CURRICULUM VITAE OF MRINAL KUMAR MAITI

[Updated on 15/08/2022]

SUMMARY

Being a graduate of Agricultural Science, post-graduate of Biotechnology and doctorate in Biochemistry; Dr. M. K. Maiti has acquired theoretical knowledge, technical skill and research experience in the fields of Microbiology, Botany, Molecular Biology and Biotechnology. Dr. Maiti has gained further research expertise and developed the proficiency of research-guidance, teaching-ability, training-skill and laboratory-management during his professional career (~27 years post-Ph.D.) in the areas of Plant Science and Biotechnology.

Dr. Maiti is a recognized Plant Scientist of national repute. As a Research Scientist and Faculty in IIT Kharagpur, he has distinguished contribution in the areas of lipid metabolism in oilseed crops and oleaginous yeasts, and functional genomics in rice plant with respect to abiotic stress tolerance and grain yield. His team has developed genetically modified (GM) plant lines for nutritionally improved mustard-oil (80% reduction in erucic acid along with balanced ratio of ω-6:ω-3 fatty acids) and rice bran-oil (10-fold increase in ω-3 fatty acid content). Their work has also resulted GM semi-dwarf Badshabhog rice lines with improved yield and IR64 rice lines with low-arsenic/cadmium accumulating grains. His group, for the first time, has documented the role of any plant matrix metalloproteinase (i.e., rice OsMMP1) in plant growth, organ differentiation, and development in relation to cell wall modification. His team has significant contribution on bioprospecting of endophytic microbes (bacteria and fungi) for animal health care and plant growth promotion.

Dr. Maiti and his group have published 72 articles (including 54 as group leader/corresponding author) in international peer-reviewed journals. From 2003 onwards under his official guidance, 18 research scholars and 48 M.Sc./M.Tech. students have completed their research projects to earn Ph.D. and Masters degrees, respectively.

From 2001 onwards, Dr. Maiti (as a PI) has completed 15 (worth of INR. 504.47 lakhs) and ongoing 03 (worth of INR. 143.54 lakhs) sponsored projects (funded by DBT, DST, CSIR, MHRD, Govt. of India and DHESTBT, Govt. of West Bengal). Besides, he (as Co-PI) has contributed for 13 (worth of INR 1685.65 lakhs) sponsored projects of other scientists.

Dr. Maiti's persistent endeavor is to serve students, researchers and end-users in the field of Plant Science and Biotechnology, and to elevate the repute of himself and the Institution with passion and determination.

BIODATA

Name: **MRINAL KUMAR MAITI**

Present position: Professor

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Date of birth: 05th June, 1963 Sex: Male

Nationality: Indian Category: General

Educational qualifications:

Examination/ Degree	Discipline/Subject	Board/University	Year	Division/Class
Madhyamik (Secondary)	Bengali, English, Sanskrit, Mathematics, Physical Sci., Life Sci., History, Geography, Work Education, Additional Mathematics	West Bengal Board of Secondary Education (WBBSE)	1979	1st Division
Higher Secondary	Bengali, English, Physics, Chemistry, Biology, Mathematics	West Bengal Council of Higher Secondary Education (WBCHSE)	1981	1st Division
B.Sc. (Hons.)	Agriculture	Bidhan Chandra Krishi Viswavidyalaya (WB)	1987	1st Class [1st in Mohanpur campus]
M.Sc.	Biotechnology	Madurai Kamaraj University (TN)	1989	1st Class
Ph.D.	Biochemistry	Calcutta University (Bose Institute)	1997	Not applicable

Ph.D. thesis title, supervisor's name, Institute/ University:

Purification of acyl carrier protein (ACP) from *Azospirillum brasilense* and molecular cloning of the gene; Professor Sudhamoy Ghosh; Bose Institute /Calcutta University, Kolkata.

Professional experience/ Employment [after doctoral research]:

Sl. No.	Institution, Place	Position	From (Date)	To (Date)	Responsibility
1	Dept. of Chemistry, Miami University, Ohio, USA	Research Associate	01/05/1995	26/04/1997	Post-doctoral research
2	IIT-BREF Biotek, IIT Kharagpur	Scientist	02/05/1997	31/08/2007	Research Guidance, Project Investigator
3	Adv Lab for Plant Genetic Engineering,	Principal Research	01/09/2007	04/01/2009	Research Guidance, Project Investigator

	IIT Kharagpur	Scientist			
4	Dept. of Biotechnology, IIT Kharagpur	Assistant Professor	05/01/2009	07/10/2013	Teaching, Research Guidance, Project Investigator
5	Dept. of Biotechnology, IIT Kharagpur	Associate Professor	08/10/2013	28/02/2018	Teaching, Research Guidance, Project Investigator
6	Dept. of Biotechnology, IIT Kharagpur	Professor	01/03/2018	Till date	Teaching, Research Guidance, Project Investigator

Awards/ Fellowship/ Professional Recognition:

Sl. No.	Name of Award	Awarding Agency	Year
1	National Scholarship	West Bengal Board of Secondary Education, Govt. of West Bengal	1979
2	Biotechnology Merit Scholarship	Department of Biotechnology, Govt. of India	1987
3	CSIR-NET Fellowship	Council of Scientific & Industrial Research, Govt. of India	1989
4	Research Associate Fellowship	Center for Plant Molecular Biology (DBT), Govt. of India	1994
5	USDA Visiting Research Associate Fellowship	United States Department of Agriculture, Govt. of USA	1995
6	Elected Fellow (Plant Sciences)	West Bengal Academy of Science & Technology (**FAScT**)	2014

Membership in Professional Bodies:

Life Member: Plant Physiology Forum, Kolkata; Institute of Science, Education and Culture (ISEC) Kolkata; Society for Plant Biochemistry & Biotechnology, IARI, New Delhi.

Regular/Annual Member: Asian Federation of Biotechnology, American Society of Plant Biologists & Plantae.

Specialization and Expertise:

Plant Molecular Biology, Molecular Genetics, Rice Functional Genomics and Transgenesis, Metabolic Engineering. In the areas of Microbiology, Biochemistry, Recombinant DNA Technology, Molecular Biology, Transgenic research using plant, fungal and algal systems.

Total Teaching Experience:

About 13 and ½ years till this date.

Subjects of Regular Teaching [since January 2009]:

At UG level: Science of Living System, Cell & Molecular Biology, Cell & Molecular Biology Lab., Plant Cell & Tissue Culture, Plant Cell & Tissue Culture Lab., Biochemistry Lab., Genetics, Genetics Lab., Analytical Biochemistry Lab, Bioprocess Technology.

At PG & Ph.D. level: Gene Expression, Secondary Metabolism in Plants and Microbes, Biotechnology of Plant Metabolites, Plant Biotechnology Lab., Microbial Genomics and Metagenomics, Transgenic Technology [*new interdisciplinary elective subject* floated by me since

2010-11 in Spring Semester for Dual degree, M.Tech & Ph.D. students of different departments/centres].

Total Research Experience:

About 27 years (post-Ph. D.) including 19 years of research guidance till this date.

Areas of Research Guidance [since January 2003]:

(A) Metabolic engineering of plants, fungi and algae for qualitative and quantitative improvement of storage-lipids, (B) Functional genomics of rice crop for improved productivity and grain quality, (C) Bioprospecting of endophytic microbes for animal health care and plant growth promotion.

Research Guidance:

Ph.D. thesis supervision [since 2003]:	Completed: **18**	Ongoing: **16**
M.Sc./M.Tech thesis supervision [since 2001]:	Completed: **48**	Ongoing: **02**

Industrial and Sponsored Projects [since 2001, total INR. 2333.66 lakhs (648.01 lakhs as PI + 1685.65 lakhs as Co-PI)]:

As PI:	Completed: **15** (INR. 504.47 lakhs)	Ongoing: **03** (INR. 143.54 lakhs)
As Co-PI:	Completed: **13** (INR 1685.65 lakhs)	Ongoing: Nil

Research Publications:

Papers in Peer-reviewed International Journals: **72** **(including *54 as group leader/corresponding author*)**.
Conference/Symposium/Workshop Proceedings: **37** (International: 19 + National: 18)
Book /Book chapter: **07**

Patent Filed:

01 with other scientists of IIT-BREF Biotek (Transgenic sweet sorghum with altered lignin composition)

Reviewer of Journals [in last 6 years: 2016-2017 to 2021-22]: 28 manuscripts

Plant Molecular Biology, Wiley-Blackwell Biotechnology Book Series, PLOS ONE (3), Environmental Pollution, Journal of Biotechnology, Plant Science, Journal of Biosciences (3), Plant Physiology and Biochemistry, Functional & Integrative Genomics, BMC Genomics, Scientific Reports (2), BMC Microbiology, Plant Cell Tissue and Organ Culture (PCTOC), Biocontrol Science & Technology, BMC Plant Biology, Functional Plant Biology, Bioresource Technology Reports, Ecotoxicology and Environmental Safety, Journal Plant Growth Regulation, Physiological and Molecular Plant Pathology, Plant Gene, Molecular Biotechnology

Selected Publications (out of 69) in International Peer-reviewed Journals:

Microbiology 142:2097-2103 (1996). ***Plant Mol. Biol.*** 35:471-481 (1997). ***FEBS Letters*** 481:351-354 (1997). ***Plant Science*** 163:791-800 (2002). ***Plant Physiol. Biochem.*** 44:645-655 (2006). ***Plant Physiol. Biochem.*** 45:490-500 (2007). ***Plant Biotechnol Rep.*** 1:185-197 (2007). ***Plant Physiol. Biochem.*** 48:476-480 (2010). ***Biochem. Biophys. Res. Commun.*** 394:178-183 (2010). ***Biochem. Biophys. Res. Commun.*** 402:637-643 (2010). ***Plant Cell Rep.*** 30:485-493 (2011). ***Bioresour. Technol.*** 102:5815–5823 (2011). ***Biochem. Biophys. Res. Commun.*** 420:862-868 (2012). ***Biochem. Biophys. Res. Commun.*** 426:280-285 (2012). ***Phytochem Rev*** 11:197-209 (2012). ***J. Appl. Microbiol.*** 114:1357-1368 (2013). ***Plant Cell Tiss Organ Cult***. 119:117–129 (2014). ***FEMS Yeast Res.*** 15(4):fov013. DOI:10.1093/femsyr/fov013. (11 pages) (2015). ***Plant Physiol. Biochem.*** 96:345-355 (2015). ***PLOS ONE*** 11 (3): e0150763. DOI:10.1371/journal.pone.0150763 (26 pages) (2016). ***Plant Physiol. Biochem.*** 105:297-309

(2016). ***BMC Plant Biology*.** 16:158. DOI:10.1186/s12870-016-0845-x. (20 pages) (2016). ***Plant Mol. Biol.*** 94:167–183 (2017). ***Microb Ecol.*** 75:647–661 (2018). ***Arch Microbiol.*** 200:355–369 (2018). ***Scientific Reports*** 8 (1):2783. (DOI:10.1038/s41598-018-20070-4). (16 pages) (2018). ***Appl. Microbiol. Biotechnol.*** 102:7389–7406 (2018). ***Plant Mol. Biol.*** 98:101–120 (2018). ***Appl. Microbiol. Biotechnol.*** 104:3133–3144 (2020). ***Biochim. Biophys. Acta - Mol. Cell Biol. Lipids*** 1865(8):158725. (DOI: 10.1016/j.bbalip.2020.158725). ***Appl. Microbiol. Biotechnol.*** 104:8399–8411 (2020). ***Microbiol. Res.*** 241(12):126582 (DOI: 10.1016/j.micres.2020.126582) (2020). ***Arch Biochem Biophys*** 695:108645. (DOI: 10.1016/j.abb.2020.108645). (11 pages) (2020). ***Biotechnology Advances***. 53:107722. (DOI: 10.1016/j.biotechadv.2021.107722). (20 pages) (2021).

Ph.D. THESIS SUPERVISION (FROM 2003):

Sl. No.	Name of the scholar	Title of the thesis [Name of the joint supervisor, if any]	Status
1	Jyoti Krishna Jha	Attempt to modify the fatty acid composition of *Brassica* seed oil through genetic engineering [Prof. D. J. Chattopadhyay]	Degree awarded (2008, CU)
2	Sampurna Sattar	Molecular characterization of a novel vegetative insecticidal protein from *Bacillus thuringiensis* effective against sap sucking insect pest [Prof. Tapas K. Maiti]	Degree awarded (2008, IIT KGP)
3	Saheli Sinha	Metabolic engineering approach to reduce the erucic acid content in seed oil of Indian mustard (*Brassica juncea*)	Degree awarded (2009, CU)
4	Banani Chattopadhyaya	Cloning and characterization of two desaturase genes for their potential applications in modifying seed fatty acid profile of *Sesamum indicum* [Prof. Sudip K. Ghosh]	Degree awarded (2011, IIT KGP)
5	Joydeep Banerjee	Molecular cloning and functional characterization of germin-like protein 1 from rice [Prof. Satyahari Dey]	Degree awarded (2011, IIT KGP)
6	Tirthartha Chattopadhyay	Molecular cloning and functional characterization of a novel hemopexin fold protein gene from rice [Prof. Tapas K. Maiti]	Degree awarded (2013, IIT KGP)
7	Prabuddha Dey	Bioprospecting of oleaginous endophytic fungi and rhizospheric yeasts for lipid feedstock	Degree awarded (2015, IIT KGP)
8	Rupam Kumar Bhunia	Genetic engineering of fatty acid biosynthetic pathway to improve the nutritional quality of sesame oil [Prof. Soumitra K. Sen]	Degree awarded (2015, IIT KGP)
9	Sheuli Roy	Molecular characterization of the *gibberellic acid insensitive* and the *grain size 3* genes of *indica* rice cultivar Badshabhog	Degree awarded (2016, IIT KGP)
10	Surajit Bhattacharya	Metabolic engineering approach for qualitative and quantitative improvement of edible oils from rice (*Oryza sativa*) and Indian mustard (*Brassica juncea*)	Degree awarded (2017, IIT KGP)
11	Reeza Patnaik	*Scenedesmus obliquus* biomass as feedstock for production of biodiesel and other industrially important co-products: An algal refinery approach [Prof. Nirupama Mallick]	Degree awarded (2017, IIT KGP)

12	Avishek Dey	Functional characterization of the *SAPK9* and *bZIP23* genes as positive regulators of drought stress tolerance in rice plant [Prof. Saumen Hajra]	Degree awarded (2017, IIT KGP)
13	Prabir Kumar Das	Cloning and characterization of the matrix metalloproteinase *OsMMP1* gene from rice	Degree awarded (2018, IIT KGP)
14	Abhirup Mookherjee	Bioprospecting of endophytic fungi for antimicrobial, quorum sensing inhibitory and antioxidant metabolites	Degree awarded (2019, IIT KGP)
15	Natasha Das	Functional characterization of rice *OsMATE2*, *OsPCS2* and *OsMTP1* genes in relation to arsenic and cadmium stress tolerance and accumulation	Degree awarded (2019, IIT KGP)
16	Atrayee Chattopadhyay	Insights into xylose utilization and genetic engineering-mediated enhanced lipogenesis in an oleaginous yeast *Candida tropicalis* SY005	Degree awarded (2020, IIT KGP)
17	Anagha Krishnamoorthy	Endophytic bacteria from *in vitro* grown two rice cultivars: Comparative insights into community structures and plant growth promoting isolates	Degree awarded (2021, IIT KGP)
18	Usharani Jena	Study on the molecular physiology and grain nutritional quality of rice cultivars under elevated CO_2 environment in sub-tropical India [Prof. Dillip K. Swain]	Degree awarded (2022, IIT KGP)

M.Sc. / M.Tech. THESIS SUPERVISION (FROM 2001):

Sl. No.	**Name of the student**	**Title of the thesis [Name of the joint supervisor, if any]**	**Status**
1	Sanjukta Chatterjee (M.Sc.)	Cloning and partial characterization of rice pyruvate dehydrogenase kinase (PDHK) gene	Degree awarded (2001, CU)
2	Mallika Chatterjee (M.Sc.)	Attempts for isolation and cloning of a part of vacuolar Na+/H+ antiporter gene from cotton through PCR technique	Degree awarded (2003, CU)
3	Srirupa Das (M.Sc.)	Attempts for isolation and cloning of a part of vacuolar Na+/H+ antiporter gene from Indian mustard through PCR technique	Degree awarded (2003, CU)
4	Jineta Banerjee (M.Sc.)	Isolation and cloning of a part of diacylglycerol acyltransferase (DGAT) gene from *Sesamum indicum* plant	Degree awarded (2006, CU)
5	Soumita Das (M.Sc.)	Isolation and cloning of a part of diacylglycerol acyltransferase (DGAT) gene from *Brassica juncea* plant	Degree awarded (2006, CU)
6	Sourav Datta (M.Tech.)	To develop a successful metabolic model to predict the concentration of metabolites involved in the synthesis of fatty acids	Degree awarded (2011, IIT KGP)
7	Rohan Jaiswal (M.Tech.)	Structure and function prediction of a hypothetical Hemopexin like protein (HXLP) from rice	Degree awarded (2011, IIT KGP)
8	Prahallad Kumar (M.Tech.)	Cloning and characterization of a putative auxin binding germin-like protein (ABGLP) gene from indica rice	Degree awarded (2011, IIT KGP)
9	Kamdar Maulik Rajendra	Functional characterization of a novel extracellular antifungal protein from the endophytic fungus	Degree awarded (2012, IIT KGP)

	(M. Tech.)	*Colletotrichum* sp. DM06	
10	Sonu Jha (M.Tech.)	Cloning and bacterial expression of a part of the putative arsenic transporter gene OsMATE from *Indica* rice	Degree awarded (2012, IIT KGP)
11	Chaitali Chakraborty (M.Tech.)	Metabolic engineering approach to increase oleic acid content in rice bran oil	Degree awarded (2012, IIT KGP)
12	Lokanand Koduru (M.Tech.)	Metabolic engineering of lipid biosynthesis pathway in rice for the biofortification of α-linolenic acid in rice bran oil [Prof. Ramkrishna Sen]	Degree awarded (2012, IIT KGP)
13	Raghavendra Singh (M.Tech.)	Attempt for the development of *Agrobacterium*-mediated genetic transformation protocol in pineapple [Prof. Satyahari Dey]	Degree awarded (2012, IIT KGP)
14	Veda Gogineni (M.Tech.)	Attempt to clone and express two genes involved in fatty acid biosynthesis in plants	Degree awarded (2013, IIT KGP)
15	Atrayee Chattopadhyay (M.Tech.)	Cloning and characterization of *Rap1* gene from an oleaginous yeast *Candida tropicalis*.	Degree awarded (2013, IIT KGP)
16	Shyamal Kishore Kumar (M.Tech.)	Functional characterization of the promoter region of rice germin-like protein1 gene in tobacco system	Degree awarded (2013, IIT KGP)
17	Nikunj Mall (M.Tech.)	Bioprocess optimisation for lipid productivity and bio fuel characterization in wild type and genetically modified endophytic oleaginous fungus *Colletotrichum sp.* DM06	Degree awarded (2014, IIT KGP)
18	Aditya Sharma (M.Tech.)	Cloning and partial characterization of *Oryza sativa* cation efflux transporter gene *OsCET*	Degree awarded (2014, IIT KGP)
19	Vegesna Neeraja (M.Tech.)	Metabolic Flux Analysis in *Chlorella* sp. [Prof. Ramkrishna Sen]	Degree awarded (2014, IIT KGP)
20	Shvaita Madhuri (M.Tech.)	Establishment of an efficient *Agrobacterium*-mediated genetic transformation of *Chlorella vulgaris* and *Scenedesmus obliquus* [Prof. Nirupama Mallick]	Degree awarded (2014, IIT KGP)
21	Renuka Kolli (M.Tech.)	Metabolic engineering of the L-phenylalanine biosynthetic pathway in *Corynebacterium glutamicum* [Prof. Georg Sprenger]	Degree awarded (2014, IIT KGP)
22	Kumar Satyaki (M.Tech.)	Phylogenetic tree construction using evolutionary distances for analysis of genes involved in lipid accumulation in yeast	Degree awarded (2015, IIT KGP)
23	Konathala S S Mounika (M.Tech.)	Studies on lignocellulose utilizing capacity of endophytic fungi producing bioactive metabolites	Degree awarded (2015, IIT KGP)
24	Ankur Bhargava (M.Tech.)	Standardization of genetic transformation protocol for freshwater microalga *Chlorella vulgaris* to enhance lipid content [Prof. Ramkrishna Sen]	Degree awarded (2015, IIT KGP)
25	Arun Thapa (M.Tech.)	Cloning and characterization of a putative transcription factor *CtGCR1* gene potentially involved in lipid	Degree awarded (2015, IIT KGP)

		metabolism of *Candida tropicalis*	
26	Karthikbabu K. R (M.Tech.)	An attempt to produce rice cell wall-derived prebiotics in calli suspension culture: Biochemical analysis of cell wall constituent and cloning of β-glucan synthase gene *OsCslF6* [Prof. Satyahari Dey]	Degree awarded (2015, IIT KGP)
27	Darshan P. (M.Tech.)	Identification and partial characterization of two different *OsGLP*2 genes in indica rice	Degree awarded (2016, IIT KGP)
28	Shashank Garg (M.Tech.)	Interaction study of plant pathogens and endophytes harboured in different indigenous plants	Degree awarded (2016, IIT KGP)
29	Anjali Gupta (M.Tech.)	Cloning and partial characterization of *OsDTX1* gene in relation to tolerance against toxic chemicals	Degree awarded (2016, IIT KGP)
30	Ashwini Navsagre (M.Tech.)	Structural and functional analysis of oleosin gene	Degree awarded (2017, IIT KGP)
31	N. Satya Lasya (M.Tech.)	Effect of Abiotic Stress on Growth Parameters of Different Rice Cultivars	Degree awarded (2017, IIT KGP)
32	Shivangi Singh (M.Tech.)	Bioprospecting of endophytic fungi producing quorum sensing inhibitory metabolites	Degree awarded (2017, IIT KGP)
33	Kavya P. (M.Tech.)	Cloning and characterization of two transcription factor genes *CtTup1* and *CtCat8* in an oleaginous yeast *Candida tropicalis* SY005	Degree awarded (2017, IIT KGP)
34	Ashish Verma (M.Tech)	Effect of 5-aminolevulinic acid on seed germination and seedling growth in three rice cultivars	Degree awarded (2018, IIT KGP)
35	Jayaswal Nishant Sandeep (M.Tech)	Search for plant growth promoting traits in rhizospheric bacterial isolates and endophytic metagenome of rice roots	Degree awarded (2018, IIT KGP)
36	Sanapala Ramesh (M.Tech)	Expression profiling of *OsPCS2a* and *OsPCS2b* transcripts in five aromatic rice cultivars under cadmium stress and *in-silico* analysis of the two proteins	Degree awarded (2018, IIT KGP)
37	Sesan Nayak (M.Tech)	Attempt to characterize sucrose non-fermenting 1-related kinase of *Chlorella vulgaris* by RNAi-mediated gene silencing	Degree awarded (2018, IIT KGP)
38	Jeganath A (M.Tech)	Bioprospecting of endophytic bacteria for terpenoids	Degree awarded (2018, IIT KGP)
39	Anuja Gupta (M.Tech)	Cloning and characterization of actin and alcohol dehydrogenase gene promoters in oleaginous yeast *Candida tropicalis* SY005 [Prof. Amit Ghosh]	Degree awarded (2019, IIT KGP
40	Krishna Kshirsagar (M.Tech)	Volatile metabolites from a yeast-like fungus *Geotrichum candidum*: Process optimization and structural analysis of an enzyme involved in metabolites production	Degree awarded (2020, IIT KGP)
41	Shubham Kumar (M.Tech)	*In-silico* characterization of *Oryza sativa* (Rice) Oleosin 16 kDa and Oleosin 18 kDa proteins and homology modeling of both proteins, using experimentally characterized homologous protein	Degree awarded (2020, IIT KGP)
42	Santosh Kumar (M.Tech)	Defense enhancement in tomato plant against bacterial wilt through the application of metabolites extracted	Degree awarded (2020, IIT KGP)

		from the endophytic *Penicillium* sp. PM031	
43	Sidharth J. (M.Tech)	Metabolic engineering of *Yarrowia lipolytica* and *in silico* exploration of *Candida tropicalis* for the production of terpenoids	Degree awarded (2020, IIT KGP)
44	Abhinav Raj Singh (M.Tech)	Molecular docking of selected metabolites from an endophytic fungus *Penicillium* sp. PM031 against virulence proteins of *Ralstonia solanacearum*	Degree awarded (2021, IIT KGP)
45	Atul Singh (M.Tech)	*In silico* study of key carotenoid biosynthesizing enzymes in *Chlamydomonas reinhardtii*	Degree awarded (2021, IIT KGP)
46	Sankalp Jain (M.Tech)	*In silico* identification of interacting partners of rice transcription factor OsNAC89	Degree awarded (2021, IIT KGP)
47	A. Aarthy (M.Tech)	*In silico* interaction study between the Mediator complex subunit MED15a and the transcription factor WRINKLED1 in oilseed and non-oilseed crops	Degree awarded (2021, IIT KGP)
48	Lisa Ghosh (M. Tech)	Enhancement of carotenoid production in *Chlorella vulgaris*: Treatment with different lights and phytohormones, and identification of target genes	Degree awarded (2022, IIT KGP)

DETAILS OF SPONSORED RESEARCH PROJECTS UNDERTAKEN (FROM 2001):

(A) As Principal Investigator (PI):

Sl. No.	Title of Project	Funding Agency	Amount (INR in lakhs)	Date of sanction and Duration
1	Development of transgenic Brassica oil-seed crop plants tolerant against damages caused by aphids	DBT, Govt. of India	16.00	Mar 2001 to Mar 2004
2	Development of transgenic rice expressing plant-lectin genes to defend the crop against plant-hopper infestation	CSIR, Govt. of India	9.64	May 2001 to Apr 2004
3	Recombinant DNA for development of a male-sterility system in jute	DBT, Govt. of India	37.00	Nov 2006 to Oct 2009
4	Metabolic engineering of gibberellins signal transduction pathway for increasing the yield potential of indigenous aromatic rice cultivar	DST, Govt. of India	23.00	Dec 2007 to Nov 2010
5	Metabolic engineering of fatty acid biosynthesis to develop nutritionally improved Brassica seed oil	DBT, Govt. of India	39.68	Jan 2008 to Jan 2011
6	Search for local isolates of oleaginous micro-organism as potential source of biodiesel production	SRIC (ISIRD), IIT-Kharagpur	4.96	Sep 2009 to Mar 2014
7	Reducing accumulation of toxic metals or metalloids in rice grains by RNAi-mediated gene silencing approach	DBT, Govt. of India	29.81	May 2010 to May 2014
8	Nutritional enhancement of rice bran oil through metabolic engineering of fatty acid biosynthesis	CSIR, Govt. of India	22.82	Apr 2013 to Mar 2016

9	Molecular characterization of an antimicrobial protein secreted by endophytic fungus *Colletotrichum* sp. DM-06	DBT, Govt. of India	19.31	Jul 2015 to Feb 2017
10	Genomics-supported screening of aromatic rice cultivars with high yielding potentiality for growing in local agro-climatic zones	MHRD, Govt. of India	94.76	Feb 2014 to Oct 2017
11	Understanding plant growth promoting traits of rhizospheric and endophytic microbes through metagenomics approach	SRIC (SGIRG), IIT-Kharagpur	25.00	May 2014 to Mar 2018
12	Genetic engineering of algae for enhanced oil production	DBT, Govt. of India	65.08	Dec 2014 to Dec 2020
13	Engineering of metabolic pathway in algal strain in favour of direct bioethanol production	DBT, Govt. of India	64.90	Dec 2014 to Dec 2020
14	Exploration of endophytic microorganisms from selected indigenous rice landraces of North East India and their applications for improvement of growth and yield of traditional rice varieties	DBT, Govt. of India	25.45	Jul 2018 to Dec 2021
15	Genetic engineering approaches to achieve bigger grain size in indigenous aromatic rice cultivar for yield improvement	CSIR, Govt. of India	26.96	Apr 2018 to Mar 2022
16	Genomics-led improvement of biotic and abiotic stress tolerance in mustard rape for economic and environmental sustainability	DBT, Govt. of India. [UK-India (Newton-Bhabha) Collaborative Program]	31.98	Sept 2018 to Sept 2022
17	Formulation of mycofumigation technique using endophytic fungus *Geotrichum candidum* PF005 for improving storage facility of food grains in state warehouses	DHESTBT, Govt. of West Bengal	18.98	Apr 2018 to Dec 2022
18	Enhanced lipid production by genetically engineered algal strain: Scale-up cultivation and engineering for co-production of value-added isoprenoids (DBT Pan-IIT Center for Bioenergy: Phase II)	DBT, Govt. of India	92.58	Sep 2021 to Sep 2026

(B) As Co-Principal Investigator (Co-PI):

Sl. No.	**Title of Project**	**Funding Agency**	**Amount (INR in lakhs)**	**Date of sanction and Duration**
1	Transgenic approach to manipulate the	DBT, Govt. of	23.35	Dec 2000 to Nov

	pathway of lignin biosynthesis of jute	India		2004
2	Generation and cataloguing of bast-fibre developmental stage-specific EST library from jute	DBT, Govt. of India	36.45	Apr 2006 to Mar 2009
3	Targeted gene integration in rice and cotton	NAIP-ICAR, Govt. of India	83.27	Dec 2006 to Nov 2011
4	Genetic Engineering of Lignin Biosynthetic Pathway in Sorghum	Nagarjuna Fertilizers and Chemicals Ltd.	37.00	Dec 2007 to Nov 2010
5	Molecular tools for exploitation of heterosis, yield and oil quality in sesame	NAIP-ICAR, Govt. of India	395.51 (IIT KGP component)	Jan 2008 to Mar 2012
6	Production of pure variety disease-free potato seeds through *in-vitro* culture technique	SRIC, IIT-Kharagpur	54.20	Nov 2008 to Oct 2012
7	Bioprospecting of genes and alleles mining for abiotic stress tolerance	NAIP-ICAR, Govt. of India	116.32	Aug 2009 to Jul 2012
8	Characterization of arsenic oxidizing bacteria from contaminated ground water and their mechanism of arsenic oxidation process for potential application	CSIR, Govt. of India	27.28	Feb 2012 to Jan 2016
9	Whole cell modeling and simulation in bacterium *Escherichia coli*	SRIC (SGIGC), IIT-Kharagpur	250.00	May 2014 to May 2017
10	Food security through reduced dietary intake: Low cost nutraceutical development from rice, wheat and coarse grain	MHRD, Govt. of India	108.09	Feb 2014 to Oct 2017
11	Targeted metabolomics-based selection of superior scented rice cultivars appropriate for growing in local agro-climatic zones	MHRD, Govt. of India	94.70	Feb 2014 to Oct 2017
12	Assessment of chemical and genetic divergence of some fragrant orchids of north-east India for sustainable improvement of community livelihood	DBT, Govt. of India	16.70	Mar 2015 to Mar 2018
13	DBT Pan-IIT Center for Bioenergy	DBT, Govt. of India	442.78	Dec 2014 to Dec 2020

LIST OF PUBLICATIONS IN THE PEER-REVIEWED JOURNALS (of impact factor 1 and above):

[Note: Underlining in 'Maiti MK' indicates **as group leader/corresponding author** in the following publications. Research Papers in Peer-reviewed Journals: **72 including 54 as group leader/corresponding author**. **Updated as on 15/08/2022**]

1. Pathak MK, Ghosh D, Maiti MK, Ghosh S (**1994**) Oil content and fatty acid composition of seeds of various ecotypes of *Arabidopsis thaliana*: a search for useful genetic variants. ***Current Science*** 67: 470-472.
2. Maiti MK, Ghosh S (**1996**) Acyl carrier protein of *Azospirillum brasilense*: properties of the purified protein and sequencing of the corresponding gene, acpP. ***Microbiology*** 142: 2097-2103.

3. Maiti MK, Krishnasamy S, Owen HA, Makaroff CA (**1997)** Molecular characterization of glyoxalase II from *Arabidopsis thaliana*. ***Plant Mol. Biol.*** 35: 471-481.
4. Crowder MW, Maiti MK, Banovic L, Makaroff CA (**1997**) Glyoxalase II from A. thaliana requires Zn (II) for catalytic activity. ***FEBS Letters*** 481: 351-354.
5. Bhattacharjee A, Ghosh SK, Ghosh D, Ghosh S, Maiti MK, Sen SK (**2002**) Identification of a heat-stable palmitoyl/oleoyl specific acy-acyl carrier protein thioesterase in developing seeds of *Madhuca butyracea*. ***Plant Science*** 163: 791-800.
6. Jha JK, Maiti MK, Bhattacharjee A, Basu A, Sen PC, Sen SK (**2006**) Cloning and functional expression of an acyl-ACP thioesterase FatB type from *Diploknema* (*Madhuca*) *butyracea* seeds in *Escherichia coli*. ***Plant Physiol. Biochem.*** 44: 645-655.
7. Hossain MA, Maiti MK, Basu A, Sen S, Ghosh AK, Sen SK (**2006**) Transgenic expression of onion leaf lectin gene in Indian mustard offers protection against aphid colonization. ***Crop Science*** 46: 2022-2032.
8. Jha JK, Sinha S, Maiti MK, Basu A, Mukhopadhyay UK, Sen SK (**2007**) Functional expression of an acyl carrier protein (ACP) from *Azospirillum brasilense* alters fatty acid profiles in *Escherichia coli* and *Brassica juncea*. ***Plant Physiol. Biochem.*** 45: 490-500.
9. Ghosh SK, Bhattacharjee A, Jha JK, Mondal AK, Maiti MK, Basu A, Ghosh D, Ghosh S, Sen SK (**2007**) Characterization and cloning of a stearoyl/oleoyl specific fatty acyl-acyl carrier protein thioesterase from the seeds of *Madhuca longifolia* (*latifolia*). ***Plant Physiol. Biochem.*** 45: 887-897.
10. Sinha S, Jha JK, Maiti MK, Basu A, Mukhopadhyay UK, Sen SK (**2007**) Metabolic engineering of fatty acid biosynthesis in Indian mustard (*Brassica juncea*) improves nutritional quality of seed oil. ***Plant Biotechnol Rep*** 1: 185-197.
11. Mandal CC, Basu A, Maiti MK, Dasgupta S, Roy D, Sen SK (**2007**) Prediction-based protein engineering of domain I of Cry2A entomocidal toxin of *Bacillus thuringiensis* for the enhancement of toxicity against lepidopteran insects. ***Protein Eng Des Sel.*** 20: 599-606.
12. Sattar S, Biswas PK, Hossain MA, Basu A, Maiti MK, Sen SK (**2008**) Search for Vegetative Insecticidal Proteins from local isolates of *Bacillus thuringiensis* effective against lepidopteran and homopteran insect pests. ***Journal of Biopesticide*** 1(2): 216-222.
13. Das S, Sen S, Chakraborty A, Chakraborti P, Maiti MK, Basu A, Basu D, Sen SK (**2010**) An unedited 1.1kb mitochondrial orfB gene transcript in the Wild Abortive Cytoplasmic Male Sterility (WA-CMS) system of *Oryza sativa* L. subsp. *indica*. ***BMC Plant Biology*** 10:39.
14. Sinha-Jha S, Jha JK, Chattopadhyaya B, Basu A, Sen SK, Maiti MK (**2010**) Cloning and characterization of cDNAs encoding for long-chain saturated acyl-ACP thioesterases from the developing seeds of *Brassica juncea*. ***Plant Physiol. Biochem.*** 48:476-480.
15. Chattopadhyaya B, Banerjee J, Basu A, Sen SK, Maiti MK (**2010**) Shoot induction and regeneration using internodal transverse thin cell layer culture in *Sesamum indicum* L. ***Plant Biotechnol. Rep***. 4:173-178.
16. Banerjee J, Maiti MK (**2010**) Functional role of rice germin-like protein1 in regulation of plant height and disease resistance. ***Biochem. Biophys. Res. Commun.*** 394:178-183.
17. Banerjee J, Das N, Dey P, Maiti MK (**2010**) Transgenically expressed rice germin-like protein1 in tobacco causes hyper-accumulation of H_2O_2 and reinforcement of the cell wall components. ***Biochem. Biophys. Res. Commun.*** 402:637-643.

18. Chattopadhyay T, Roy S, Mitra A, Maiti MK (**2011**) Development of a transgenic hairy root system in jute (*Corchorus capsularis* L.) with gusA reporter gene through *Agrobacterium rhizogenes* mediated co-transformation. ***Plant Cell Rep.*** 30:485-493.
19. Dey P, Banerjee J, Maiti MK (**2011**) Comparative lipid profiling of two endophytic fungal isolates-*Colletotrichum* sp. and *Alternaria* sp. having potential utilities as biodiesel feedstock. ***Bioresour. Technol***. 102:5815-5823.
20. Sattar S, Maiti MK (**2011**) Molecular characterization of a novel vegetative insecticidal protein from *Bacillus thuringiensis* effective against sap-sucking insect pest. ***J. Microbiol. Biotechnol.*** 21:937-946.
21. Bhattacharyya J, Chowdhury AH, Ray S, Jha JK, Das S, Gayen S, Chakraborty A, Mitra J, Maiti MK, Basu A, Sen SK (**2012**) Native polyubiquitin promoter of rice provides increased constitutive expression in stable transgenic rice plants. ***Plant Cell Rep.*** 31:271-279.
22. Chattopadhyay T, Bhattacharyya S, Das AK, Maiti MK (**2012**) A structurally novel hemopexin fold protein of rice plays role in chlorophyll degradation. ***Biochem. Biophys. Res. Commun.*** 420:862-868.
23. Chattopadhyay T, Roy S, Maiti MK (**2012**) Spatio-temporal regulation of the OsHFP gene promoter establishes the involvement of this protein in rice anther development. ***Biochem. Biophys. Res. Commun.*** 426:280-285.
24. Mukherjee R, Gayen S, Chakraborty A, Bhattacharyya J, Maiti MK, Basu A, and Sen SK (**2012**) Double-stranded RNA-mediated downregulation of *pdhk* gene expression to shorten maturation time of a late maturing native indica rice cultivar, Badshahbhog. ***Crop Science*** 52: 1743-1753.
25. Bhattacharya S, Sinha S, Dey P, Das N, Maiti MK (**2012**) Production of nutritionally desirable fatty acids in seed oil of Indian mustard (*Brassica juncea* L.) by metabolic engineering. ***Phytochem Rev*** 11:197-209.
26. Dey P, Kamdar MR, Mandal SM, Maiti MK (**2012**) Identification of an extracellular antifungal protein from the endophytic fungus *Colletotrichum* sp. DM06. ***Protein Pept Lett.*** 20:173-179.
27. Dey P, Maiti MK (**2013**) Molecular characterization of a novel isolate of *Candida tropicalis* for enhanced lipid production. ***J. Appl. Microbiol.*** 114:1357-1368.
28. Mandal SM, Porto WF, Dey P, Maiti MK, Ghosh AK, Franco OL (**2013**) The attack of the phytopathogens and the trumpet solo: identification of a novel plant antifungal peptide with distinct fold and disulfide bond pattern. ***Biochimie*** 95:1939-1948.
29. Roy S, Chattopadhyay T, Maiti MK (**2013**) Identification of a new allele of GS3 gene in an aromatic Indica rice cultivar Badshabhog. ***Intl J Agri Crop Sci.*** 6:1055-1061.
30. Bhattacharya S, Chattopadhyaya B, Koduru L, Das N, Maiti MK (**2014**) Heterologous expression of *Brassica juncea* microsomal ω-3 desaturase gene (*BjFad3*) improves the nutritionally desirable ω-6:ω-3 fatty acid ratio in rice bran oil. ***Plant Cell Tiss Organ Cult.*** 119:117-129.
31. Bhunia RK, Chakraborty A, Kaur R, Gayatri T, Bhattacharyya J, Basu A, Maiti MK, Sen SK (**2014**) Seed-specific increased expression of 2S albumin promoter of sesame qualifies it as a useful genetic tool for fatty acid metabolic engineering and related transgenic intervention in sesame and other oil seed crops. ***Plant Mol. Biol.*** 86:351-365.
32. Bhunia RK, Chakraborty A, Kaur R, Gayatri T, Bhat KV, Basu A, Maiti MK, Sen SK (**2015**) Analysis of fatty acid and lignan composition of Indian germplasm of sesame to evaluate their nutritional merits. ***J Am Oil Chem Soc*** 92:65-76.
33. Roy S, Chattopadhyay T, Maiti MK (**2015**) Overexpression of rice OsGAI in rice and tobacco modulates gibberellic acid-dependent responses. ***Crop Sci.*** 55:2201–2214.

34. Chattopadhyay A, Dey P, Barik A, Bahadur RP, Maiti MK (**2015**) A repressor activator protein1 homologue from an oleaginous strain of *Candida tropicalis* increases storage lipid production in *Saccharomyces cerevisiae* ***FEMS Yeast Res.*** 15(4):fov013. DOI:10.1093/femsyr/fov013. (11 pages).
35. Chattopadhyay T, Das PK, Roy S, Maiti MK (**2015**) Proposed physiological mode of action of rice hemopexin fold protein OsHFP: linking heme-binding with plant cell death. ***Acta Physiol Plant*** 37:95. DOI 10.1007/s11738-015-1842-7. (8 pages).
36. Bhattacharya S, Sinha S, Das N, Maiti MK (**2015**) Increasing the stearate content in seed oil of *Brassica juncea* by heterologous expression of *MlFatB* affects lipid content and germination frequency of transgenic seeds. ***Plant Physiol. Biochem.*** 96:345-355.
37. Atta S, Bera M, Chattopadhyay T, Paul A, Ikbal M, Maiti MK, Pradeep Singh ND (**2015**) Nano-pesticide formulation based on fluorescent organic photoresponsive nanoparticles: for controlled release of 2,4-D and real time monitoring of morphological changes induced by 2,4-D in plant systems. ***RSC Adv.*** 5:86990–86996. DOI: 10.1039/c5ra17121k.
38. Bhunia RK, Kaur R, Maiti MK, (**2016**) Metabolic engineering of fatty acid biosynthetic pathway in sesame (*Sesamum indicum* L.): assembling tools to develop nutritionally desirable sesame seed oil. ***Phytochem Rev.*** 15:799–811.
39. Bhunia RK, Chakraborty A, Kaur R, Maiti MK, Sen SK (**2016**) Enhancement of α-linolenic acid content in transgenic tobacco seeds by targeting a plastidial ω-3 fatty acid desaturase (*fad7*) gene of *Sesamum indicum* to ER. ***Plant Cell Rep***. 35:213–226.
40. Dey A, Samanta MK, Gayen S, Sen SK, Maiti MK (**2016**) Enhanced gene expression rather than natural polymorphism in coding sequence of the OsbZIP23 determines drought tolerance and yield improvement in rice genotypes. ***PLOS ONE*** 11 (3): e0150763. DOI:10.1371/journal.pone.0150763. (26 pages).
41. Das N, Bhattacharya S, Maiti MK (**2016**) Enhanced cadmium accumulation and tolerance in transgenic tobacco overexpressing rice metal tolerance protein gene OsMTP1 is promising for phytoremediation. ***Plant Physiol. Biochem.*** 105:297-309.
42. Bhattacharya S, Das N, Maiti MK (**2016**) Cumulative effect of heterologous *AtWRI1* gene expression and endogenous *BjAGPase* gene silencing increases seed lipid content in Indian mustard *Brassica juncea*. ***Plant Physiol. Biochem.*** 107:204-213.
43. Dey A, Samanta MK, Gayen S, Maiti MK (**2016**) The sucrose non-fermenting 1-related kinase 2 gene *SAPK9* improves drought tolerance and grain yield in rice by modulating cellular osmotic potential, stomatal closure and stress-responsive gene expression. ***BMC Plant Biology*****.** 16:158. (DOI:10.1186/s12870-016-0845-x). (20 pages).
44. Mohapatra B, Sarkar A, Joshi S, Chatterjee A, Kazy SK, Maiti MK, Satyanarayana T, Sar P (**2017**) An arsenate-reducing and alkane-metabolizing novel bacterium, *Rhizobium arsenicireducens* sp. nov., isolated from arsenic-rich groundwater. ***Arch Microbiol*****.** 199:191-201.
45. Das N, Bhattacharya S, Bhattacharyya S, Maiti MK (**2017**) Identification of alternatively spliced transcripts of rice phytochelatin synthase 2 gene *OsPCS2* involved in mitigation of cadmium and arsenic stresses. ***Plant Mol. Biol.*** 94:167–183.
46. Sarkar P, Roy A, Pal S, Mohapatra B, Kazy SK, Maiti MK, Pinaki Sar P (**2017**) Enrichment and characterization of hydrocarbon-degrading bacteria from petroleum refinery waste as potent bioaugmentation agent for in situ bioremediation. ***Bioresour. Technol***. 242: 15-27.

47. Banerjee J, Gantait S, Maiti MK (**2017**) Physiological role of rice germin-like protein 1 (OsGLP1) at early stages of growth and development in *indica* rice cultivar under salt stress condition. ***Plant Cell Tiss Organ Cult.*** 131:127–137.
48. Mondal R, Meena K, Karmakar PG, Maiti MK, Dey S, Mandal AB (**2017**) Development of an efficient micropropagation-based *Agrobacterium*-mediated genetic transformation protocol in commercial cultivar of jute (*Corchorus capsularis* L.). ***Vegetos*** 30(4) 12-21.
49. Mookherjee A, Bera P, Mitra A, Maiti MK (**2018**) Characterization and synergistic effect of antifungal volatile organic compounds emitted by the *Geotrichum candidum* PF005, an endophytic fungus from the eggplant. ***Microb. Ecol.*** 75:647–661.
50. Mookherjee A, Singh S, Maiti MK (**2018**) Quorum sensing inhibitors: can endophytes be prospective sources? ***Arch. Microbiol.*** 200:355–369.
51. Das PK, Biswas R, Anjum N, Das AK, Maiti MK (**2018**) Rice matrix metalloproteinase OsMMP1 plays pleiotropic roles in plant development and symplastic-apoplastic transport by modulating cellulose and callose depositions. ***Scientific Reports*** 8 (1):2783. (DOI:10.1038/s41598-018-20070-4). (16 pages).
52. Mohapatra B, Sar P, Kazy SK, Maiti MK, Satyanarayana T, (**2018**) Taxonomy and physiology of *Pseudoxanthomonas arseniciresistens* sp. nov., an arsenate and nitrate-reducing novel *gammaproteobacterium* from arsenic contaminated groundwater, India. ***PLOS ONE*** 13 (3): e0193718. (DOI:10.1371/journal.pone.0193718). (18 pages).
53. Jena UR, Swain DK, Hazra KK, Maiti MK (**2018**) Effect of elevated [CO_2] on yield, intra–plant nutrient dynamics, and grain quality of rice cultivars in Eastern India. ***J. Sci. Food Agric.*** 98:5841–5852.
54. Mookherjee A, Dineshkumar R, Kutty NN, Agarwal T, Sen R, Mitra A, Maiti TK, Maiti MK (**2018**) Quorum sensing inhibitory activity of the metabolome from endophytic *Kwoniella* sp. PY016: Characterization and hybrid model-based optimization. ***Appl. Microbiol. Biotechnol.*** 102:7389–7406.
55. Das N, Bhattacharya S, Bhattacharyya S, Maiti MK (**2018**) Expression of rice MATE family transporter OsMATE2 modulates arsenic accumulation in tobacco and rice. ***Plant Mol. Biol.*** 98:101–120.
56. Das S, Dey P, Roy D, Maiti MK, Sen R **(2019**) N-Acetyl-d-glucosamine Production by a Chitinase of Marine Fungal Origin: a Case Study of Potential Industrial Significance for Valorization of Waste Chitins. ***Appl. Biochem. Biotechnol.*** 187:407–423.
57. Biswas R, Singh BK, Dutta D, Das PK, Maiti MK, Basak A, Das AK (**2019**) Decrypting the oscillating nature of the 4′-phosphopantetheine arm in acyl carrier protein AcpM of *Mycobacterium tuberculosis*. ***FEBS Lett.*** 593(6):622–633.
58. Kutty NN, Ghissing U, Kumar M, Maiti MK, Mitra A (**2020**) Intense floral scent emission in *Polianthes tuberosa* L. (tuberose) variants sprouted from γ-irradiated tubers. ***J Plant Growth Regul.*** 39:112-121.
59. Chattopadhyay A, Maiti MK (**2020**) Efficient xylose utilization leads to highest lipid productivity in *Candida tropicalis* SY005 among six yeast strains grown in mixed sugar medium. ***Appl. Microbiol. Biotechnol.*** 104:3133–3144.
60. Mookherjee A, Mitra M, Kutty NN, Mitra A, Maiti MK (**2020**) Characterization of endo-metabolome exhibiting antimicrobial and antioxidant activities from endophytic fungus *Cercospora* sp. PM018. ***South African Journal of Botany***. 134:264-272.

61. Chattopadhyay A, Singh R, Mitra M, Das AK, Maiti MK (**2020**) Identification and functional characterization of a lipid droplet protein CtLDP1 from an oleaginous yeast *Candida tropicalis* SY005. ***Biochim. Biophys. Acta - Mol. Cell Biol. Lipids*** 1865(8):158725. (DOI: 10.1016/j.bbalip.2020.158725). (12 pages).
62. Chattopadhyay A, Gupta A, Maiti MK (**2020**) Engineering an oleaginous yeast *Candida tropicalis* SY005 for enhanced lipid production. ***Appl. Microbiol. Biotechnol.*** 104:8399–8411.
63. Krishnamoorthy A, Agarwal T, Kotamreddy JNR, Bhattacharya R, Mitra A, Maiti TK, Maiti MK (**2020**) Impact of seed-transmitted endophytic bacteria on intra- and inter-cultivar plant growth promotion modulated by certain sets of metabolites in rice crop. ***Microbiol. Res.*** 241:126582. (DOI: 10.1016/j.micres.2020.126582). (12 pages).
64. Chattopadhyay A, Singh R, Das AK, Maiti MK (**2020**) Characterization of two sugar transporters responsible for efficient xylose uptake in anoleaginous yeast *Candida tropicalis* SY005. ***Arch Biochem Biophys.*** 695:108645. (DOI: 10.1016/j.abb.2020.108645). (11 pages).
65. Chattopadhyay A, Mitra M, Maiti MK (**2021**) Recent advances in lipid metabolic engineering of oleaginous yeasts. ***Biotechnology Advances***. 53:107722. (DOI: 10.1016/j.biotechadv.2021.107722). (20 pages).
66. Krishnamoorthy A, Gupta A, Sar P, Maiti MK (**2021**) Metagenomics of two gnotobiotically grown aromatic rice cultivars reveals genotype-dependent and tissue-specific colonization of endophytic bacterial communities attributing multiple plant growth promoting traits. ***World J Microbiol Biotechnol.*** 37:59. (DOI: 10.1007/s11274-021-03022-5). (16 pages).
67. Sanya DRA, Onésime D, Passoth V, Maiti MK, Chattopadhyay A, Khot MB (**2021**) Yeasts of the *Blastobotrys* genus are promising platform for lipid-based fuels and oleochemicals production. ***Appl. Microbiol. Biotechnol.*** 105:4879-4897.
68. Patra N, Hariharan S, Gain H, Maiti MK, Das A, Banerjee J (**2021**) TypiCal but DeliCate Ca^{++}re: Dissecting the Essence of Calcium Signaling Network as a Robust Response Coordinator of Versatile Abiotic and Biotic Stimuli in Plants. ***Frontiers in Plant Science***. 12: 752246 (DOI:10.3389/fpls.2021.752246) (17 pages)
69. Jena UR, Bhattacharya S, Swain DK, Maiti MK (**2021**) Differential effect of elevated carbon dioxide on sucrose transport and accumulation in developing grains of three rice cultivars. ***Plant Gene*** 28:100337. (DOI: 10.1016/j.plgene.2021.100337) (9 pages).
70. Roy S, Sen A, Das B, Das N, Maiti MK, Bhattacharya S (**2022**) Genome-wide *in silico* analysis indicates the involvement of OsSWEET transporters in abiotic and heavy metal(loid) stress responses in rice. ***Biologia*** 77:1737–1755 (DOI: 10.1007/s11756-022-01022-w)
71. Mitra M, Singh R, Ghissing U, Das AK, Mitra A, Maiti MK (**2022**) Characterization of an alcohol acetyltransferase GcAAT responsible for the production of antifungal volatile esters in endophytic *Geotrichum candidum* PF005. ***Microbiol. Res.*** 260:127021 (DOI:10.1016/j.micres.2022.12702) (13 pages).
72. Dey P, Barman M, Mitra A, Maiti MK (**2022**) Lipid-rich endo-metabolites from a vertically transmitted fungal endophyte *Penicillium* sp. PM031 attenuate virulence factors of phytopathogenic *Ralstonia solanacearum*. ***Microbiol. Res.*** 261:127058 (DOI: 10.1016/j.micres.2022.127058) (12 pages).

Publications in Conference/ Symposium (International):

1. Maiti MK, Makaroff CA (**1997**) Molecular characterization of glyoxalase II from higher plant: comparison of mitochondrial and cytoplasmic isozymes. Arabidopsis Meeting, Madison, WI, USA.
2. Nayak P, Basu D, Maiti MK, Basu A, Sen SK (September **1999**) Transgenic strategy for development of second generation insect resistant rice cultivars. General Meeting of the International Rice Biotechnology Program of the Rockefeller Foundation, Phuket, Thailand.
3. Chattopadhyaya B, Basu A, Sen SK, Maiti MK (February **2008**) Development of an efficient shoot regeneration technique using 'transverse thin cell layer' culture system: a crucial step for genetic transformation of sesame. International Conference on Biotechnology (INCOB)-2008. Vellore Institute of Technology University, Vellore, India.
4. Bhattacharya S, Sinha S, Dey P, Das N, Maiti MK (September **2011**) Production of nutritionally desirable fatty acids in seed oil of Indian mustard (*Brassica juncea* L.) by metabolic engineering, International PSE Symposium on Phytochemicals in Nutrition and Health, Giovinazzo (Bari), Italy.
5. Dey P, Chakraborty M, Maiti MK (September **2012**) Genetic transformation of endophytic fungus *Colletotrichum* sp. DM06 for enhanced production of storage lipid, 15th International Biotechnology Symposium and Exhibition 2012" (IBS 2012), Daegu, Republic of Korea.
6. Bhattacharya S, Maiti MK (August **2014**) Nutritional enhancement of rice bran oil: Metabolic engineering using Brassica juncea microsomal ω-3 desaturase gene (BjFad3), International Association of Plant Biotechnology Congress 2014 (IAPB 2014), Melbourne, Australia.
7. Das N, Bhattacharyya S, Maiti MK (August **2014**) Functional characterization of the OsMATE1 gene putatively involved in arsenic transport or accumulation in *indica* rice, International Association of Plant Biotechnology Congress 2014 (IAPB 2014), Melbourne, Australia.
8. Bhattacharya S, Chattopadhayay B, Sinha S, Jha JK, Maiti MK (June-July **2015**) Improving nutritional quality of mustard and rice-bran oils through metabolic engineering of fatty acid biosynthesis pathway, International Conference of Society for Experimental Biology (SEB), Prague, Czech Republic.
9. Das N, Bhattacharya S, Maiti MK (June-July **2015**) Intron hairpin RNA-mediated gene silencing of OsPCS1 and OsPCS2 leads to reduced accumulation of arsenic in transgenic rice grains, International Conference of Society for Experimental Biology (SEB), Prague, Czech Republic.
10. Das N, Maiti MK (November, **2015**) OsMATE1, a member of the rice MATE family transporter, is involved in accumulation of arsenic in rice grain; Asian Congress on Biotechnology 2015 (ACB2015), Kuala Lumpur, Malaysia.
11. Chattopadhyay A, Maiti MK (November, **2015**) Selection of oleaginous yeast strains capable of utilizing both glucose and xylose simultaneously for enhanced lipid productivity, Asian Congress on Biotechnology 2015 (ACB2015), Kuala Lumpur, Malaysia.
12. Chattopadhyay A, Maiti MK (December, **2015**) Metabolic engineering of oleaginous yeast *Candida tropicalis* for enhanced lipid productivity, International Conference on Yeast Biology, Kolkata
13. Dey A, Maiti MK (December **2016**) Functional Characterization of the SAPK9 gene as Positive Regulator of Drought Stress Tolerance in Rice Plant, World Congress on Biotechnology 2016, Hyderabad, India.
14. Dey A, Maiti MK (January **2017**) Overexpression of SAPK9 gene improves drought tolerance in rice by modulating cellular osmotic potential, stomatal closure and stress responsive gene expression, International Symposium on Plant Biotechnology for Crop Improvement 2017, Guwahati, India.
15. Das PK, Maiti MK (March **2017**) Rice matrix metalloproteinase 1 gene, a key regulator of cell shape and tissue development, EMBO Conference Protein translocation and cellular homeostasis, Dubrovnik, Croatia.
16. Mookherjee A, Maiti MK (July **2017**) Antifungal activity of volatile organic compounds from endophytic *Geotrichum candidum* against rice pathogen *Rhizoctonia solani,* FEMS 2017 General Meeting, Valencia, Spain.
17. Chattopadhyay A, Maiti MK (July-August, **2017)** Characterization of the gene encoding a putative lipid droplet protein in oleaginous yeast *Candida tropicalis* SY005, Gordon Research Conference on Molecular & Cellular Biology of Lipids, New Hampshire, USA.
18. Mitra M, Maiti MK (July **2019**) Cloning and characterization of an alcohol acetyltransferase gene *GcAAT* responsible for broad spectrum antifungal activity of endophytic *Geotrichum candidum* PF005, 8th Congress of European Microbiologists- FEMS2019, Glasgow, Scotland.

19. Krishnamoorthy A, Maiti MK (July **2019**) Evaluation of bacterial endophytes isolated from aromatic rice cultivars as plant growth promoting agents for development of suitable biofertilizer, 8th Congress of European Microbiologists- FEMS2019, Glasgow, Scotland.

Publications in Conference/Symposium (National):

1. Maiti MK, Ghosh SK, Basu A, Nayak P, Ghosh D, Ghosh S, Sen SK (February **2000**) Genetic engineering of fatty acid composition of seed oil. 6th Regional Workshop on "Oilseeds and Oils". Dept. of Agril. & Food Engg. (PHTC), Indian Institute of Technology, Kharagpur. India.
2. Maiti MK, Ghosh SK, Bhattacharjee A, Basu A, Ghosh D, Ghosh S, Sen SK (March **2001**) Improvement of fatty acid composition in Brassica seed oil through genetic engineering. Workshop on "Alien Gene Transfer in Plants". Dept. of Botany, University of Calcutta, Kolkata, India.
3. Maiti MK (January **2007**) Polymerase Chain Reaction (PCR): Molecular tool for versatile utility in Agricultural Biotechnology. Training Workshop on "Operation, Interpretation of sophisticated equipments for Evaluation and Quality Monitoring in the field of Agriculture/ Horticulture & Environment". Institute of Agricultural Science, University of Calcutta, Kolkata, India.
4. Sattar S, Biswas PK, Hossain MA, Basu A, Maiti MK, Sen SK (November **2007**) Search for vegetative insecticidal proteins from local isolates of *Bacillus thuringiensis* effective against lepidopteran and homopteran insect pests. Presented at Biopesticide Conference BIOCICON-2007. St. Xavier's College, Palayamkottai, Tamil Nadu, India.
5. Banerjee J, Roy S, Basu A, Sen SK, Maiti MK (March **2010**) Genetic engineering approach to alter the plant architecture of indigenous rice (*Oryza sativa*) cultivar for improving the yield potential. Poster presented at National Symposium on Plant Cell Tissue and Organ Culture: The Present Scenario. University of Calcutta, Kolkata, India.
6. Chattopadhyay T, Basu A, Sen SK, Maiti MK (March **2010**) Strategy to develop a male-sterility system in jute plant (*Corchorus* spp.) through Genetic engineering. Poster presented at National Symposium on Plant Cell Tissue and Organ Culture: The Present Scenario. University of Calcutta, Kolkata, India.
7. Chattopadhyay T, Roy S, Mitra A, Maiti MK (February **2011**) Transgenic hairy roots of jute: Old roots in new routes. Poster presented at National Symposium on Recent advances in plant tissue culture and biotechnological researches in India & xxxii annual meet of plant tissue culture association (India), M. N. Institute of Applied Science, Bikaner, Rajasthan, India.
8. Chattopadhyay T, Roy S, Maiti MK (November **2011**) Linking anther development and chlorophyll degradation in rice (*Oryza sativa* L.) by a novel hemopexin fold protein OsHFP, Society of Biological Chemists (India) Meeting, CIMAP, Lucknow, India.
9. Bhattacharya S, Sinha S, Maiti MK (March **2013**) Heterologous expression of a FatB thioesterase increases the stearate content in seed oil of *Brassica juncea*, National Symposium on Plant Tissue Culture & Biotechnology for Food and Nutritional Security, Mysore, India.
10. Das N, Bhattacharyya S, Maiti MK (March **2013**) Molecular characterization of a MATE family gene in relation to arsenic transport or accumulation in *indica* rice grain, National Symposium on Plant Tissue Culture & Biotechnology for Food and Nutritional Security, Mysore, India.
11. E, Anjum N, Maiti MK (March **2017**) Genomics-assisted yield improvement of indigenous aromatic rice cultivars, National Symposium on Plant Biotechnology PTCA 2017, Kolkata, India.
12. Das PK, Maiti MK (March **2017**) Rice matrix metalloproteinase OsMMP1 influences sysmplastic and apoplastic transport through callose deposition, National Symposium on Plant Biotechnology PTCA 2017, Kolkata, India.
13. Bhattacharya P, Maiti MK (March **2017**) Transgenic strategies to increase the content of oleic acid and triacylglycerol in rice bran oil, National Symposium on Plant Biotechnology PTCA 2017, Kolkata, India.
14. Roy S, Chattopadhyay T, Maiti MK (March **2017**) Transgenic overexpression of the *Oryza sativa* gibberellic acid insensitive (OsGAI) gene in the background of a tall, indigenous, aromatic rice cultivar Badshabhog reduces plant height and improves other yield attributing traits, National Conference on Enhancing Nutritional Security through Climate Smart Farming Practices, Kalimpong, Darjeeling, India.
15. Sarkar S, Maiti MK (July **2018**) Metabolic engineering of microalga *Chlorella vulgaris* to increase lipid productivity, DBT National Workshop on Bioenergy-2018, IIT Roorkee, Roorkee, India.
16. Saha S, Dutta A, Ghosh SK, Maiti MK (July **2018**) Direct bioethanol production in microalgae: A genetic engineering approach, DBT National Workshop on Bioenergy-2018, IIT Roorkee, Roorkee, India.

17. Sarkar S, Maiti MK (October **2019**) Enhanced lipid production without growth inhibition by heterologous expression of a type 2 diacylglycerol acyltransferase in *Chlorella vulgaris*, DBT National Workshop on Bioenergy-2019, IIT Kharagpur, Kolkata, India.
18. Saha S, Chatterjee A, Ghosh SK, Maiti MK (October **2019**) Exploring direct bioethanol production in green alga *Chlorella vulgaris* through transgenic strategies, DBT National Workshop on Bioenergy-2019, IIT Kharagpur, Kolkata, India.

Publications as Book Chapters:

1. Ghosh SK, Bhattacharjee A, Maiti MK, Basu A, Ghosh D, Ghosh S, Sen SK (**2003**) Genetic Engineering of fatty acid composition of Indian mustard oil. *In:* New Horizons in Biotechnology, 365-370, S. Roussos *et al*. (Eds.) Kluver Academic Publisher.
2. Bhattacharyya J, Banga A, Mukherjee R, Vedula J, Hossain MA, Sen S, Mandal CC, Choudhuri AH, Dandapat A, Biswas PK, Basu A, Maiti MK, Ghosh D, Basu D, Das S, Nayak P, Sen SK (**2004**) Continuing the Golden Harvest: Development of Insect Resistant Transgenic Rice. *In:* Biotechnology for a better future, 239-254, L. D'Souza *et al.* (Eds.), SAC Publications.
3. Maiti MK (**2005**) Metabolic Engineering of fatty acid biosynthesis to develop nutritionally improved edible oilseed crop. *In:* Changing Scenario in Biosciences: Basic and Applied, 75-82, S. Jha and S. Rai (Eds.), UGC-Academic Staff College and Dept. of Botany, University of Calcutta.
4. Ghosh SK, Bhattacharjee A, Maiti MK, Basu A, Sen SK (**2008**) Genetic engineering of fatty acids in plants. *In:* A Transgenic Approach in Plant Biochemistry and Physiology, 73-100, Marisela Rivera-Domínguez *et al.* (Eds.) Research Signpost Publication.
5. Das N, Bhattacharya S, Maiti MK (**2020**) Biotechnological Strategies to Reduce Arsenic Content in Rice. *In*: Arsenic in Drinking Water and Food, 445-460, S. Srivastava (Ed.), Springer Nature Singapore Pvt. Ltd. (https://doi.org/10.1007/978-981-13-8587-2_18).
6. Chattopadhyay A, Maiti MK (**2021**) Lipid production by oleaginous yeasts. *In*: Advances in Applied Microbiology, 116:1-98, G. M. Gadd and S. Sariaslani (Eds), Academic Press & Elsevier Inc. (https://doi.org/10.1016/bs.aambs.2021.03.003).
7. Chattopadhyay A, Maiti MK (**2022**) Candida. *In*: Yeasts: From Nature to Bioprocesses, 113-147, S. L. Alves Júnior *et al.* (Eds.), Bentham Science Publishers.
8. Das N, Tirunagari P, Maiti MK (**2022**) Plant metal tolerance proteins: Insight into their roles in metal transport and homeostasis for future biotechnological applications. *In*: Plant Metal and Metalloid Transporters, K. Kumar and S. Srivastava (Eds), Springer Nature Singapore Pvt. Ltd. (Accepted).