

Curriculum Vitae

Dr. MAGANTI SHESHU MADHAV

Director,

**ICAR-Central Tobacco Research Institute, Rajahmundry, AP,
India. 533 105**

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ORCID: 0000-0001-6100-5751



Research Experience: 21 years experience in Plant Molecular biology, Biotechnology, and use of Molecular genetics tools in breeding (Rice, Tobacco and Citrus).

Details of Research Experience

Established research networks and partnerships were built in rice for research for development

Received good number of research projects from different funding agencies and mobilized funds

Lead multiple institutional and multi-disciplinary scientific teams

Developed technologies and products for crop improvement

Educational qualifications

Postdoctoral research

Dr. G.L. Wang's Lab at **The Ohio State University, Columbus, Ohio, USA**

Ph.D. (Molecular Biology and Biotechnology)

National research centre on plant Biotechnology (NRCPB), **Indian Agricultural Research Institute (IARI), New Delhi, India**

M. Sc (Agricultural Biotechnology):

Assam Agricultural University, Jorhat, Assam, India

B. Sc (Agriculture):

A.P, Agricultural University, Hyderabad, India

Details of Employment

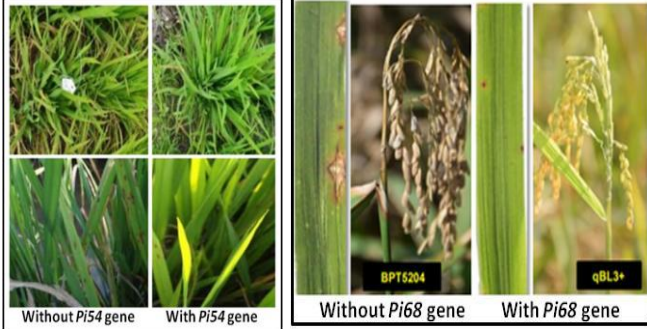

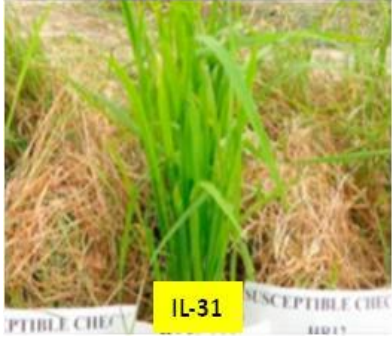
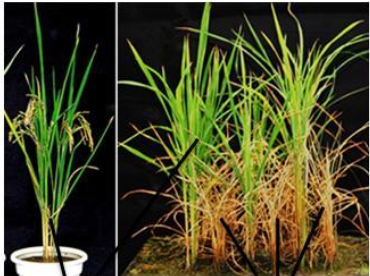
November 11, 2022 - Till date	Director , ICAR- Central Tobacco Research Institute, Rajahmundry, A.P., India
April 2014 – November10, 2022	Principal Scientist - Biotechnology, ICAR-IIRR, Hyderabad, Telangana, India.
Sep 2007- Mar 2014	Senior Scientist , Biotechnology, Directorate of Rice research (DRR), Hyderabad, Telangana, India
Feb 2005 -August 2006	Scientist (Sr. Scale), Central Tobacco Research Institute (ICAR-CTRI) Rajahmundry, A.P. India
August 2001 -Feb 2005	Scientist , (NRCPB) Indian Agricultural Research Institute, Delhi, India
April 1999- July 2001	Scientist , Central Tobacco Research Institute (ICAR-CTRI), Rajahmundry, A.P. India

External funded Research projects (completed and ongoing)

S. No.	Title of the Project	PI/ Co-PI	Funding source	Sanctioned Budget (Lakhs)	Year of Start and duration
1.	Promoter mining for identification of novel regulatory elements of candidate genes in rice for biotic stresses	PI	DBT	20.0	2007-2010
2.	Identification of molecular markers linked to quality parameters in rice, their validation and utilization in marker-assisted selection	CO-PI	DBT	39.23	2008-2012
3.	Validation & use of DNA markers in Pyramiding of Blast resistance genes in rice(DBT-FG-Blast-Phase-I)	CO-PI	DBT	45.0	2005-2009
4.	Identification and molecular mapping of a novel neck blast resistance gene (s) from local landraces and introgression lines of <i>Oryza</i>	PI	DBT	30.0	2012-2016
5.	Exploitation of RNAi technology for management of Yellow stem borer in rice	PI	DBT	65.0	2012-2016
6.	Enhancing scope of marker assisted selection using genomics technologies (En MAS)	PI	CSIR	261.145	2012-2017

7.	Identification and functional analysis of novel blast resistance genes in rice (DBT-FG-Blast-Phase-I)	CO-PI	DBT	58.11	2009-2014
8.	Development of Biotic Stress Resistant in Rice Through Marker Assisted Breeding	CO-PI	DBT	146.88	2009-2016
9.	Metabolic and Molecular profiling of aromatic rice germplasm of India for gaining insights about aroma	PI	DBT	58.317	2012-2016
10.	Molecular marker assisted introgression of two major blast resistance genes and a major QTL for grain yield under drought stress in rice	PI	DBT	35.0	2012-2016
11.	Strategic deployment of rice blast resistance genes based on pathogen population dynamics for true durable Resistance	PI	ICAR under LBSYS scheme	30.0	2013-2017
12.	Molecular mapping and introgression of stigma exertion in hybrid rice parental lines	Co- PI	DBT	45.0	2012-2015
13.	Marker Assisted Improvement of popular maintainer and restorer lines of rice tolerance to abiotic stresses	Co- PI	DBT	26.0	2013-2017
14.	Development of high yielding, non lodging and biotic stress resistant varieties of black scented rice of Manipur and Assam through biotechnological interventions	PI	DBT	30.0	2016-2019
15.	Characterization of rice mutants for stabilizing rice production.	PI	CSIR	150.0	2019-2022
16.	Genome engineering of host genes for Yellow Stem borer and Brown Plant Hopper resistance using CRISPR/Cas Technology	PI	DBT	45.0	2019-2022
17.	Harnessing haplotype diversity for yield, input use efficiency and biotic stresses for rice improvement	PI	ICAR-NASF	52.0	2021-2023

Research Leads

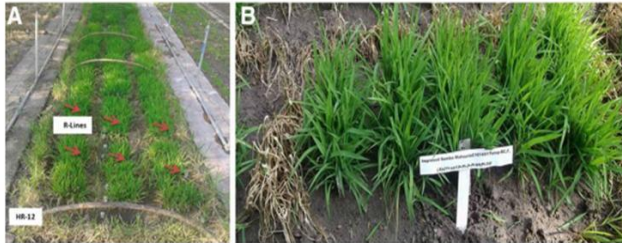
 <p>Without <i>Pi54</i> gene With <i>Pi54</i> gene</p> <p>Without <i>Pi68</i> gene With <i>Pi68</i> gene</p> <p>BPT5204 qBL3+</p>	<ul style="list-style-type: none"> Identified, cloned two major blast resistance genes (<i>Pi54</i> from vietnamese cultivar called “<i>Tetep</i>” and <i>Pi68</i> from wild <i>O. glumaepatula</i> through map based cloning strategy. <p><i>Pi54</i> is the first gene cloned through marker assisted cloning in India.</p> <p><i>Pi68</i> is the first gene offer resistance to both leaf and neck blast resistance</p>
 <p>RR Pathway</p> <p>DRR Dhan-51</p>	<ul style="list-style-type: none"> Developed the blast resistant variety DRR Dhan -51 (IET25484), through molecular breeding. This variety has <i>Pi2</i> (rice blast resistance gene). This variety has yield advantage over Swarna and it released through CVRC and recommended for states of Telangana, Uttar Pradesh, Chhattisgarh and Gujarat.
 <p>IL-31</p> <p>SUSCEPTIBLE CHECK</p>	<ul style="list-style-type: none"> Identified unique germplasm line for leaf and neck blast resistance. This line is introgression line developed using <i>Oryza glaberrima</i> (IL-31). This line is being used as a donor in resistance breeding. This unique genetic stock, registered at NBPGR as INGR 15002.
 <p>BPH resistant line BPH susceptible line</p>	<ul style="list-style-type: none"> Identified a unique germplasm line RP 5448-RIL-501 having resistance at vegetative and reproductive stages for Brown Plant Hopper (BPH) and White Brown Plant Hopper (WBPH).



BPT 5204

INGR 15001

- **Developed unique line for neck and leaf blast resistance using *Oryza glaberrima*.** This introgression line (IL-2) also being used as a donor in blast resistance programme. This unique genetic stock, registered at NBPGR as INGR 15001



ISM with *Pi54* gene

- **Developed the near isogenic line of Improved Samba Mahsuri (ISM) having *Pi54* (blast resistance gene) through MABB.** This line has bacterial leaf blight resistance genes and blast resistance gene with good quality and other characters similar as ISM. The NIL RP Bio Patho-2 it has registered with NBPGR as INGR18001



IET 26241

- **Developed early maturing (20-25 days earlier than BPT) and high yielding line (3.5 tonnes per acre) (IET 26241: IIRR 93R) through mutation from Samba Mahsuri (BPT-5204), which is presently in the Mini kit trails, became popular among Telangana, Andhra and Karnataka farmers.**

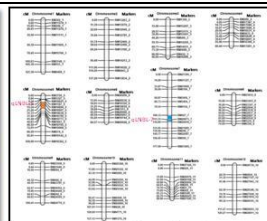


BPT 5204 YSB tolerant mutant

- **Identified resistant lines for Yellow stem borer (YSB) through mutation in Samba Mahsuri.** For YSB, there are no resistant sources available at present in the entire gene pool. These mutants will have greater significance in the rice improvement programme across the world.



NE landraces

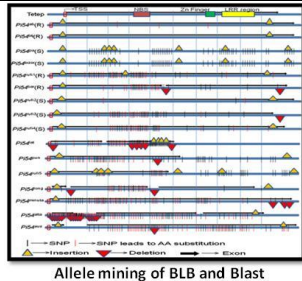


QTLs identification

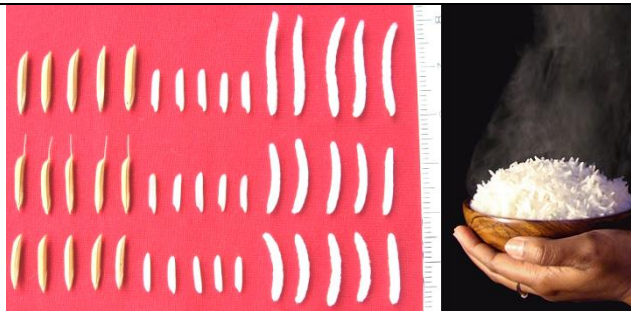
- **Collected landraces from North East India and identified resistant landraces for leaf and neck blast and identified major effect QTLs for durable blast resistance.**



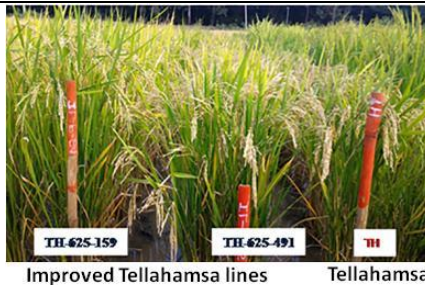
- **Identified Samba Mahsuri mutants having tolerance to Sheath blight, resistance to BLB and having strong culm.** Sheath blight tolerant mutants showed high level of tolerance with multiple isolates. These are unique germplasm lines throughout the world (Registration with NBPGR is in process).



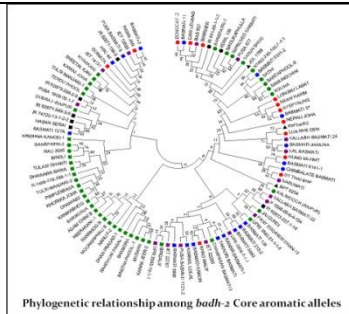
- Identified novel alleles for major blast and BLB genes using unique germplasm collected from NE India.



- Developed functional markers for blast, aroma, kernel elongation after cooking (KLAC) for efficient selection of progeny in the seedling stage of Basmati cultivars. These markers have high impact in identification of Basmati varieties which aids in foreign export.



- Developed the lines having blast and BLB genes through MABB in the genetic background of Samba Mahsuri, Tellahamsa, JGL 1798, Swarna, Akshay Dhan, hybrid parental lines (APMS6B, 25B, DRR17B, RPHR 1005).



- Identified novel alleles of *badh-2* and *badh-1*, the genes responsible for causing aroma from the aromatic germplasm of India and developed corset.



High tiller number mutant

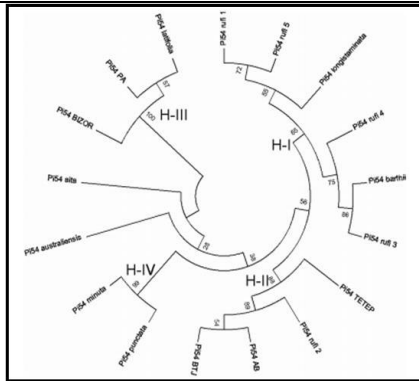
High grain number mutant

- Identification and development of lines having more grain number per panicle and longer panicle with BPT type cooking quality through mutagenesis.

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- Developed 73 nuclear SSR markers, 10 cpSSRS and 10 Mt SSRs in tobacco which are being used by all tobacco researchers.

- *Pik^h(Pi54)* gene and cDNA sequence submitted to Genbank: Accession number: AY 914077



Identification of novel alleles in *Pi54* gene

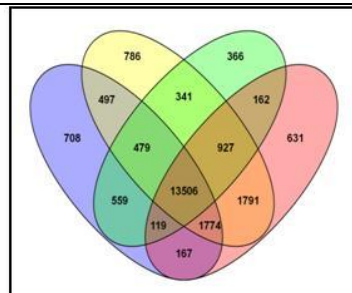
- Ten alleles including their native promoters of major blast resistance genes *Pi54*, *Pita* and three promoter alleles of bacterial leaf blight (BLB) genes *Xa21*, *xa5* and *xa13* genes were cloned from land races and different species of *Oryza*. These sequences have been submitted in genbank – NCBI (ACC numbers: GU258499-GU258508, GU269201-GU269204).



YSB susceptible line

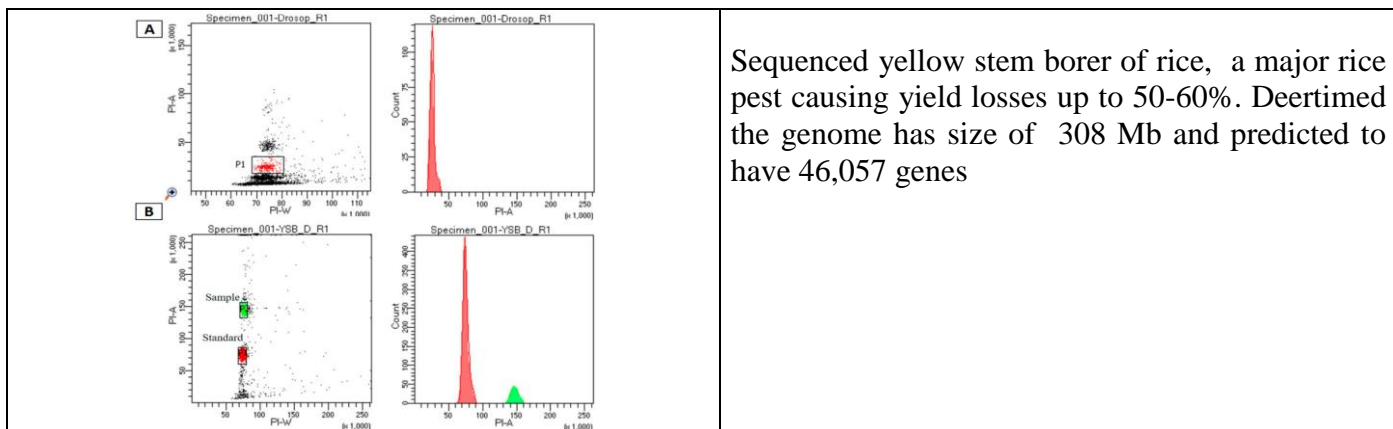
YSB resistant line

- Developed the resistant lines for YSB through RNAi (RNA interference-Non protein forming) technology



Transcriptome studies for insects/pest tolerance genes

- Identified the gene(s) involved in the resistance mechanism of rice towards insect pests through “transcriptomic” studies.



Sequenced yellow stem borer of rice, a major rice pest causing yield losses up to 50-60%. Deertimed the genome has size of 308 Mb and predicted to have 46,057 genes

Technology developed:

Dominant Rice blast resistance gene *Pikh (Pi54)* mapped and cloned from Tetep and submitted to Genbank (first gene to be cloned by map based cloning in India). This gene is being used in several molecular breeding programmes extensively by various research groups for rice improvement. **This work is cited by 271 times, NCBI Genbank accession number: AY914077**

- ❖ **Developed the variety DRR Dhan-51** (IET25484), which is a Near Isogenic line (NIL) of Swarna having *Pi2* (rice blast resistance gene) through Marker Assisted Backcross Breeding strategy (MABB). This variety released through Central Variety Release Committee (CVRC) and recommended for states of Telangana, Uttar Pradesh, Chhattisgarh and Gujarat.
- ❖ **Developed the variety DRR Dhan-55** (IET26194), which is a long bold grain type with leaf blast resistance variety, exhibited superior yield performance over the best varietal check under aerobic system of cultivation. This variety released through CVRC and recommended for states of Bihar and Chhattisgarh.
- ❖ **Developed the Variety DRR Dhan 57:** Derived from BPT having medium slender grain with leaf and neck blast resistance suitable for aerobic system of cultivation. This variety released through CVRC and recommended for states of Chhattisgarhand Jharkhand
- ❖ **Developed the variety DRR Dhan-60,** is developed though MABB having BLB resistance genes with phosphorus use efficiency gene (*Pup1*). This variety released through CVRC recommded for Andhra Pradesh, Telangana, Tamil Nadu, Karnataka , Jharkhand, Odisha, Chhattisgarh, Maharashtra, Gujarat and Bihar.
- ❖ **Developed the Variety DRR Dhan 62:** It is a Near Isogenic line (NIL) of Improved Samba Mahsuri having *Pi2+ Pi54* (rice blast resistance genes) through Marker Assisted Backcross Breeding strategy (MABB). This variety released through CVRC and recommended for states of Telangana, Karnataka and Chhattisgarh.
- ❖ **Developer for the variety, DRR Dhan 63** which has overall high mean Zinc (24.2ppm) in polished rice with high yields (6.0t/ha). It has moderate resistance to leaf blast and BLB among diseases and planthoppers among insects. This variety released through CVRC and recommended for states of UP, Odisha and Kerala.
- ❖ **Developed the Transgenic lines having amiRNAs** (artificial miRNAs) designed from three key genes of Yellow stem borer.

- ❖ **Developed unique line for leaf and neck blast resistance**, it is introgression line developed using *Oryza glumepautula* (IL-31), **registered at NBPGR as INGR15002**
- ❖ Identified novel alleles of ***Pi54, Pib and Pita*** (three important blast resistance genes of India) from wild *Oryza* species and landraces through PCR based allele mining strategy in NCBI. **These alleles can be used for development of durable blast resistance in rice.**
- ❖ **Developed a unique line for sheath blight tolerance**, it is a stabilized mutant line (ShB-1) of samba Mahsuri, shown resistance to diverse virulent isolates of sheath blight as well as hotspot locations of India, ***registered at NBPGR as INGR 20080***
- ❖ **Developed unique line having Strong culm**. This is stabilized mutant line of Samba Mahsuri, shown strong culm in anatomical and histological analysis performed by scanning electron microscope, ***registered at NBPGR as INGR 20079***
- ❖ **Developed three unique lines** having resistance for Brown Plant Hopper (BPH) and White Backed Plant Hopper (WBPH) at vegetative and reproductive stages. They are a RILs derived from the PTB 33 (resistant source), Sinnasivappu (resistant source) and MO1 (resistant source). All these lines are being used in breeding programme of BPH. Registered ***with NBPGR as INGR16001, INGR17066 and INGR19003***
- ❖ **Developed the near isogenic line of Improved Samba Mahsuri (ISM)** having *Pi54* (blast resistance gene) through MABB. *This line is being used as donor for Pi54 for all MAs programme since it is in good background. Registered with NBPGR as INGR18001*
- ❖ **Developed a unique line** (RP 5972-13-1-6-67-129-266) having phosphorous uptake (PUP1) in the genetic background of elite cultivar, MTU1010 by MABB. This line is being used as donor for PUP1 for all MAS programmes since it is in good background. **Registered with NBPGR as INGR19036**
- ❖ **Cloned a novel blast resistant gene *Pi68(t)*** from *O. glumeapetula*, which confers leaf and neck blast resistance. Three susceptible alleles were also cloned. *This gene code for Malectin-serine threonine kinase. (First gene having resistance for both phases of rice blast cloned in India), NCBI Genbank accessions numbers are: MG742320, MG742321 MG742322, MG742323*
- ❖ Developed **functional marker for Aroma, Kernel length after cooking (KLAC)** which **can distinguish fragrant from non-fragrant rice varieties** and can be useful for identification of impurities in seed-lots and grain-lots of Basmati varieties. ***These markers are being used extensively by various research groups.***
- ❖ **Cloned three key genes** (Acetyl cholinesterase, Cytochrome P450 (CYP6AE14) and Amino Peptidase N) from **Yellow stem borer**, a serious pest of rice and sequences were deposited in NCBI, **NCBI Genbank submissions: KC904274, KF955557, KF290773.**
- ❖ **Genome of major insect pest, Yellow Stem Borer of rice** has been sequenced and submitted in Genbank, ***this is the first sequence report in the international level, NCBI accession: JAIRBL010000000, GCA_020086525.1.***

- ❖ **Developed a novel-functional marker-based multiplex-PCR assay** targeting the candidate gene for WA-CMS trait (i.e. ORF126) and the candidate for the major fertility restoration in rice (i.e. *Rf4*). The marker system has been found to be **highly useful for detection of impurities in seed-lots of WA-CMS lines and rice hybrids**.
- ❖ **Identified markers for major cooking quality traits** like amylose content, gel consistency, gelatinization temperature etc. for *indica* rice
- ❖ **Identified tolerant Samba Mahsuri mutant lines for Yellow stem borer (YSB)**, four mutants showed high level of tolerance, which will have greater significance in the rice improvement programme.
- ❖ **Identified functional marker** targeting sugar translocation and transporter genes associated with grain filling of rice.
- ❖ **Identified novel set of reference genes for expression studies under aerobic conditions**. This is the first report on identification of stable genes in aerobic conditions
- ❖ **Identified resistant landraces for leaf and neck blast from North East India** and identified major effect QTLs conferring resistance to both phases of Blast.
- ❖ **Developed the phenotyping method for stigma exertion trait in rice**.
- ❖ I was part of the research team who successfully introgressed **the 2-3 BLB genes and 2-3 blast genes** in the back ground of varieties like Akshayadhan, Sampada, Tella Hamsa and JGL 1794 **and hybrid parental lines like maintainer lines (DRR17 B, APMS 6B, IR 58025B) and restorer lines (RPHR- 1005, KMR 3R) through MABC**. All these lines are pre breeding materials for crop Improvement.
- ❖ **Developed 73 nuclear SSR markers, 10 cpSSRs and 10 Mt SSRs**, which are being used regularly by all tobacco researchers for mapping and tagging important genes in tobacco.

Awards/Honors

- ❖ Fellow of Royal Society of Biology (FRSB), London, UK from 2020
- ❖ *Fellow of Rice Association (FRA)* in 2019
- ❖ **Fellow of Telangana Science Academy (TAS) in 2019**
- ❖ **Fellow of Association of Biotechnology and pharmacy, India**
- ❖ Awarded **“Best Senior scientist-2016”** from *Association of Biotechnology and Pharmacy* for Outstanding work on Plant Biotechnology.
- ❖ Rythu Nestham recognition Award for the best scientist category in 2020
- ❖ Awarded **“Lal Bahadur Shastri Young Scientist Award “for outstanding agricultural Biotechnology research 2012”** from *ICAR, Govt. of India*
- ❖ Awarded **“Distinguished Scientist Award-2016”** for outstanding contributions in the field of biotechnology from Science and technology, Society for integrated rural improvement, India.
- ❖ Awarded first **“SVS shastri best scientist award from IIRR** in 2015”

- ❖ Awarded “**Distinguished Scientist Award**” for outstanding rice biotechnology research, 2014 from Astha foundation, India
- ❖ **Selected as Associate Fellow of National Academy of Agricultural sciences (NAAS)- 2013**
- ❖ Recipient of **CSIR best S&T innovation for rural development Award** for the team for the popularization of Improved Samba Mahsuri, 2013.
- ❖ Awarded “**Best young scientist-2013**” from *Association of Biotechnology and Pharmacy* for outstanding work on Plant Biotechnology.
- ❖ Awarded “**Jawaharlal Nehru Award for outstanding postgraduate agricultural research 2006**” *from ICAR, Govt. of India*
- ❖ Awarded “**BOYSCAST fellowship** (Better opportunities for the young scientist in chosen areas of science and technology)” in 2007 from DST, Govt. of India.
- ❖ **Selected as Best International research scholar award at Ohio state University (OSU) in 2009**
- ❖ DBT Junior Research Fellowship for M. Sc. – 1995 to 1997
- ❖ Qualified “National Eligibility Test” for Lectureship and Assistant Professor, conducted by ICAR, New Delhi, October-1997
- ❖ CSIR Junior Research Fellowship for Ph. D – 2001-2002
- ❖ First rank in All India Entrance Exam for Ph.D. (Plant science) Admission at HCU- 1999
- ❖ IARI Senior Research Fellowship for Ph. D - Sep.2002 to Jan 2005
- ❖ **Acedemic editor of PLOS ONE, BMC plant Biology, Annals of Genetics** from 2019

No. of PhD(s) and MPhil(s) guided:

- ❖ 12 students awarded for Ph.D, 2 are registered (yet to award).
- ❖ 11 students awarded for M.Sc

Publications Summary

<i>PUBLICATIONS</i>	<i>131</i>
<i>Citations (Google scholar, July,2021)</i>	<i>2866</i>
<i>H- Index</i>	<i>30</i>
<i>I-10 index</i>	<i>73</i>

***International Journals: 100; National Journals: 31
E-Publications: 89 (Genes and other GenBank submissions) Genomes sequenced -2, Technical Bulletins : 5
Books and Book chapters contributed: 10***

Year wise list of Publications in peer reviewed Journals

Research publications in International Journals

1. Devanna BN, Jain P, Solanke AU, Das A, Thakur S, Singh PK, Kumari M, Dubey H, Jaswal R, Pawar D, Kapoor R...**Sheshu Madhav Maganti**...T.R. Sharma (2022). Understanding the Dynamics of Blast Resistance in Rice-Magnaporthe oryzae Interactions. **Journal of Fungi**. Jun;8(6):584.
2. Madhusudan N, Beulah P, Jaldhani VE, Nagaraju P, Manasa Y, Sundaram RM, Laha GS, Anantha MS, Barbadikar KM, Gireesh C, HariPrasad AS, **M.S. Madhav**.....P. Senguttavel (2022) . Stacking of Pup1 QTL for low soil phosphorus tolerance and bacterial blight resistance genes in the background of APMS6B, the maintainer line of rice hybrid DRRH-3. **Euphytica**. Apr;218(4):1-5.
3. **M Sheshu Madhav**, GS Laha, LV Rao, RM Sundaram, AP Kumari, P Senguttavel, HK Patel, RV Sonti (2022) ShB-1/SB-5 (IC0635695; INGR20080), a Rice (*Oryza sativa*) germplasm highly tolerant to Sheath Blight. Medium Slender Grain Type in Genetic Background of Samba Mahsuri, **Indian Society of Plant Genetic Resources** 35(1)107-108
4. Divya Kattupalli, Kalyani M. Barbadikar, Vishalakshi Balija, Suneel Ballichatla, Athulya R, Ayyagari Phani Padmakumari, Swati Saxena, Kishor Gaikwad, Sridhar Yerram, Premalatha Kokku and **Maganti Sheshu Madhav** (2021). The Draft Genome of Yellow Stem Borer, an Agriculturally Important Pest, Provides Molecular Insights into Its Biology, Development and Specificity Towards Rice for Infestation. **MDPI Insects** 12(6) 563
5. Potupureddi, G., Balija, V., Ballichatla, S., CG, G., Awalellu, K., Lekkala, S., Jallipalli, K., MG, G., Mohammad, E., Arutla, S., Burka, R., Laha, GS, Padmakumari Ayyangari Phani, SubbaRao Lella Venkata, Sundaram Raman Meenakshi, Viraktamath BC, Ravindra Babu Vemuri, Kranthi Brahma, Raju Madnala, Hitendra Kumar Patel, Ramesh Venkata Sonti, **Maganti Sheshu Madhav** (2021). Mutation resource of Samba Mahsuri revealed the presence of high extent of variations among keytraits for rice improvement." **PloS one** 16, no. 10 : e0258816.
6. Yugander A, Ershad M, Muthuraman PP, Prakasam V, Ladhakshmi D, **Sheshu Madhav M**, Srinivas Prasad M, Sundaram RM, Laha GS (2022). Understanding the variability of rice bacterial blight pathogen, *Xanthomonas oryzae* pv. *oryzae* in Andhra Pradesh, India. **Journal of Basic Microbiology**. 2022 Feb;62(2):185-96.
7. Da-Young Lee, Jongbum Jeon, Ki-Tae Kim, Kyeongchae Cheong, Hyeunjeong Song, Gobong Choi, Jaeho Ko, Stephen O Opiyo, James C Correll, Shimin Zuo, **Sheshu Madhav**, Guo-Liang Wang, Yong-Hwan Lee (2021) Comparative genome analyses of four rice-infecting *Rhizoctonia solani* isolates reveal extensive enrichment of homogalacturonan modification genes. **BMC genomics**. 22 (1) 1-15.
8. Achala Bakshi, Mazahar Moin, **MS Madhav**, Raju Datla, PB Kirti (2021). Target of Rapamycin (TOR) negatively regulates chlorophyll degradation and lipid peroxidation and controls responses under abiotic stress in *Arabidopsis thaliana*. **Plant Stress**.100020
9. Mazahar Moin, Anusree Saha, Achala Bakshi, **MS Madhav**, PB Kirti (2021). Constitutive expression of Ribosomal Protein L6 modulates salt tolerance in rice transgenic plants. **Gene**. 789
10. Mazahar Moin, Anusree Saha, Achala Bakshi, **Madhav MS**, Kirti PB (2021). Study on Transcriptional Responses and Identification of Ribosomal Protein Genes for Potential Resistance against Brown Planthopper and Gall Midge Pests in Rice. **Current Genomics**. 22(2) 98-110
11. Senguttavel, P., Sravanraju, N., Jaldhani, V. B. Divya, P. Beulah, P. Nagaraju, Y. Manasa, A. S. Hari Prasad, P. Brajendra, C. Gireesh, M. S. Anantha, K. Suneetha, R. M. Sundaram, **M. Sheshu Madhav** (2021) . Evaluation of genotype by environment interaction and adaptability in lowland irrigated rice hybrids for grain yield under high temperature. **Scientific Reports**. 11, 15825 (2021). <https://doi.org/10.1038/s41598-021-95264-4>
12. S Javvaji, U Maheswari Telugu, Ramana Damarla Bala Venkata, **Maganti Sheshu Madhav**, Santhosha Rathod (2021) Characterization of resistance to rice leaf folder, *Cnaphalocrocis medinalis*, in mutant Samba Mahsuri rice lines. **Entomologia Experimentalis et Applicata**, 2021
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E-Publications:

89 (Genes and other GenBank submissions) 1- Genome, Technical Bulletins: 5

Books and Book chapters contributed: 10

Patents filled/DNA sequence deposited in Genbank:

- ❖ *Pik^h* gene and cDNA sequence submitted to Genbank: The annotated genomic DNA and the cDNA of *Pi kh* gene were submitted to the genbank. Accession number: AY 914077
- ❖ Microsatellite clones of tobacco: The 70 genomic clones containing the unique microsatellite motifs submitted at Genbank. EF 375958 to EF 375992 (34 sequences) ACC numbers: DQ 865407 to DQ865439 (36 sequences) ACC numbers: DQ 865407 to DQ865439
- ❖ Ten alleles including their native promoters of major blast resistance genes *Pi K^h*, *Pita* and three promoter alleles of bacterial leaf blight (BLB) genes *Xa21*, *xa5* and *xa13* genes were cloned from land races and different species of *Oryza*. These sequences have been submitted in genbank – NCBI (ACC numbers: GU258499-GU258508, GU269201-GU269204).

Books/Book chapters/Technical Bulletins

S.No.	Book Chapter/Bulletin	Authors	Year & Pages	Publisher
1	Genome Editing: New Breeding Technologies in Plants. Rintu Banerjee, Garlapati Vijay Kumar, S.P. Jeevan Kumar (Eds.). OMICS- Based Approaches in Plant Biotechnology.	Kalyani M Barbadikar, Supriya B Aglawe, Satendra K Mangrauthia, M Sheshu Madhav, SP Jeevan Kumar	2019 245-285	Scrivener Publishing, Wiley
2	Metagenomics in Agriculture: State-of-the-Art. In: Chopra R.S., Chopra C., Sharma N.R. (eds) Metagenomics: Techniques, Applications, Challenges and Opportunities. Springer, Singapore. https://doi.org/10.1007/978-981-15-6529-8_11	Bakshi A., Moin M., Madhav M.S.	(2020)	Springer, Singapore.
2	Development of gene- pyramid lines of the elite restorer line, RPHR-1005 possessing durable bacterial blight and blast resistance. Karley AJ, Johnson SN, Brenna R and Gregory PJ (Eds.). Crop traits for defense against pests and disease: Durability, breakdown and future prospects.	Abhilash Kumar V, Balachiranjeevi CH, Madhav MS, Laha GS, Balachandran SM, Prasad MS, Viraktamath BC, Ravindra Babu V, and Sundaram RM	2017 262 pages	Lausanne: Frontiers Media.
3	Phenotyping Rice for Molecular Plant Breeding. In: Siva Kumar Panguluri and Are Ashok Kumar Springer (eds.) <i>Phenotyping for Plant Breeding, Applications of Phenotyping Methods for Crop Improvement</i>	M. S. Madhav, G. S. Laha, A. P. Padmakumari, N. Somasekhar, S. K. Mangrauthia, B. C. Viraktamath	2013, 40pages	Springer
4	Marker Assisted Breeding For Development of Bacterial Blight Resistant Rice. In: K. Muralidharan and E.A.Siddiq (eds.) <i>Genomics and Crop Improvement: Relevance</i>	Sundaram RM, ... SM, Madhav MS, Hajira SK, Rani NS, Vishnupriya MR and Sonti RV	2011, 29pages	Institute of Biotechnology, Acharya NG Ranga Agricultural University,

	<i>and Reservations</i> ,(pp: 154-182).			Hyderabad 500 030 India
5	RNAi: A Novel Tool to Develop Virus Resistance in Plants. In: Vaibhav K. Singh, Yogendra Singh, Akhilesh Singh(eds). <i>Eco-friendly Innovative Approaches in Plant Disease management.</i> 325- 336	Satendra K. Mangrauthia, Surekha Agarwal, Shelly Praveen, M. Sheshu Madhav..	2012, 12pages	International Book Distributors and Publisher, New Delhi
6	Biotechnological options for rice improvement.. In: Shetty PK, Hegde MR and Mahadevappa M (eds.) <i>Innovations in rice production</i> , (pp: 167-202). ISBN: 978-81-87663-70-6.	Sundaram RM, Balachandran SM, Madhav MS and Viraktamath BC	2013, 36pages	National Institute of Advanced Studies, Bangalore, India
7	MicroRNAs and Their Role in Salt Stress Response in Plants. In: P. Ahmad et al. (eds.), <i>Salt Stress in Plants: Signalling, Omics and Adaptations.</i> 15- 46.	Satendra K. Mangrauthia, Surekha Agarwal , B. Sailaja M. Sheshu Madhav , and S. R. Voleti	2013, 32pages	Springer
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31	Development and validation of functional markers for Pi54 (Pikh) for MAS.	M. Sheshu Madhav , M. Srinivasa Prasad and R.M. Sundaram	2012,	DRR Newsletter 9(4):
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Membership of National Committees/ Professional Bodies:

- i) Life Member of Indian Society of Biochemistry and Biotechnology
- ii) Life Member of Association of DNA technology (ADNAT)
- iii) Life Member of Indian society of Tobacco Research (ISTS)
- iv) Life member of Association of Biotechnology and pharmacy

Synergistic Activities

In addition to research activities, **I'm Institute Biosafety officer of IIRR, look after Biosafety issues of Institute.** I also involve in a lot of extension activities under All India coordinated rice improvement program, where in we undertake surveys during crop season in various rice growing environments and suggest the farmers and rice growers for all the package of practices.

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