Research at the center involves construction of molecular interaction networks for plant developmental pathways, and bioinformatics analyses of the chickpea nuclear genome that has been sequenced at NIPGR.

National Plant Gene Repository

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 genome sequences, ongoing effort on tomato, potato and chickpea sequencing along with different EST-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 into 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. Infrastructure for setting up NAPGER has been established. The equipments have been procured and the manpowers sanctioned have

already been recruited. The research protocols to be followed in NAPGER have been developed. Identification of potential Indian laboratories involved in genomics research and development of the NAPGER web page has been completed. As approved by Project Monitoring-cum-Advisory Committee of NAPGER, the NAPGER advertisement for publishing in Current Science and Journal of Bioscience has been finalized. Very shortly the activity of NAPGER would be advertised.

Infrastructure development and Construction activities

Establishment of NIPGR Translational Centre at Biotech Science Cluster, NCR, Faridabad

The National Biotechnology Development Strategy approved by the Government of India envisions institutional cluster development as a key strategy to promote innovation and accelerate technology and product development. A 200 acre site has been allotted by the Government of Haryana to the Department of Biotechnology, within the National Capital Region in Faridabad to establish a Biotech Science Cluster, out of which 20 acres has been earmarked for NIPGR. Institute has plans to establish NIPGR Translational Research Centre including field station on this site, to focus issues of national importance that include, climate simulation, molecular breeding, genetic enhancement, platform technologies and translational research inclusive of product development.

NIPGR Translational Research Centre (NIPGR-TRC) will constitute about 20 green houses, research laboratories of approximately 3000 sq. mtrs area including a full-fledged genomics facility, experimental field station in an area of about 5 acres. The Centre would be the translational facility for technologies, which have past "Proof-of-Concept" stage at NIPGR and other Plant molecular Biology Groups in vicinity like International Centre for Genetic Engineering and Biotechnology, Jawaharlal Nehru University and University of Delhi South Campus in collaborative mode. It would grow by incorporating application laboratory, phenomics facility and field station. This unit would be an independent facility of NIPGR with greater level of partnership with industry. Intellectual property issues specially those emerging from new technologies will be addressed upfront, with possible options for exclusive, co-exclusive, non-exclusive options with varying agreements in terms of licensing with upfront payment, royalty payment, value sharing and other industry prevalent practices. The structure is envisaged to be set up in such a way that the IP issues are addressed taking into consideration the specific requirements of the institutions and partner Industry. At the same time, access to public institutions would be ensured in particular to take care of resource poor farmers in India.

In this connection, a MoU between the partner institutions at Biotech Science Cluster has since been executed. The requisite land has been taken over from the Government of Haryana, and allotment of 20 acres of land in favour of NIPGR is under process.

Construction Activities at NIPGR, New Delhi

The construction works of buildings under Phase-II has been taken up by the Institute in previous years comprising Lab Block (15 Labs) of approximately 6500 sq. mtr. area and

Residences- 28 units (Type III- 12 units, Type IV- 12 units & Type V- 4 units) of 3269.05 sq. mtr. area. The Type – V residences are of duplex type and others are three storeyed. The dwelling units are at final stage of completion. The Lab Block structure comprises of three storeys building having two tissue culture labs & 13 general labs. The construction activities are fast approaching completion.

It is expected that the buildings shall be ready for occupation during next financial year.

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	J. C. Bose Fellowship	DST Govt. of India
3.	Prof. Asis Datta	N-Acetylglucosamine-kinase HXK-1 regulatory role in morphogenesis and pathogenesis in human fungal pathogen <i>Candida albicans</i>	ICMR Govt. of India
4.	Prof. Asis Datta	Role of N-acetylglucosamine catabolic pathway in pathogens of human and plant	CSIR Govt. of India
5.	Dr. Sudip Chattopadhyay	Functional analysis of MYC2 transcription factor family in rice	DBT Govt. of India
6.	Dr. Sudip Chattopadhyay	Ripening of fleshy fruits species and their adaptation to stress	IFCPAR
7.	Dr. Niranjana Chakraborty	Analysis of dehydration responsive subcellular phosphoproteome in crop plants	DBT Govt. of India
8.	Dr. Niranjana Chakraborty	Functional genomics of water deficit stress in chickpea of Next Generation Challenge Programme on Chickpea Genomics	DBT Govt. of India
9.	Dr. Niranjana Chakraborty	Molecular cloning & characterization of CaTLP1 dehydration responsive tubby like protein from chickpea	DBT Govt. of India
10.	Dr. Niranjana Chakraborty	Proteomic analysis of dehydration responsive endomembrane Fraction of Rice (<i>Oryza sativa</i> D.)	CSIR Govt. of India
11.	Dr. Subhra Chakraborty	Construction of chickpea BAC library as genomic resource, cloning and characterization of R-gene for <i>Fusarium wilt</i>	DBT Govt. of India
12.	Dr. Subhra Chakraborty	Establishing transcriptome map and the unigen database of Chickpea (<i>Cicer arietinum</i>) as a resource for functional and application genomics study	DBT Govt. of India

13.	Dr. Subhra Chakraborty	National Plant Gene Repository at NIPGR	DBT Govt. of India
14.	Dr. Subhra Chakraborty	Analysis of diseases-responsive subcellular phosphoproteome in crop plants	DBT Govt. of India
15.	Dr. Subhra Chakraborty	Genetic engineering of vegetable and legume crops with oxalate decarboxylase gene for removal of oxalic acid on antinutritional stress factor for better human nutrition	ICMR Govt. of India
16.	Dr. Subhra Chakraborty	Functional genomics of Seed development & nutrition of Next Generation Challenge Programme on Chickpea Genomics	DBT Govt. of India
17.	Dr. Subhra Chakraborty	Comparative metabolite profiling of transgenic and non-transgenic potato expressing AmA1 protein	DBT Govt. of India
18.	Dr. Debasis Chattopadhyay	Role of CAPKS, a SOS-2 like protein kinase from Chickpea in root development and abiotic stress tolerance	DBT Govt. of India
19.	Dr. Debasis Chattopadhyay	Mechanism of genetic interaction between CIPK6 and CIPK25 in root development under National Bioscience Award for career Development 2010	DBT Govt. of India
20.	Dr. Debasis Chattopadhyay	Regulation of root development by auxin and cytokinin mediated signaling of Root Development and Nutrition	DBT Govt. of India
21.	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
22.	Dr. Sabhyata Bhatia	Indo-Canadian Pulse Genomics Initiative	DBT Govt. of India
23.	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
24.	Dr. Sabhyata Bhatia	Functional genomics of nodulation in chickpea root of Root Development and Nutrition	DBT Govt. of India

25.	Dr. Sabhyata Bhatia	Indo- Australian project Genomic Approaches for Stress Tolerant Chickpea	DBT Govt. of India
26.	Dr. Praveen Verma	Isolation and functional characterization of genes from necrotrophic chickpea-blight fungus <i>Ascochyta rabiei</i> which are involved in pathogenesis during compatible interactions	DBT Govt. of India
27.	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
28.	Dr. Manoj Prasad	Transcript profiling of salt and drought stress in foxtail millet (<i>Setaria italica</i> L) and cloning characterization of DREB2 homologue	DBT Govt. of India
29.	Dr. Manoj Prasad	Transcriptome based identification of overlapping responses of salt and drought tolerance in foxtail millet & comparative genome mapping & tapping of stress responsive genes in foxtail millet & barley	DBT Govt. of India
30.	Dr. Manoj Prasad	Mapping of Mungbean yellow Mosaic Virus resistance loci in soybean	DBT Govt. of India
31.	Dr. Jitendra K. Thakur	Functional Study of Mediator Complex, a Transcriptional Co-activator, in Plant Growth and Development	DBT Govt. of India
32.	Dr. Jitendra K. Thakur	Elucidation of Protein level interactions to Define Arrangement of subunits in the Plant Mediator Complex	DBT Govt. of India
33.	Dr. Gitanjali Yadav	<i>In Silico</i> bioprospecting by analysis of plant stress response pathways	DBT Govt. of India
34.	Dr. Gitanjali Yadav (Scientist Incharge)	Establishment of Distributed Information Sub-Centre (DISC)	DBT Govt. of India
35.	Dr. Ashverya Laxmi	To study the interaction between glucose and brassinosteroid signal transduction pathway in a model plant system <i>Arabidopsis thaliana</i>	DST Govt. of India

36.	Dr. Ashverya Laxmi	To Study the role of glucose and its interaction with hormones in controlling Arabidopsis thaliana root directional responses of Root Development and Nutrition	DBT Govt. of India
37.	Dr. Ashverya Laxmi	To study the interaction between cytokinin and sugar signal transduction pathway in model plant system Arabidopsis thaliana	DBT Govt. of India
38.	Dr. Manoj Majee	Molecular characterization and differential expression of 1-myo- inositol 1-phosphate synthase (MIPS) gene family in drought tolerant legumes	DST Govt. of India
39.	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
40.	Dr. Mukesh Jain	Molecular genetic analysis and systems biology of auxin signaling networks in plants	DBT Govt. of India
41.	Dr. Mukesh Jain	Role of Homeobox Genes in Abiotic Stress Responses in Rice	DST Govt. of India
42.	Dr. Naveen C. Bisht	Development of low Glucosinolate Brassica Juncea transgenic lines using RNAi based down-regulation of glucosinolate pathway genes	DBT Govt. of India
43.	Dr. Ananda K. Sarkar	Ramalingaswami Fellowship	DBT Govt. of India
44.	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
45.	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

Committees of the Institute

Society

Shri Vilasrao Deshmukh

Hon'ble Minister of Science & Technology and Earth Sciences
Ministry of Science & Technology and Earth Sciences, Government of India, New Delhi
(President)
(July 12, 2011 to till date)

Shri Pawan Kumar Bansal

Hon'ble Minister of Science & Technology and Earth Sciences
Ministry of Science & Technology and Earth Sciences, Government of India, New Delhi
(President)
(up to July 11, 2011)

Prof. M. K. Bhan

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 Kolkata, Kolkata

Prof. V. L. Chopra

Former Member, Planning Commission
New Delhi

Dr. S. Ayyappan

Director General
Indian Council for Agricultural Research
New Delhi

Prof. Dipankar Chatterji

Indian Institute of Science
Bangalore
(till April 29, 2011)

Prof. R. S. Paroda

Chairman
Trust for Advancement of Agricultural Sciences
New Delhi
(till April 29, 2011)

Prof. R. B. Singh

Former Director, IARI
President, NAAS, New Delhi
(April 30, 2011 to till date)

Prof. Avadesha Surolia

Director, NII, New Delhi

Dr. Rakesh Tuli

Executive Director
NABI, Mohali
(April 30, 2011 to till date)

Ms. Vandana Srivastava

Financial Adviser
Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi

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
(April 30, 2011 to till date)

Prof. Ved Prakash

Vice-Chairman
University Grants Commission
New Delhi

Prof. Akhilesh Kumar Tyagi

Director, NIPGR
(Member-Secretary)

Governing Body

Prof. M. K. Bhan

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 Kolkata
Kolkata

Dr. S. Ayyappan

Director General
Indian Council for Agricultural Research
New Delhi

Prof. Dipankar Chatterji

Indian Institute of Science
Bangalore
(till April 29, 2011)

Prof. R. S. Paroda

Chairman
Trust for Advancement of Agricultural
Sciences
New Delhi
(till April 29, 2011)

Dr. E. A. Siddiq

Acharya N.G Ranga Agricultural University
Hyderabad
(till April 29, 2011)

Prof. R. B. Singh

Former Director, IARI
President, NAAS
New Delhi
(April 30, 2011 to till date)

Ms. Vandana Srivastava

Financial Adviser
Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi

Dr. K. S. Charak

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

Dr. Rakesh Tuli

Executive Director
NABI, Mohali
(April 30, 2011 to till date)

Dr. Dinakar M. Salunke

Executive Director
Regional Centre for Biotechnology
Gurgaon, Haryana
(April 30, 2011 to till date)

Prof. Ved Prakash

Vice-Chairman
University Grants Commission
New Delhi

Prof. Akhilesh Kumar Tyagi

Director, NIPGR
(Member-Secretary)

Scientific Advisory Committee

Prof. A.K. Sharma
University of Calcutta
Kolkata
(Chairman)

Prof. Sudhir K. Sopory
Vice Chancellor
Jawaharlal Nehru University
New Delhi
(Co-Chairman)

Dr. P. Ananda Kumar
Project Director
National Research Centre on Plant
Biotechnology (NRCPB), IARI, New Delhi

Dr. Ramesh V. Sonti
Centre for Cellular & Molecular Biology
(CCMB)
Hyderabad
(till September 2011)

Prof. Jitendra P. Khurana
University of Delhi, South Campus
New Delhi

Prof. M. Udayakumar
University of Agricultural Sciences
Bangalore

Dr. Rakesh Tuli
Executive Director
NABI, Mohali, Punjab

Prof. K. Veluthambi
Madurai Kamaraj University
Madurai

Dr. Shyam Kumar Sharma
Vice-Chancellor
CSK Himachal Pradesh
Agricultural University
Palam Pur
(till September 2011)

Dr. K. C. Bansal
Director
National Bureau of Plant Genetic Resources
PUSA, New Delhi

Dr. (Mrs.) Usha Barwale
Maharashtra Hybrid Seeds Co. Ltd.
Mumbai

Dr. Imran Siddiqui
Centre for Cellular & Molecular Biology
(CCMB), Hyderabad
(September 2011 till date)

Dr. Kuldeep Singh
Senior Molecular Geneticist & Director
Punjab Agricultural University
Ludhiana
(September 2011 till date)

Dr. Usha Vijayaraghvan
Professor, Department of Microbiology &
Cell Biology, Indian Institute of Science
Bangalore
(September 2011 till date)

Dr. K. S. Charak
Advisor
Department of Biotechnology
Ministry of Science & Technology
Govt. of India, New Delhi

Prof. Akhilesh Kumar Tyagi
Director, NIPGR

Academic Committee

Prof. Akhilesh Kumar Tyagi

Director, NIPGR
(Chairman)

Prof. Rajendra Prasad

School of Life Sciences
Jawaharlal Nehru University
New Delhi
(till December 17, 2011)

Prof. K. C. Upadhyay

School of Life Sciences
Jawaharlal Nehru University
New Delhi
(till December 17, 2011)

Dr. Raj K. Bhatnagar

International Centre for Genetic Engineering
and Biotechnology (ICGEB)
New Delhi
(till December 17, 2011)

Prof. Rakesh Tuli

Executive Director
NABI, Mohali
(till December 17, 2011)

Dr. Niranjana Chakraborty

National Institute of Plant Genome Research
New Delhi

Dr. Debasis Chattopadhyay

National Institute of Plant Genome Research
New Delhi
(till December 17, 2011)

Dr. S. Chandrasekaran

Coordinator (Evaluation)
Jawaharlal Nehru University
New Delhi
(Special Invitee)

Prof. Neera Bhalla Sarin

School of Life Science
Jawaharlal Nehru University
New Delhi
(December 18, 2011 to till date)

Dr. Ashwani Pareek

School of Life Sciences
Jawaharlal Nehru University
New Delhi
(December 18, 2011 to till date)

Dr. C.S. Nautiyal

Director
NBRI, Lucknow (outside expert)
(December 18, 2011 to till date)

Dr. V. Siva Reddy

ICGEB, JNU Campus
New Delhi (outside expert)
(December 18, 2011 to till date)

Dr. Sabhyata Bhatia

National Institute of Plant Genome Research
New Delhi
(December 18, 2011 to till date)

Finance Committee

Prof. M. K. Bhan

Secretary, Department of Biotechnology
Ministry of Science & Technology
Government of India
New Delhi
(Chairman)

Ms. Vandana Srivastava

Financial Adviser
Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi

Dr. Satish K. Gupta

National Institute of Immunology
New Delhi

Shri B. Bose

Former Senior Manager
National Institute of Immunology
New Delhi
(till June 05, 2011)

Shri J. A. Vaidyanathan

Senior Manager
National Institute of Immunology
New Delhi
(June 06, 2011 to till date)

Shri Virendra Kapoor

Director
Department of Biotechnology
New Delhi
(till June 05, 2011)

Shri K. M. Kutty

Deputy Secretary
Department of Biotechnology
New Delhi
(June 06, 2011 to till date)

Prof. Akhilesh Kumar Tyagi

Director,
NIPGR, New Delhi

Shri Sandeep Datta

Manager, NIPGR
(Non-Member Secretary)

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

Ms. Vandana Srivastava

Financial Adviser
Department of Biotechnology
Ministry of Science and Technology
Government of India
New Delhi

M/s. S. D. Sharma & Associates

Institute's Architect
Panchkula (Haryana)

Shri J. A. Vaidyanathan

Senior Manager
National Institute of Immunology
New Delhi

Shri O. P. Nayar

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, Professor of Eminence

Dr. Niranjana Chakraborty, Scientist – VI

Dr. Subhra Chakraborty, Scientist – VI

Dr. Debasis Chattopadhyay, Scientist – V

Dr. Alok Krishna Sinha, Scientist – V

Dr. Sabhyata Bhatia, Scientist – V

Dr. Praveen Verma, Scientist – IV

Dr. Manoj Prasad, Scientist – IV

Dr. Jitendra K. Thakur, Scientist – III

Dr. Gitanjali Yadav, Scientist – III

Dr. Ashverya Laxmi, Scientist – III

Dr. Manoj Majee, Scientist – III

Dr. Mukesh Jain, Scientist – III

Dr. Naveen C. Bisht, Scientist – III

Dr. Ananda K. Sarkar, Scientist – II

Dr. Jitender Giri, Scientist – II

Dr. Swarup K. Parida, Scientist – II

Dr. Pinky Agarwal, Scientist – II

Dr. Sushil Kumar, INSA Senior Scientist

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 Arun Kumar, Technical Staff Gr. – II
Shri Shankar Acharya, Technical Staff Gr. – II
Shri C. Ravi Shankar, Technical Staff Gr. – II
Shri Ravi Kant Singh, Jr. Engineer (Civil)
Shri Shobharam Valmeeki, Technical Staff Gr. – II
Shri Anand Singh Rana, Technical Staff Gr. – III
Shri Ashok Kumar, Technical Staff Gr. – III
Shri Rajendra, Technical Staff Gr. – III
Shri Shailendra Kharwal, Technical Staff Gr. – III
Shri V. Janardhan, Technician – II *
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

* resigned from services w.e.f. January 02, 2012 (AN)

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 Ashok Chauhan, Finance Officer

Shri O. P. Nayar, Consultant Engineer

Shri Kamal Kumar Verma, PS to Director

Ms. Rashmi Singh, Management Assistant

Ms. Vinita Sharma, Management Assistant

Ms. Rajani Aswal, Jr. Management Assistant

Ms. Sonali, Jr. Management Assistant

Shri Tapas Shit, Jr. Management Assistant

Shri Mitesh Raj Bhardwaj, Jr. Management Assistant

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 resource of the National Institute of Plant Genome Research is the core grant provided by the Govt. of India, Department of Biotechnology comprising of Non-Recurring and Recurring grants.

The Department of Biotechnology in their projections for financial year 2011-12 have allocated grant of ₹2200.00 lakhs including ₹760.00 lakhs for infrastructure facility in respect of NIPGR.

The source and application of funds during the financial year 2011-12 in respect of Institute is as under:

Sources of Funds

The Govt. of India, Department of Biotechnology, released grant of ₹2200.00 lakhs during 2011-12 as detailed below:

Non- Recurring	₹ 760.00 lakhs
Recurring	₹1440.00 lakhs

Besides, the Institute also earned an interest of ₹84,02,927/- on the balance in saving bank account of the Institute during the year, apart from the opening balance of ₹4,85,95,628/- carried forward from previous year .

Application of Funds

(As per Utilization Certificate furnished to the Department of Biotechnology for the year 2011-12)

The total expenditure on research activities and infrastructure development during the year 2011-2012 was ₹26,01,79,020/- including ₹7,04,86,650/- on infrastructure development and ₹1,95,00,000 /- for setting up of the Phytotron Facilities.

OVER ALL EXPENDITURE AT A GLANCE	
<u>A-Non-Recurring</u>	Amount in ₹
1. Land & Building	6,71,683
2. Equipment	5,63,81,556
3. Furniture & Fixtures	9,07,265
4. Books/Scientific Journals	1,25,03,453
5. Vehicle	22,693
Total =	<u>7,04,86,650</u>
<u>B-Recurring</u>	
1. Manpower	3,62,97,297
2. Consumables	5,35,62,564
3. Contingencies	6,21,49,691
4. Training/Networking/Fellowship	98,09,399
5. Campus/Field Development	65,61,901
6. Travel	18,11,518
Total =	<u>17,01,92,370</u>
<u>C-Phytotron Facilities</u>	1,95,00,000

Mehra & Sistani
Chartered Accountants
New Delhi

AUDITOR'S REPORT

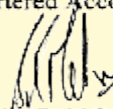
We have audited the attached Balance Sheet of NATIONAL INSTITUTE OF PLANT GENOME RESEARCH (formerly National Center for Plant Genome Research), Aruna Asaf Ali Marg, J.N.U. Campus, New Delhi-110067 as on 31st March 2012 and annexed Income and Expenditure Account and Receipts and Payments Account for the year ended on that date with the books of accounts and vouchers maintained by the Institute and report as under: -

1. That the Institute's Balance Sheet, Income and Expenditure Account & Receipt and Payment Account are in agreement with the books of accounts.
2. We conducted our audit in accordance with auditing standards generally accepted in India. Those Standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amount and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.
3. Subject to Accounting Policies and Notes on Account as per Schedule-24, in our opinion and to the best of our information and according to the explanations given to us, the said accounts give a true and fair view:
 - i) In the case of Balance Sheet of the State of Affairs of the Institute as at 31st March, 2012 and
 - ii) In the case of Income and Expenditure Account of the excess of Expenditure over Income during the ended on that date.

New Delhi.
Date: 22nd August 2012



For Mehra & Sistani
Chartered Accountants


(Sanjay Rai Mehra)
Partner
Membership No. 80402

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

LIABILITIES	Schedule	Current Year	Previous Year
Corpus/Capital Fund	1	849,550,972	822,672,379
Reserves and Surplus	2	24,148,823	48,253,471
Earmarked/Endowment Funds	3	18,243,202	26,638,119
Secured Loans and Borrowings	4	-	-
Unsecured Loans and Borrowings	5	-	-
Deferred Credit Liabilities	6	-	-
Current Liabilities and Provisions	7	61,176,683	59,127,161
TOTAL		953,119,680	956,691,130
ASSETS			
Fixed Assets	8	743,644,002	783,970,966
Investments-From Earmarked/Endowment Funds	9	18,200,000	25,100,000
Investments- Others	10	-	-
Current Assets, Loans, Advances etc.	11	191,275,678	147,620,164
Miscellaneous Expenditure (to the extent not written off or adjusted)		-	-
TOTAL		953,119,680	956,691,130
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 MEHRA & SISTANI
CHARTERED ACCOUNTANTS**

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER

PLACE: NEW DELHI
DATE: August 22, 2012

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
INCOME & EXPENDITURE FOR THE YEAR ENDED 31st MARCH 2012

AMOUNT IN ₹			
INCOME	Schedule	Current Year	Previous Year
Income from Sales/ Services	12	-	-
Grants / Subsidies (Recurring)	13	144,000,000	140,500,000
Fees/ Subscriptions	14	-	-
Income from Investments (Income on Invest. from earmarked/ endow.Fund)	15	-	-
Income from Royalty, Publication etc.	16	252,000	33,000
Interest Earned	17	9,200,132	8,595,413
Deferred Income- Fixed Assets	18	62,636,669	71,218,422
Increase / (decrease) in stock of Finished goods and works-in-progress	19	-	-
TOTAL (A)		216,088,801	220,346,835
EXPENDITURE			
Establishment Expenses	20	36,628,495	29,170,694
Other Administrative Expenses etc.	21	133,871,163	108,940,479
Expenditure on Grants, Subsidies etc.	22	-	-
Interest	23	-	-
Depreciation (Net Total at the year-end - corresponding to Schedule 8)		62,636,669	71,218,422
TOTAL (B)		233,136,327	209,329,595
Balance being excess of Income over Expenditure (A - B)		-	11,017,240
Balance being excess of Expenditure over Income (B - A)		(17,047,526)	-
Transfer to Special Reserve (Specify each)		-	-
Transfer to / from General Reserve			
BALANCE BEING DEFICIT/ SURPLUS CARRIED TO CORPUS/ CAPITAL FUND		(17,047,526)	11,017,240
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 MEHRA & SISTANI
CHARTERED ACCOUNTANTS**

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER

PLACE: NEW DELHI
DATE: August 22, 2012

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
RECEIPTS & PAYMENTS FOR THE YEAR ENDED 31st MARCH 2012

AMOUNT IN ₹

<u>RECEIPTS</u>	Current Year		Previous Year	
Particulars				
Opening Balance				
In Saving Account/Short Term deposits	60,137,199		67,650,439	
Grants Received from Deptt of Biotechnology				
Non recurring	56,000,000		102,000,000	
Recurring	143,083,000		140,500,000	
Interest Earned	8,402,927		5,788,598	
Security Deposit from Contractors	-		-	
EMD from Contractors	1,433,686		-	
Refund of Deposits by DCSE			366,828	
Refund of consumable advance	-		89,307	
Refund of contingency advance	119,855		-	
Hostel/Mess Security	45,500		184,918	
Service Charges Received	252,000		33,000	
Refund of Equipment advance	-		7,950,089	
<u>TOTAL</u>		269,474,167		324,563,179

**AS PER OUR SEPARATE REPORT
OF EVEN DATE ATTACHED.
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS**

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER

**PLACE: NEW DELHI
DATE: August 22, 2012**

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
RECEIPTS & PAYMENTS FOR THE YEAR ENDED 31st MARCH 2012

AMOUNT IN ₹

PAYMENTS	Current Year		Previous Year	
Particulars				
Building under Construction	671,683		2,249,574	
Deposits with RITES for Building	-		50,000,000	
Land			-	
Lab Equipment	23,623,076		53,773,465	
Office Equipment	394,708		561,413	
Computer/Peripherals	1,258,278		699,213	
Furniture & Fixture	907,265		1,567,181	
Books & Scientific Journals	12,503,453		12,450,632	
Vehicle	22,693		697,751	
Manpower				
Salaries and Wages	34,532,797		26,980,375	
Contribution to Provident fund	1,764,500		1,812,380	
Consumables				
a) Chemicals ,Glasswares & Consumables	53,624,297		44,120,745	
b) Other Lab Items	162,272		207,717	
Contingencies				
a) Publication of Papers	964,690		757,248	
b) Electricity and water charges	26,789,656		20,328,876	
c) Seminar,Conference & Workshops	377,847		185,126	
d) Maintenance of Equipment	10,116,898		8,337,459	
e) Maintenance of AC Plant	3,417,644		2,253,228	
f) Maintenance of Building	1,964,296		3,426,602	
g) Vehicles Running and Maintenance	-			
(i) Petrol ,Oil & Lubricants	1,011,758		771,675	
(ii) Maintenance	242,855		278,753	
h) Postage, Telephone and Comm. Charges				
(i) Postage & Telegrams	121,040		303,972	
(ii) Telephone & Fax	385,050		357,536	
i) Printing and Stationary	1,046,268		961,067	
j) Security expenses	6,280,002		4,441,243	
k) Auditors Remuneration	33,090		20,957	
l) Committee Meeting Expenses	208,792		133,007	
m) Legal fees	72,000		-	
n) Journals and periodicals	80,151		59,045	
o) Advertisement and Publicity	283,238		398,950	
p) Mise.contingencies	4,963,221		3,745,633	
q) Professional Charges	2,460,228		2,411,772	
r)Rates & Taxes	2,041,967		2,003,460	
Campus/ Field Development	6,561,901		5,402,127	
Training affiliation and Others	3,464,558		2,453,533	
NIPGR Fellowships	6,344,841		5,251,269	
Travelling and Conveyance Expenses				
(i) Travelling	1,192,125		2,429,449	
(ii) Conveyance & Transport	28,392		22,201	

Continued

<u>Others</u>				
a) Contingency Advance			723,808	
b) Consumable Advance	27,995		-	
c) Equipment advance	31,105,494		-	
d) Security Deposit paid	47,548		744,770	
e) Refund of Earnest Money deposit	-		1,102,768	
f) Hostel charges	-		-	
<u>Closing Balance</u>				
In Saving Bank Account/Short term Deposit	28,375,600		60,137,199	
TOTAL		269,474,167		324,563,179

AS PER OUR SEPARATE REPORT
OF EVEN DATE ATTACHED.
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER

PLACE: NEW DELHI
DATE: August 22, 2012

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

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	670,359,990		639,578,412	
Add: Contributions received during the year	55,083,000		102,000,000	
Less : Reduced during the year	62,636,669		71,218,422	
		662,806,321		670,359,990
Fixed Assets Fund				
Balance as at the beginning of the year	151,256,429		231,345,708	
Add: Contributions received during the year	78,582,045		2,761,904	
Less Contribution refunded during the year	(37,681)		24,171	
Less:Reduced during the year	44,187,464		82,827,012	
		185,688,691		151,256,429
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>		849,550,972		822,672,379

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

SCHEDULE 2- 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:				
As per last Account	-		-	
Addition during the year	-		-	
Less: Deduction during the year	-		-	
		-		-
4. General Reserve:				
As per last Account	48,253,471		37,236,231	
Addition during the year	(17,047,526)		11,017,240	
Less: Deduction during the year	7,057,122		-	
		24,148,823		48,253,471
TOTAL		24,148,823		48,253,471

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre for Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

SCHEDULE -3	Current Year		Previous Year	
Fund Debt Employees Provident Fund				
a) Opening balance of the fund	26,638,119		19,776,611	
b) Additions to the Fund				
i) Donations / grants				
ii) Income from investments/saving account	2,602,566		3,077,832	
iii) Regular subscription/ refund of advance recd.	6,838,178		5,631,281	
TOTAL (a+b)		36,078,863		28,485,724
c) Utilisation/Expenditure towards objectives of fund				
i. <u>Capital Expenditure</u>				
- Fixed Assets	-	-	-	-
- Others	-	-	-	-
ii <u>Revenue Expenditure</u>				
Salaries, Wages and allowances etc.	-		-	
Rent	-		-	
Other Administrative expenses	-		-	
Advance payment to Subscribers	1,051,000		1,251,000	
Final payment to Subscribers	982,678		596,605	
Final payment to Subscribers on account of NPS	15,801,983		-	
TOTAL (c)		17,835,661		1,847,605
NET BALANCE AS AT THE YEAR-END (a+b-c)		18,243,202		26,638,119

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

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	-		-	
		Nil		Nil
<u>TOTAL</u>		Nil		Nil

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)	-		-	
		Nil		Nil
<u>TOTAL</u>		Nil		Nil

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	-	-	-	-
		Nil		Nil
<u>TOTAL</u>		Nil		Nil

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

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	3,327,722		4,072,492	
Add: Variations during the year				
Less: Variations during the year	47,548		744,770	
		3,280,174		3,327,722
(ii) Earnest Money deposit	6,625,306		7,728,074	
Add: Variations during the year	1,433,686		-	
Less: Variations during the year	-		1,102,768	
		8,058,992		6,625,306
(iii) Hostel Security from Students	410,500		286,000	
Add: Variations during the year	45,500		124,500	
		456,000		410,500
4. Projects Grants/Fellowships				
(i) CSIR	514,185		415,080	
(ii) DBT	33,554,467		33,547,522	
(iii) DST	1,815,223		1,593,127	
(iv) ICMR	1,138,341		651,927	
(v) IFCPAR	11,680		878,194	
(vi) Fellowships	2,420,068		2,461,604	
(vii) Advance for meetings	68,025		-	
(Annexure-1 to 71)		39,521,989		39,547,454
5. Interest accrued but not due on :				
(a) Secured Loans /borrowings				
(b) Unsecured Loans/borrowings				
6. Statutory Liabilities				
a) Overdue				
b) Others				
7. Other Current Liabilities;-				
Audit fees payable	34,605		34,193	
Outstanding Expenses payable	9,824,923		9,181,986	
		9,859,528		9216179
TOTAL (A)		61,176,683		59,127,161
<u>B. PROVISIONS</u>				
1. For Taxation	-		-	
2. Gratuity	-		-	
3. Superannuation/Pension	-		-	
4. Accumulated Leave Encashment	-		-	
5. Trade Warranties/Claims	-		-	
6. Others (Specify)	-	-	-	-
TOTAL (B)		-		-
TOTAL (A+B)		61,176,683		59,127,161

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof. AKHILESH Kr. TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st March 2012

SCHEDULE 8- FIXED ASSETS

ASSETS	RATE	W.D.V.as on 01.04.2011	Additions/Sales			Total As on 31.03.2012 ₹	Depreciation for the year ₹	W.D.V. as on 31.03.2012
			Upto 30.09.11	On or After 01.10.11	Sales/Adjust ments			
1. Land								
a) Free Hold	0%	40,000,000	-	-	-	40,000,000	-	40,000,000
b) Lease hold		-	-	-	-	-	-	-
2. Building								
a) On Freehold Land		-	-	-	-	-	-	-
b) On Leasehold Land		-	-	-	-	-	-	-
c) Ownership flats/premises		-	-	-	-	-	-	-
d) Superstructures on Land not belonging to the entity	10%	997,151	-	-	-	997,151	99,715	897,436
3. Plant Machinery & Equipment								
a) Lab Equipments(Crore)	40%	91,376,022	20,700,135	2,922,941	5,710	114,993,388	45,415,051	69,578,337
b) Lab Equipment (Project)	40%	134,628,750	2,312,378	4,385,063	22,050,000	119,276,191	44,187,464	75,088,727
4. Vehicles	15%	617,811	968,643	-	56,200	1,530,254	237,968	1,292,286
5. Furniture & Fixtures	10%	13,594,010	361,398	545,867		14,501,275	1,422,834	13,078,441
6. Office Equipments	15%	6,213,125	291,285	103,423	13,527	6,594,306	983,418	5,610,888
7. Computer / Peripherals	60%	1,011,985	820,625	437,653	316	2,269,947	1,230,862	1,039,085
8. Books & Scientific Journals	60%	15,763,799	76,643	12,475,185	-	28,315,627	13,246,821	15,068,806
Total of Current Year		304,202,653	25,531,107	20,870,132	22,125,753	328,478,139	106,824,133	221,654,006
Capital work in Progress*		479,768,313	22,108,968	20,112,715	0	521,989,996	-	521,989,996
Grand Total		783,970,966	47,640,075	40,982,847	22,125,753	850,468,135	106,824,133	743,644,002

* Includes Rs. 4,15,50,000/-towards setting up of Phytotron Facility

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

<u>SCHEDULE -9</u>	Current Year		Previous Year	
<u>INVESTMENTS FROM FUND DEBT EMPLOY.</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	18,200,000		25,100,000	
		18,200,000		25,100,000
<u>TOTAL</u>		18,200,000		25,100,000

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	-		-	
		Nil		Nil
<u>TOTAL</u>		Nil		Nil

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

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	3,619,845		2,920,227	
		3,619,845		2,920,227
<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)	50,000,000		2,700,000	
-On Savings Account	86,947,554		113,612,333	
-NIPGR CPF Account	43,202		1,538,119	
		136,990,756		117,850,452
<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>		140,610,601		120,770,679

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

SCHEDULE- 11	Current Year		Previous Year	
CURRENT ASSETS, LOANS, ADVANCES ETC.				
<u>B. LOANS,ADVANCES AND OTHER ASSETS:</u>				
1. Loans:				
a) Staff		-		-
b) To other Entities engaged in activities/objectives similar to that of the entity		-		-
2. Advances and other amounts recoverable in cash or in kind for value to be received				
a) On Capital Account (Equipment Adv.)	46,055,494		14,950,000	
b) On Capital Account (Equipment Adv.projects)	-		-	
c) Contingencies Advance	1,365,896		1,485,751	
d) Consumable Advance	37,794		9,799	
e) Advance for assets	-		938,125	
f) Security				
(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) Reliance Comm.Infrast.Ltd.(Telephone)	2,000		2,000	
vi) Queens Road Service Station	50,000		50,000	
vii) Tata Communications Ltd	94,688		94,688	
		49,867,872		19,792,363
3. Income Accrued:				
a) On Investments from Earmarked/Endowment Funds	-		-	
b) On Investments - Others	797,205		-	
c) On Loans and Advances	-		-	
d) Others -(M/s RITES Ltd)	-		7,057,122	
(includes income due unrealised - Rs.Nil)				
		797,205		7,057,122
4. Claims Receivable	-		-	
		-		-
TOTAL (B)		50,665,077		26,849,485
TOTAL (A +B)		191,275,678		147,620,164

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

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	-		-	
c) Sales of Scraps	-		-	
		-		-
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)	-		-	
		Nil		Nil
<u>TOTAL</u>		Nil		Nil

AMOUNT IN ₹

<u>SCHEDULE - 13</u>	Current Year		Previous Year	
<u>GRANTS/SUBSIDIES</u>				
(Irrevocable Grants & Subsidies Received)				
a) Central Government	144,000,000		140,500,000	
b) State Government(s)	-		-	
c) Government Agencies	-		-	
d) Institutions/Welfare Bodies	-		-	
e) International Organisation	-		-	
f) Others (Specify)	-		-	
		144,000,000		140,500,000
<u>TOTAL</u>		144,000,000		140,500,000

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

SCHEDULE 14 - FEES/SUBSCRIPTIONS	Current Year		Previous Year	
a) Entrance Fees	-		-	
b) Annual Fees/Subscriptions	-		-	
c) Seminar/Programme Fees	-		-	
d) Consultancy Fees	-		-	
e) Others (Specify)	-		-	
		Nil		Nil
TOTAL		Nil		Nil

AMOUNT IN ₹

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

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

SCHEDULE 16	Current Year		Previous Year	
INCOME FROM ROYALTY, PUBLICATION ETC				
1) Income form Royalty	-		-	-
2) Income form Publications	-		-	-
3) Service Charges	252,000		33,000	-
		252,000		33,000
TOTAL		252,000		33,000

AMOUNT IN ₹

SCHEDULE 17	Current Year		Previous Year	
INTEREST EARNED				
1) On Term Deposits:				
a) With Scheduled Banks	5,696,389		-	
b) With Non- Scheduled Banks				
c) With Instituitons				
d) Others-(M/s.RITES Ltd.)	-		2,806,815	
		5,696,389		2,806,815
2) On Savings Accounts:				
a) With Scheduled Banks	3,503,743		5,788,598	
b) With Non- Scheduled Banks	-		-	
c) Post Office Savings Accounts				
d) Others		3,503,743		5,788,598
3) On Loans:				
a) Employees/Staff	-		-	
b) Others	-		-	
		-		-
4) Interest on Debtors and Other Receivables	-		-	
		-		-
TOTAL		9,200,132		8,595,413
Note - Tax Deducted at source to be indicated				

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

SCHEDULE 18 - OTHER INCOME	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) Fees for Miscellaneous Services	-		-	
4) Deferred Income - Fixed Assets	62,636,669		71,218,422	
		-		71,218,422
TOTAL		62,636,669		71,218,422

AMOUNT IN ₹

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

AMOUNT IN ₹

SCHEDULE 20 ESTABLISHMENT EXPENSES	Current Year		Previous Year	
a) Salaries and Wages	34,863,995		27,358,314	
b) Allowances and Bonus				
c) Contribution to Provident Fund	1,764,500		1,812,380	
d) Contribution to Other Fund (Specify)	-		-	
e) Staff Welfare Expenses	-		-	
f) Expen.on Empl. Retirement and Terminal Benefits	-		-	
g) Others (Specify)	-		-	
		36,628,495		29,170,694
TOTAL		36,628,495		29,170,694

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

AMOUNT IN ₹

SCHEDULE 21 - OTHER ADMINISTRATIVE EXPENSES ETC.	Current Year		Previous Year	
1. Consumables				
a) Chemicals ,Glasswares & Consumables	51,375,027		42,102,793	
b) Other Lab Items	162,272		207,717	
2. Contingencies				
a) Publication of Papers	1,038,798		630,900	
b) Electricity and water charges	27,262,966		20,128,747	
c) Seminar,Conference & Workshops	382,047		185,126	
d) Maintenance of Equipment	11,595,234		6,755,518	
e) Maintenance of AC Plant	3,464,214		2,253,228	
f) Maintenance of Building	1,644,832		3,740,716	
g) Vehicles Running and Maintenance				
(i) Petrol ,Oil & Lubricants	1,071,732		771,675	
(ii) Maintenance	402,685		201,774	
h) Postage, Telephone and Comm. Charges				
(i) Postage & Telegrams	207,769		236,104	
(ii) Telephone & Fax	352,066		384,964	
i) Printing and Stationary	1,062,564		961,067	
j) Security expenses	6,849,482		4,187,596	
k) Auditors Remuneration	33,502		29,781	
l) Committee Meeting Expenses	208,792		133,007	
m) Legal fees	72,000		-	
n) Journals and periodicals	80,151		57,411	
o) Advertisement and Publicity	288,613		398,950	
p) Misc.contingencies	3,584,641		5,388,913	
q) Rates & Taxes	2,041,967		2,003,460	
r) Professional Charges	3,177,709		2,411,772	
s) Assets written off	19,553		-	
3. Campus/Field Development	6,694,385		5,232,414	
4.(a) Training affiliation and Others	3,464,558		2,453,533	
b) NIPGR Fellowships	6,108,783		5,631,663	
5. Travelling and Conveyance Expenses				
(i) Travelling	1,195,001		2,429,449	
(ii) Conveyance & Transport	29,820		22,201	
		133,871,163		108,940,479
TOTAL		133,871,163		108,940,479

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre For Plant Genome Research)
SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31st MARCH 2012

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		-		-
		Nil		Nil
<u>TOTAL</u>		Nil		Nil

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)		-		-
		Nil		Nil
<u>TOTAL</u>		Nil		Nil

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Center for Plant Genome Research)

ACCOUNTING POLICIES AND NOTES FORMING PARTS OF THE BALANCE SHEET AS AT AND INCOME& EXPENDITURE ACCOUNT FOR THE YEAR ENDED ON 31st MARCH,2012

1. The annual accounts have been prepared in the revised format of accrual system of accounting except for stipend, fellowship, extramural funds and Contributory Provident Fund.
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 ₹6,26,36,669/-.
3. (a). The depreciation has been provided w.e.f. the Year of purchase of fixed assets as per the rates prescribed by Income Tax act 1961.

(b). Depreciation of ₹ 4,41,87,464/- 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. Expenses and Overheads incidental to construction of building of institute are added to the capital work in progress to be capitalized along with the building.
6. Part of the building of the institute has been completed and put into use. The cost of the entire building shall be capitalized on completion and after getting completion certificate from the Authorities.

7. Though all purchase of consumables, chemicals, glassware, stationery etc., as shown charged to consumption at the time of purchase, subsidiary stock registers of these items are being maintained in the respective laboratories under the charge of Technical Staff. Similar records are being maintained with regard to purchase of stationery items etc. Wherever the individual scientist in single unit indents fine chemical, enzymes, consumables etc., the entire lot is issued to the scientist concerned who keeps a record of its consumption. Closing Balance of Consumable amounting ₹ 36, 19,845/- are available at the end of the financial year 2011-12.
8. The expenditure on staff payments including terminal benefits of employees of the Institute are being met from the Grants allocated by the Department of Biotechnology, as and when the payment is released. The liability on account of payment of gratuity shall be met from the respective head of account, whenever the liability occurs and in accordance with the prescribed Rules.

**For Mehra & Sistani.
Chartered Accountants**

**(ASHOK CHAUHAN)
FINANCE OFFICER**

**(SANDEEP DATTA)
MANAGER**

**(Prof.AKILESH Kr.TYAGI)
DIRECTOR**

**(SANJIV RAI MEHRA)
PARTNER**

**Place: New Delhi
Date: August 22, 2012**

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

CSIR PROJECT

R/P entitled "Identification and mapping of Quantitative Trait Loci for the yield of terpenoid indole alkaloids in the medicinal plant Catharanthus roseus".

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	359,143		197,468	
Equipment	-		-	
<u>Grant- In- Aid for</u>				
i) Staff	-		(93,600)	
ii) Contingencies	-		511,000	
iii) Equipment	-		-	
iv) Overheads	-		-	
TOTAL		359,143		614,868

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Staff	-		-	
ii) Contingencies	359,143		255,725	
iii) Equipment	-		-	
iv) Overheads	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		359,143	
Equipment	-		-	
TOTAL		359,143		614,868

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

CSIR PROJECT

R/P entitled "Identification and molecular cloning of genes encoding dehydration responsive proteins (DRPs) from differential subcellular proteome of rice".

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	(148,516)		(559,329)	
<u>Grant- In- Aid for</u>				
i) Staff	-		247,520	
ii) Contingencies	148,516		225,000	
iii) Overheads	-		12,500	
TOTAL		-		(74,309)

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Staff	-		61,707	
ii) Contingencies	-		-	
iii) Overheads	-		12,500	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	-		(148,516)	
TOTAL		-		(74,309)

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	204,453		-	
<u>Grant- In- Aid for</u>				
i) Staff	21,265		176,000	
ii) Contingencies	444,147		550,000	
iii) Overheads	-		-	
TOTAL		669,865		726,000

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Staff	142,665		127,400	
ii) Contingencies	347,772		394,147	
iii) Overheads	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	179,428		204,453	
TOTAL		669,865		726,000

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012

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) Staff	176,000		-	
ii) Contingencies	166,667		-	
iii) Overheads	-		-	
TOTAL		342,667		-

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Staff	6,710		-	
ii) Contingencies	1,200		-	
iii) Overheads	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	334,757		-	
TOTAL		342,667		-

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

DBT PROJECT**R/P entitled "Nutritional Genomics: Value Added transgenic crops for better nutrition & fungal resistance"****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

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)

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012

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)

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECTR/P entitled Molecular cloning, characterization of genes and their uses in increased shelf life of fruits & vegetables

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(183,471)		(183,471)	
Equipment	75,034		75,034	
			-	
<u>Grant- In- Aid for</u>				
i) Equipment			-	
ii) Manpower			-	
iii) Consumable			-	
TOTAL		(108,437)		(108,437)

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment			-	
ii) Manpower			-	
iii) Consumable			-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(183,471)		(183,471)	
Equipment	75,034		75,034	
TOTAL		(108,437)		(108,437)

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Indian initiative on Tomato genome sequencing****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	767,792		182,961	
Equipment	5,701		5,701	
<u>Grant- In- Aid for</u>				
i) Equipment			-	
ii) Manpower	-		596,000	
iii) Consumable	-		800,000	
iv) Travel	-		9,000	
v) Contingencies	-		85,000	
TOTAL		773,493		1,678,662

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	5,701		-	
ii) Manpower	673,808		77,432	
iii) Consumable	9,357		680,996	
iv) Travel	50,634		-	
v) Contingencies	33,993		146,741	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		767,792	
Equipment	-		5,701	
TOTAL		773,493		1,678,662

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Establishing a Proteomics Facility at NCPGR, New Delhi****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u> With Bank in Saving A/c	2,475,605		2,475,605	
<u>Grant- In- Aid for</u> i) Equipment	-		-	
TOTAL		2,475,605		2,475,605

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
<u>CLOSING BALANCE</u> With Bank in Saving A/c	2,475,605		2,475,605	
TOTAL		2,475,605		2,475,605

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

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

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	547,014		115,918	
Equipment	617,221		(257,989)	
<u>Grant- In- Aid for</u>				
i) Equipment			1,000,000	
ii) Manpower	224,000		249,000	
iii)Contingencies	600,000		500,000	
iv) Travel	24,000		50,000	
v) Overheads			100,000	
TOTAL		2,012,235		1,756,929

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	484,123		124,790	
ii) Manpower	139,142		99,471	
iii)Contingencies	849,195		268,433	
iv) Travel	14,957		-	
v) Overheads	-		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	391,720		547,014	
Equipment	133,098		617,221	
TOTAL		2,012,235		1,756,929

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(124,539)		(285,795)	
Equipment	198,385		607,926	
<u>Grant- In- Aid for</u>				
i) Equipment			-	
ii) Manpower	600,000		600,000	
iii)Contingencies	200,000		200,000	
iv) Travel	5,000		50,000	
v) Other Cost	149,000		140,000	
TOTAL		1,027,846		1,312,131

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment			409,541	
ii) Manpower	253,560		472,954	
iii)Contingencies	217,184		180,357	
iv) Travel			11,147	
v) Other Cost	52,950		164,286	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	305,767		(124,539)	
Equipment	198,385		198,385	
TOTAL		1,027,846		1,312,131

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012

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)

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Characterization of CG-Methylation Deficient gsr Mutants of Catharanthus Roseus: Demonstration of the Epigenetic Control of Development and Adaptation related functions in plants****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	167,219		126,261	
Equipment			800,000	
<u>Grant- In- Aid for</u>				
i) Equipment			(140,518)	
ii) Manpower			-	
iii) Consumable			300,000	
iv) Travel				
v)Contingencies				
TOTAL		167,219		1,085,743

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		659,482	
ii) Manpower	(8,511)		106,684	
iii) Consumable	153,480		147,570	
iv) Travel	23,616		4,788	
v)Contingencies	(1,366)		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring			167,219	
Equipment	-		-	
TOTAL		167,219		1,085,743

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Construction of chickpea BAC library as genomic resource, cloning and characterization of R-gene/s for Fusarium wilt****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	4,823,622		540,599	
Equipment	75,319		1,709,000	
<u>Grant- In- Aid for</u>				
i) Equipment	(75,319)			
ii) Manpower	398,466		877,000	
iii) Consumable	(295,181)		4,500,000	
iv) Travel	(27,966)		22,000	
v)Contingencies			50,000	
TOTAL		4,898,941		7,698,599

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment			1,633,681	
ii) Manpower	326,993		541,284	
iii) Consumable	1,816,002		565,984	
iv) Travel	-		55,114	
v)Contingencies	11,940		3,595	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	2,744,006		4,823,622	
Equipment	-		75,319	
TOTAL		4,898,941		7,698,599

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Establishing transcriptome map and the unigene database of Chickpea (*Cicer arietinum*) as a resource for functional and application genomics study****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	5,595,397		3,207,790	
Equipment	656,576		(43,424)	
<u>Grant- In- Aid for</u>				
i) Equipment	-		700,000	
ii) Manpower	-		627,000	
iii) Consumable	-		5,378,000	
iv) Travel	-		37,000	
v)Contingencies	-		95,000	
TOTAL		6,251,973		10,001,366

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	717,600		666,089	
iii) Consumable	4,118,012		3,059,785	
iv) Travel	49,307			
v)Contingencies	63,460		23,519	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	647,018		5,595,397	
Equipment	656,576		656,576	
TOTAL		6,251,973		10,001,366

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	18,369		91,489	
Equipment	(20,980)		(20,980)	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	-		-	
iv) Travel	-		-	
v)Contingencies	-		-	
TOTAL		(2,611)		70,509

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	-		72,800	
iii) Consumable				
iv) Travel				
v)Contingencies	950		320	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	17,419		18,369	
Equipment	(20,980)		(20,980)	
TOTAL		(2,611)		70,509

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECT

R/P entitled Biotechnological approach towards forage crop improvement (Development of SSR markers in Berseem (*Trifolium alexandrinum*) and exploitation of marker resources of *M.truncatula* for germplasm characterization of berseem and for development of high density linkage map of red clover (*Trifolium pratense*)

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	238,448		138,882	
Equipment	70		70	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower			332,000	
iii) Consumable			483,000	
iv) Travel			2,000	
v)Contingencies			50,000	
TOTAL		238,518		1,005,952

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	70		-	
ii) Manpower	243,130		193,957	
iii) Consumable	2,853		496,411	
iv) Travel	5,031		14,493	
v)Contingencies	(12,566)		62,573	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		238,448	
Equipment	-		70	
TOTAL		238,518		1,005,952

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

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

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	45,059		482,318	
Equipment	(191,459)		(191,459)	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower				
iii) Consumable				
iv) Travel				
v)Contingencies				
TOTAL		(146,400)		290,859

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	-		154,742	
iii) Consumable	-		267,641	
iv) Travel	-		14,556	
v)Contingencies	-		320	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	45,059		45,059	
Equipment	(191,459)		(191,459)	
TOTAL		(146,400)		290,859

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Construction of the transcript map and development of functional markers for chickpea****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	69,841		233,353	
Equipment	(38,773)		2,160,711	
<u>Grant- In- Aid for</u>				
i) Equipment			(378,000)	
ii) Manpower			80,000	
iii) Consumable			557,000	
iv) Travel			-	
v)Contingencies			17,000	
TOTAL		31,068		2,670,064

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	(38,773)		1,821,484	
ii) Manpower	14,039		184,228	
iii) Consumable	34,760		601,900	
iv) Travel	20,985		13,974	
v)Contingencies	57		17,410	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		69,841	
Equipment	-		(38,773)	
TOTAL		31,068		2,670,064

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECT

R/P entitled Molecular characterization and analysis of differentially expressed genes from contrasting *Brassica juncea* gene-pools: and insight into molecular-genetic mechanism of glucosinolates biosynthesis

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,066		(38,337)	
Equipment	(622)		(622)	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower			250,000	
iii) Consumable			265,000	
iv) Travel				
v)Contingencies			15,000	
TOTAL		444		491,041

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	(622)			
ii) Manpower	(19,987)		166,400	
iii) Consumable	(1,551)		305,008	
iv) Travel	20,000			
v)Contingencies	2,604		19,189	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		1,066	
Equipment			(622)	
TOTAL		444		491,041

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT**

R/P entitled Molecular analysis, Biochemical study and physiological significance of protein L-isoaspartate 1 (D-aspartate 1) O-methyltransferase (PIMT) from stress tolerant plants and its exploitation to enhance seed vigor, viability and seed longevity in plants

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	128,247		(29,793)	
Equipment	(4,057)		(4,057)	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower			250,000	
iii) Consumable			340,000	
iv) Travel				
v)Contingencies			20,000	
TOTAL		124,190		576,150

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	(4,057)			
ii) Manpower	99,007		126,812	
iii) Consumable	6,719		314,756	
iv) Travel	20,666			
v)Contingencies	1,855		10,392	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		128,247	
Equipment	-		(4,057)	
TOTAL		124,190		576,150

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Setting up of Phytotron facilities as a part of the project(Centre for knowledge management and translational research for crop improvement (CKMTRC))****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u> With Bank in Saving A/c i)Setting up of Phytotron facilities	3,445,267		3,445,267	
<u>Grant- In- Aid for</u> i)Setting up of Phytotron facilities	20,917,000		-	
TOTAL		24,362,267		3,445,267

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Setting up of Phytotron facilities	19,500,000		-	
<u>CLOSING BALANCE</u> With Bank in Saving A/c i)Setting up of Phytotron facilities	4,862,267		3,445,267	
TOTAL		24,362,267		3,445,267

* Funds received from DBT during the year under the Core Grants Head.

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Role of CAPKS, a SOS-2 like protein kinase from Chickpea in root development and abiotic stress tolerance****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	86,375		(52,948)	
Equipment	18,511		18,511	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	-		251,000	
iii) Consumable	-		445,000	
iv) Travel	-		2,000	
v)Contingencies	-		15,000	
TOTAL		104,886		678,563

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	63,226		233,600	
iii) Consumable	23,658		323,921	
iv) Travel	-		(3,560)	
v)Contingencies	15,332		19,716	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(15,841)		86,375	
Equipment	18,511		18,511	
TOTAL		104,886		678,563

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	495,651		476,125	
Equipment	609,826		5,097,813	
<u>Grant- In- Aid for</u>				
i) Equipment	-			
ii) Manpower	825,000		936,800	
iii) Consumable	457,000		326,000	
iv) Travel	-		24,000	
v)Contingencies	18,000		27,000	
TOTAL		2,405,477		6,887,738

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	72,000		4,487,987	
ii) Manpower	627,332		819,858	
iii) Consumable	41,375		457,300	
iv) Travel	-			
v)Contingencies	30,051		17,116	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,096,893		495,651	
Equipment	537,826		609,826	
TOTAL		2,405,477		6,887,738

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT**

R/P entitled Transcriptome based identification of overlapping responses of salt and drought tolerance in foxtail millet and comparative genome mapping and tagging of stress responsive genes in foxtail millet and barley

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	248,270		12,181	
Equipment	(295,273)		(295,273)	
<u>Grant- In- Aid for</u>				
i) Equipment	295,712			
ii) Manpower	336,000		467,000	
iii) Consumable	456,000		585,000	
iv) Travel	(60,712)		133,000	
v)Contingencies	24,000		43,000	
TOTAL		1,003,997		944,908

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	496,432		295,880	
iii) Consumable	461,727		591,207	
iv) Travel	-		68,400	
v)Contingencies	36,558		36,424	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	8,841		248,270	
Equipment	439		(295,273)	
TOTAL		1,003,997		944,908

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECTR/P entitled Transcript profiling of salt and drought stress in foxtail millet (*Sataria italica L*) and cloning characterization of DREB2 homologue

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	9,729		(15,241)	
Equipment	116		116	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	398,000		187,000	
iii) Consumable	973,000		500,000	
iv) Travel	38,000		18,000	
v)Contingencies	100,000		50,000	
TOTAL		1,518,845		739,875

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	197,265		171,600	
iii) Consumable	496,905		473,999	
iv) Travel	5,868		34,086	
v)Contingencies	59,777		50,345	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	758,914		9,729	
Equipment	116		116	
TOTAL		1,518,845		739,875

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DBT PROJECT

R/P entitled To Study the interaction between auxin and sugar signal transduction pathway in model plant system
Arabidopsis thaliana

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	276,200		637,224	
Equipment	-		10,579	
<u>Grant- In- Aid for</u>				
i) Equipment			(10,579)	
ii) Manpower			-	
iii) Consumable			350,000	
iv) Travel			-	
v)Contingencies			32,000	
TOTAL		276,200		1,019,224

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	156,670		62,903	
iii) Consumable	77,613		622,387	
iv) Travel	25,000		-	
v)Contingencies	16,917		57,734	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		276,200	
Equipment	-		-	
TOTAL		276,200		1,019,224

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Molecular genetics analysis and system biology of Auxin signaling networks in plants****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	555,347		243,935	
Equipment	40		40	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	218,000		170,000	
iii)Contingencies	600,000		599,000	
iv) Travel			-	
v) Overheads			-	
TOTAL		1,373,387		1,012,975

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	187,200		137,884	
iii)Contingencies	603,920		319,704	
iii) Travel			-	
iv) Overheads			-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	582,227		555,347	
Equipment	40		40	
TOTAL		1,373,387		1,012,935

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Functional analysis of MYC2 transcription factor family in rice****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	66,029		5,238	
Equipment	(313)		58,687	
<u>Grant- In- Aid for</u>				
i) Equipment	-		(59,000)	
ii) Manpower	-		218,000	
iii) Consumable	-		897,000	
iv) Travel	-		23,000	
v)Contingencies	-		20,000	
TOTAL		65,716		1,162,925

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	65,716		199,167	
iii) Consumable	-		878,019	
iv) Travel	-		-	
v)Contingencies	-		20,023	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	313		66,029	
Equipment	(313)		(313)	
TOTAL		65,716		1,162,925

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	383,528		111,883	
Equipment	385		355,736	
<u>Grant- In- Aid for</u>				
i) Equipment			(181,000)	
ii) Manpower	400,000		530,000	
iii) Consumable	350,000		500,000	
iv) Travel	-		25,000	
v)Contingencies	-		25,000	
TOTAL		1,133,913		1,366,619

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		174,351	
ii) Manpower	451,662		530,400	
iii) Consumable	464,095		214,532	
iv) Travel	16,852		37,337	
v)Contingencies	15,834		26,086	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	185,085		383,528	
Equipment	385		385	
TOTAL		1,133,913		1,366,619

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Analysis of dehydration-responsive subcellular phosphoproteome in corp plants.****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	190,456		138,418	
Equipment	151,698		31,825	
<u>Grant- In- Aid for</u>				
i) Equipment			181,000	
ii) Manpower	200,000		327,000	
iii) Consumable	300,000		600,000	
iv) Travel	-		17,000	
v)Contingencies	25,000		4,000	
TOTAL		867,154		1,299,243

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	69,678		61,127	
ii) Manpower	344,374		289,506	
iii) Consumable	157,297		578,751	
iv) Travel	20,830		-	
v)Contingencies	34,125		27,705	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	158,830		190,456	
Equipment	82,020		151,698	
TOTAL		867,154		1,299,243

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,430,373		1,330,577	
Equipment	240,382		439,015	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	430,000		250,000	
iii) Consumable	625,000		799,000	
iv) Travel	-		-	
v)Contingencies	160,000		185,000	
TOTAL		2,885,755		3,003,592

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	92,138		198,633	
ii) Manpower	404,883		376,200	
iii) Consumable	1,101,658		646,916	
iv) Travel	-			
v)Contingencies	226,982		111,088	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	911,850		240,382	
Equipment	148,244		1,430,373	
TOTAL		2,885,755		3,003,592

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Analysis of diseases-responsive subcellular phosphoproteome in crop plants.****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	149,975		1,278,731	
Equipment	1,461,471		1,918,960	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	441,000		-	
iii) Consumable	785,000		-	
iv) Travel	15,000		-	
v)Contingencies	45,000		-	
TOTAL		2,897,446		3,197,691

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	1,502,325		457,489	
ii) Manpower	377,823		411,913	
iii) Consumable	252,387		657,795	
iv) Travel	9,595		14,635	
v)Contingencies	9,090		44,413	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	787,080		149,975	
Equipment	(40,854)		1,461,471	
TOTAL		2,897,446		3,197,691

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Indo-Canadian Pulse Genomics Initiative (InCan-PGI).****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,102,405		3,337,791	
Equipment	2,600,000		2,600,000	
<u>Grant- In- Aid for</u>				
i) Equipment	-		-	
ii) Manpower	500,000		-	
iii) Consumable	2,426,000		-	
iv) Travel	12,000		-	
v)Contingencies	30,000		-	
TOTAL		6,670,405		5,937,791

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	405,600		238,596	
iii) Consumable	386,458		1,992,501	
iv) Travel	18,148			
v)Contingencies	21,000		4,289	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	3,239,199		1,102,405	
Equipment	2,600,000		2,600,000	
TOTAL		6,670,405		5,937,791

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	279,355		599,209	
Equipment			-	
<u>Grant- In- Aid for</u>				
i) Equipment				
ii) Manpower	1,012,500		830,000	
iii) Consumable			-	
iv) Travel				
v)Contingencies	498,000		244,000	
	-			
TOTAL		1,789,855		1,673,209

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	967,500		900,000	
iii) Consumable			-	
iv) Travel				
v)Contingencies	227,781		493,854	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	594,574		279,355	
Equipment				
TOTAL		1,789,855		1,673,209

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Next Generation Challenge Programme on Chickpea Genomics.****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	14,874,394		17,405,589	
Equipment	3,210,424		19,986,888	
<u>Grant- In- Aid for</u>				
i) Equipment	4,200,000			
ii) Manpower	4,000,000		1,518,000	
iii) Consumable	11,400,000		15,860,000	
iv) Travel	116,000			
v)Contingencies	367,000		100,000	
TOTAL		38,167,818		54,870,477

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	2,943,288		16,776,464	
ii) Manpower	3,803,457		2,864,104	
iii) Consumable	15,728,863		16,802,811	
iv) Travel	46,085		72,983	
v)Contingencies	250,566		269,297	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	10,928,423		14,874,394	
Equipment	4,467,136		3,210,424	
TOTAL		38,167,818		54,870,477

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	206,026		-	
Equipment	614,990		-	
<u>Grant- In- Aid for</u>				
i) Equipment			1,000,000	
ii) Manpower	250,000		187,000	
iii) Consumable	600,000		-	
iv) Travel			-	
v) Contingencies			600,000	
vi) Overheads	(240,000)		240,000	
TOTAL		1,431,016		2,027,000

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	495,080		358,690	
ii) Manpower	187,200		117,794	
iii) Consumable	815,650		-	
iv) Travel			-	
v) Contingencies			489,500	
vi) Overheads	(240,000)		240,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	53,176		179,706	
Equipment	119,910		641,310	
TOTAL		1,431,016		2,027,000

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	719,269		-	
Equipment	450,000		-	
<u>Grant- In- Aid for</u>				
i) Equipment			450,000	
ii) Manpower	165,000		400,000	
iii) Consumable	600,000		600,000	
iv) Travel	10,000		30,000	
v) Contingencies	20,000		50,000	
TOTAL		1,964,269		1,530,000

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment			-	
ii) Manpower	174,235		45,619	
iii) Consumable	291,236		299,312	
iv) Travel	10,134		-	
v) Contingencies	1,160		15,800	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,037,504		719,269	
Equipment	450,000		450,000	
TOTAL		1,964,269		1,530,000

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	466,554		-	
Equipment	-		-	
<u>Grant- In- Aid for</u>				
i) Equipment	482,000		-	
ii) Manpower	149,000		280,000	
iii) Consumable	497,000		400,000	
iv) Travel	-		25,000	
v) Contingencies	20,000		50,000	
TOTAL		1,614,554		755,000

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	187,200		54,852	
iii) Consumable	540,911		233,594	
iv) Travel	3,159		-	
v) Contingencies	53,355		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	347,929		466,554	
Equipment	482,000		-	
TOTAL		1,614,554		755,000

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012

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	668,990			
ii) Manpower	374,400			
iii) Consumable	1,000,000			
iv) Travel	25,000			
v) Contingencies	50,000			
TOTAL		2,118,390		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	45,366			
iii) Consumable	393,899			
iv) Travel	-			
v) Contingencies	6,300			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,003,835			
Equipment	668,990			
TOTAL		2,118,390		-

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012

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	962,000			
ii) Manpower	454,800			
iii) Consumable	600,000			
iv) Travel	30,000			
v) Contingencies	50,000			
TOTAL		2,096,800		

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	105,000			
ii) Manpower	86,806			
iii) Consumable	336,881			
iv) Travel	-			
v) Contingencies	13,212			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	697,901			
Equipment	857,000			
TOTAL		2,096,800		-

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012

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	}	300,000		
ii) Manpower				
iii) Consumable				
iv) Travel				
v) Contingencies				
TOTAL		300,000		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	}	132,525		
ii) Manpower				
iii) Consumable				
iv) Travel				
v) Contingencies				
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring				
Equipment				
TOTAL		300,000		-

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Mapping of Mungbean yellow Mosaic Virus resistance loci in soybean****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

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	733,000			
ii) Manpower	470,400			
iii) Consumable	575,000			
iv) Travel	50,000			
v) Contingencies	50,000			
TOTAL		1,878,400		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	299,576			
ii) Manpower	125,187			
iii) Consumable	440,533			
iv) Travel	41,161			
v) Contingencies	22,104			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	516,415			
Equipment	433,424			
TOTAL		1,878,400		-

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Regulation of root development by auxin and cytokinin mediated signaling****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

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	46,900,000			
ii) Manpower	470,400			
iii) Consumable	700,000			
iv) Travel	50,000			
v) Contingencies	50,000			
TOTAL		48,170,400		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	65,899			
iii) Consumable	85,398			
iv) Travel	-			
v) Contingencies	-			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,119,103			
Equipment	46,900,000			
TOTAL		48,170,400		-

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT PROJECT****R/P entitled Functional Genomics of Nodulation in Chickpea Roots****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

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	655,200			
iii) Consumable	700,000			
iv) Travel	50,000			
v) Contingencies	50,000			
TOTAL		1,455,200		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	-			
iii) Consumable	95,348			
iv) Travel	-			
v) Contingencies	-			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,359,852			
Equipment	-			
TOTAL		1,455,200		-

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012**

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	470,400			
iii) Consumable	700,000			
iv) Travel	50,000			
v) Contingencies	50,000			
TOTAL		1,270,400		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	-			
iii) Consumable	29,497			
iv) Travel	3,202			
v) Contingencies	21,746			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	1,215,955			
Equipment	-			
TOTAL		1,270,400		-

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012

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	96,000			
iii) Consumable	700,000			
iv) Travel	50,000			
v) Contingencies	50,000			
TOTAL		896,000		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	-			
iii) Consumable	700,000			
iv) Travel	-			
v) Contingencies	-			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	196,000			
Equipment	-			
TOTAL		896,000		-

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012

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	470,400			
iii) Consumable	700,000			
iv) Travel	50,000			
v) Contingencies	50,000			
TOTAL		1,270,400		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	20,903			
iii) Consumable	669,029			
iv) Travel	-			
v) Contingencies	1,200			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	579,268			
Equipment	-			
TOTAL		1,270,400		-

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012

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	376,800			
iii) Consumable	700,000			
iv) Travel	50,000			
v) Contingencies	50,000			
TOTAL		1,176,800		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	65,626			
iii) Consumable	578,040			
iv) Travel	-			
v) Contingencies	29,872			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	503,262			
Equipment	-			
TOTAL		1,176,800		-

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
OPENING BALANCE				
With Bank in Saving A/c				
Recurring				
Equipment				
Grant- In- Aid for				
i) Equipment	1,300,000			
ii) Manpower	96,000			
iii) Consumable	500,000			
iv) Travel	20,000			
v) Contingencies	50,000			
TOTAL		1,966,000		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	-			
iii) Consumable	425,510			
iv) Travel	-			
v) Contingencies	-			
CLOSING BALANCE				
With Bank in Saving A/c				
Recurring	240,490			
Equipment	1,300,000			
TOTAL		1,966,000		-

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012**

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	520,000			
ii) Manpower	607,200			
iii) Consumable	350,000			
iv) Travel	25,000			
v) Contingencies	25,000			
TOTAL		1,527,200		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-			
ii) Manpower	116,290			
iii) Consumable	-			
iv) Travel	-			
v) Contingencies	-			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	890,910			
Equipment	520,000			
TOTAL		1,527,200		-

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012

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	1,082,900			
ii) Manpower	-			
iii) Consumable	-			
iv) Travel	-			
v) Contingencies	-			
TOTAL		1,082,900		

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	1,082,900			
TOTAL		1,082,900		-

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012**

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	1,212,960			
ii) Preparatory Allowance	100,000			
iii) Travel Cost	200,000			
TOTAL		1,512,960		

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Fellowship	853,090			
ii) Preparatory Allowance	90,877			
iii) Travel Cost	200,000			
<u>CLOSING BALANCE</u> With Bank in Saving A/c	368,993			
TOTAL		1,512,960		-

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DST PROJECT

R/P under SERC Fast Track Scheme entitled Construction of genotypes with new floricultural phenotypes in periwinkle Catharanthus roseus

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	149,126		177,673	
Equipment	-		-	
<u>Grant - In - Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	-		-	
iv) Travel	-		-	
v)Contingencies	-		-	
vi)Overheads	-		-	
TOTAL		149,126		177,673

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	119,161		14,594	
iii) Consumable	(354)		13,953	
iv) Travel	29,700		-	
v)Contingencies	619		-	
vi)Overheads	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	-		149,126	
Equipment	-		-	
TOTAL		149,126		177,673

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DST PROJECT

R/P under SERC FAST Track Scheme entitled Molecular characterization and differential expression of 1-myo-inositol 1-phosphate synthase (MIPS) gene family in drought tolerant legumes

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	12,021		81,811	
Equipment	56,418		-	
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower				
iii) Consumable				
iv) Travel				
v)Contingencies				
vi)Overheads				
TOTAL		68,439		81,811

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	-		13,372	
iv) Travel	-		-	
v)Contingencies	-		-	
vi)Overheads	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	12,021		12,021	
Equipment	56,418		56,418	
TOTAL		68,439		81,811

(ASHOK CHAUHAN)
FINANCE OFFICER(SANDEEP DATTA)
MANAGER(Prof.AKHILESH Kr.TYAGI)
DIRECTOR(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	558,301		328,237	
Equipment	-		-	
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower	290,000		300,000	
iii) Consumable				
iv) Travel				
v)Contingencies	500,000		1,000,000	
vi)Overheads	100,000		100,000	
TOTAL		1,448,301		1,728,237

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment			-	
ii) Manpower	300,000		280,000	
iii) Consumable				
iv) Travel				
v)Contingencies	863,648		789,936	
vi)Overheads	100,000		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	184,653		558,301	
Equipment			-	
TOTAL		1,448,301		1,728,237

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

DST PROJECT

R/P under SERC Fast Track Scheme entitled To study the interaction between glucose and brassinosteroid signal transduction pathway in a model plant system Arabidopsis thaliana

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	50,459		420,000	
Equipment	-		-	
<u>Grant - In - Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	400,000		-	
iv) Travel	6,000		-	
v)Contingencies	10,000		-	
vi)Overheads	84,000		-	
TOTAL		550,459		420,000

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Consumable	209,171		364,437	
iv) Travel	-		-	
v)Contingencies	4,680		5,104	
vi)Overheads	84,000		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	252,608		50,459	
Equipment	-		-	
TOTAL		550,459		420,000

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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

DST PROJECT

**R/P under SERC Fast Track Scheme entitled Development, characterization and use of microsatellite markers in
foxtail millet(*setaria italica* (L.) P. Beauv)**

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	2,265		198,436	
Equipment	2,000		119,287	
<u>Grant - In - Aid for</u>				
i) Equipment	-		-	
ii) Manpower	470,000		-	
iii) Consumable	188,000		-	
iv) Travel	-		-	
v)Contingencies	-		-	
vi)Overheads	92,000		-	
TOTAL		754,265		317,723

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	-		117,287	
ii) Manpower	470,000		160,000	
iii) Consumable	183,454		27,894	
iv) Travel	-		8,277	
v)Contingencies	320			
vi)Overheads	92,000			
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	6,491		2,265	
Equipment	2,000		2,000	
TOTAL		754,265		317,723

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH
(Formerly National Centre for Plant Genome Research)
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 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	556,250			
Equipment	200,000			
<u>Grant - In - Aid for</u>				
i) Equipment	-		200,000	
ii) Manpower	-		420,000	
iii) Consumable	-		150,000	
iv) Travel	-		20,000	
v)Contingencies	-		20,000	
vi)Overheads	-		100,000	
TOTAL		756,250		910,000

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	199,500		-	
ii) Manpower	366,250		53,750	
iii) Consumable	159,045			
iv) Travel	-			
v)Contingencies	13,114			
vi)Overheads	-		100,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	17,841		556,250	
Equipment	500		200,000	
TOTAL		756,250		910,000

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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

DST PROJECT

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

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	264,705		-	
Equipment	-		-	
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower	-		240,000	
iii) Consumable	-		150,000	
iv) Travel	-		10,000	
v)Contingencies	-		10,000	
vi)Overheads	-		82,000	
TOTAL		264,705		492,000

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	160,000		65,806	
iii) Consumable	53,826		79,489	
iv) Travel				
v)Contingencies	9,270			
vi)Overheads	-		82,000	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	41,609		264,705	
Equipment	-		-	
TOTAL		264,705		492,000

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DST PROJECT****R/P entitled "Role of homeobox genes in abiotic stress responses in rice"****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

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	600,000			
ii) Manpower	655,000		-	
iii) Consumable	600,000		-	
iv) Travel	15,000		-	
v)Contingencies	30,000		-	
vi)Overheads	100,000		-	
TOTAL		2,000,000		-

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	1,300,000		-	
Equipment	600,000		-	
TOTAL		2,000,000		-

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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

ICMR PROJECT

R/P entitled Genetic manipulation of biosynthesis of neurotoxin in transgenic lathyrus by expressing oxalate decarboxylase from Collybia velutipes

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	774,276		2,098,904	
Equipment	105,958		105,958	
<u>Grant - In - Aid for</u>				
i) Equipment	-		-	
ii) Manpower	-		-	
iii) Contingencies	-		-	
iv) Overheads	-		-	
TOTAL		880,234		2,204,862

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	52,000		169,000	
iii) Contingencies	-		1,155,628	
iv) Overheads				
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	722,276		774,276	
Equipment	105,958		105,958	
TOTAL		880,234		2,204,862

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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

ICMR PROJECT

R/P entitled Genetic engineering of vegetable and legume crops with oxalate decarboxylase gene for removal of oxalic acid on antinutritional stress factor for better human nutrition

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(119,637)		510,940	
Equipment	300,000		300,000	
<u>Grant - In - Aid for</u>				
i) Equipment	(4,238)		-	
ii) Manpower	530,400		53,016	
iii) Contingencies	393,981		-	
iv) Overheads	7,500		-	
v) Travel	29,412		-	
TOTAL		1,137,418		863,956

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment	295,762		-	
ii) Manpower	204,394		234,160	
iii) Contingencies	232,880		449,433	
iv) Overheads	14,706		-	
v) Travel	-		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	389,676		(119,637)	
Equipment	-		300,000	
TOTAL		1,137,418		863,956

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI

ICMR PROJECT

R/P entitled N-acetylglucosamine-Kinase HXK-1 regulatory role in morphogenesis and pathogenesis in human fungal pathogen *Candida albicans*

RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c				
Recurring	(2,712)		34,963	
Equipment	-		-	
<u>Grant - In - Aid for</u>				
i) Equipment				
ii) Manpower	717,600			
iii) Contingencies	200,000		300,000	
iv) Overheads				
TOTAL		914,888		334,963

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Equipment				
ii) Manpower	712,484		176,800	
iii) Contingencies	176,015		160,875	
iv) Overheads				
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c				
Recurring	26,389		(2,712)	
Equipment	-		-	
TOTAL		914,888		334,963

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**IFCPAR PROJECT****R/P entitled Ripening of fleshy fruits species and their adaptation to stress****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	878,194		248,524	
<u>Grant - In - Aid for</u>				
i) Salary	-		302,558	
ii) Contingencies	-		597,044	
TOTAL		878,194		1,148,126

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
i) Salary	212,194		269,932	
ii) Contingencies	654,320		-	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	11,680		878,194	
TOTAL		878,194		1,148,126

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	1,866,751		1,464,712	
Amt.received from CSIR for Research Fellowships & Associatships	6,446,719		9,694,321	
TOTAL		8,313,470		11,159,033

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	7,631,003		9,292,282	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	682,467		1,866,751	
TOTAL		8,313,470		11,159,033

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	23,984		5,508	
Amt.received from UGC for Research Fellowships & Associatships	4,286,160		1,065,558	
TOTAL		4,310,144		1,071,066

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	4,306,624		1,047,082	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	3,520		23,984	
TOTAL		4,310,144		1,071,066

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	25,201		806,745	
Amt.received from DBT for Research Fellowships & Associatships	5,662,209		668,222	
TOTAL		5,687,410		1,474,967

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	4,570,459		1,449,766	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	1,116,951		25,201	
TOTAL		5,687,410		1,474,967

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**DBT POSTDOCTORAL FELLOWSHIP GRANT****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	463,630		449,185	
Amt.received from DBT for Research Fellowships & Associatships	895,600		1,210,800	
TOTAL		1,359,230		1,659,985

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	1,020,588		1,196,355	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	338,642		463,630	
TOTAL		1,359,230		1,659,985

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**FELLOWSHIP GRANT ICMR****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	65,104		7,250	
Amt.received from ICMR for Research Fellowships & Associatships	1,102,067		691,471	
TOTAL		1,167,171		698,721

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	888,685		633,617	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	278,486		65,104	
TOTAL		1,167,171		698,721

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(Formerly National Centre for Plant Genome Research)

NEW DELHI**FELLOWSHIP GRANT TWAS****RECEIPT AND PAYMENT ACCOUNT FOR THE PERIOD 1st APRIL 2011 TO 31st March 2012**

RECEIPTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
With Bank in Saving A/c	16,934		66,513	
Amt.received from ICGEB for Research Fellowships & Associatships	258,600		244,400	
TOTAL		275,534		310,913

PAYMENTS			AMOUNT-IN-RUPEES	
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Amount paid for Research Fellowships & Associatships	275,532		293,979	
<u>CLOSING BALANCE</u>				
With Bank in Saving A/c	2		16,934	
TOTAL		275,534		310,913

(ASHOK CHAUHAN)
FINANCE OFFICER**(SANDEEP DATTA)**
MANAGER**(Prof.AKHILESH Kr.TYAGI)**
DIRECTOR**(SANJIV RAI MEHRA)**
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

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 2011 TO 31st MARCH 2012

RECEIPTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
<u>OPENING BALANCE</u>				
In Savings Account	1,538,119		2,076,611	
In Fixed Deposit	25,100,000		17,700,000	
<u>SUBSCRIPTIONS</u>				
(i) Amount of Regular Subscription	4,412,607		4,781,681	
(ii) Refund of advances received from Subscribers	1,127,100		849,600	
Amount received from NIPGR				
Core grant to meet Institute's liability towards				
(i) CPF Contribution & interest	1,764,500		1,812,380	
(ii) NPS Contribution	1,298,471			
<u>INTEREST EARNED</u>				
Savings Account	838,066		1,265,452	
TOTAL		36,078,863		28,485,724

PAYMENTS		AMOUNT-IN-RUPEES		
PARTICULARS	CURRENT YEAR		PREVIOUS YEAR	
Advances paid to Subscribers	1,051,000		1,251,000	
Final payment of Subscribers	982,678		596,605	
Payment to NPS Trust/Subscribers	15,801,983			
<u>CLOSING BALANCE</u>				
In Savings Account	43,202		1,538,119	
In Fixed Deposit	18,200,000		25,100,000	
TOTAL		36,078,863		28,485,724

(ASHOK CHAUHAN)
FINANCE OFFICER

(SANDEEP DATTA)
MANAGER

(Prof.AKHILESH Kr.TYAGI)
DIRECTOR

(SANJIV RAI MEHRA)
PARTNER
For MEHRA & SISTANI
CHARTERED ACCOUNTANTS

**COMMENTS ON AUDITOR'S NOTES ON ACCOUNTS FOR THE YEAR ENDED
MARCH 31, 2012**

1. The annual accounts have been prepared in the revised format of accrual system of accounting, as prescribed by the Govt. of India. However, the accounts pertaining to extra mural funds and Contributory Provident Fund have been prepared on cash basis due to requirement of the funding agencies and prevailing practice.
2. (a) This is an informative item.
(b) The item relates to disclosures with respect to treatment of depreciation on fixed assets.
3. (a) The items included in this para are disclosures, made towards accounting policies adopted in preparation of annual accounts.
(b) The item relates to disclosures with respect to treatment of depreciation on fixed assets created out of non-recurring grants of the projects.
4. The stipulation is as per provision of General Financial Rules prescribed by the Government, i.e. though the ownership remains with the Government, all assets are shown, as belonging to the Institute.
5. The expenses and overheads directly related to the construction of permanent building of NIPGR are added to the capital cost of the building.
6. This is an informative item.
7. The items included in this para are disclosures, made towards accounting treatment of consumables and stores items adopted in preparation of annual accounts.
8. The expenditure on staff payments including terminal benefits of employees of the Institute are being met from the grants allocated by the Department of Biotechnology, as and when the payment is released. The liability on account of payment of gratuity shall be met from the respective head of account, whenever the liability occurs and in accordance with the prescribed Rules.

(Ashok Chauhan)
Finance Officer

(Sandeep Datta)
Manager

(Prof. Akhilesh Kumar Tyagi)
Director

