Bio Data

Name :**DR. ARUP KUMAR MUKHERJEE**

Designation :Principal Scientist

Father's Name : Sri Kalimohan Mukherjee

Date of Birth : 13-11-1965

Address, Postal :ICAR-National Rice ResearchInstitute,
Vidyadharpur, Cuttack-753006, Odisha, India,
07205881784 (M)
E-Mail: arupmukherjee@yahoo.com, titirtua@gmail.com
arupkmukherjee@hotmail.com

Research Experience: 22 years after Ph.D. (nine years and eight months as Scientist in the Regional Plant Resource Centre, IRC Village, Bhubaneswar, Orissa).

Academic Qualifications:

- M.Sc. with specialization in Plant Pathology from the University of Visva Bharati in the year 1988.
- Ph.D. with Thesis Title: ***COMPONENTS OF SLOW-BLASTING-RESISTANCE IN RICE.*** Work done in the Division of Plant Pathology, Central Rice Research Institute, Cuttack, Orissa, India. Thesis was submitted on October 1994; viva was held on February 1996. Utkal University, Orissa, India, awarded the degree.
- PDF in the National Research Centre on Plant Biotechnology, Indian Agriculture Research Institute, New Delhi in the year 1997-1999, Sponsored by The Department of Biotechnology, Govt. of India. Title of the Project:***DNA Fingerprinting, Gene Tagging and Mapping of Economically Important Traits of Indian Mustard by Using Molecular Markers.***
- DBT Over Seas Associate ship in the Department of Biology, Israel Institute of Technology, Technion, Haifa 32000, Israel, during the period from 8th March 2006 to 7th March 2007. Title of the Project: ***Common pathways to leaf senescence and defence response: proteomic approach***.

Experiences:

- ☞ July 1997 to October 1999: PDF in the National Research Centre on Plant Biotechnology, Indian Agriculture Research Institute, New Delhi in the year 1997-1999, **Sponsored by The Department of Biotechnology**, Govt. of India. Title of the Project:***DNA Fingerprinting, Gene Tagging and Mapping of Economically Important Traits of Indian Mustard by Using Molecular Markers.***
- ☞ 8th March 2006 to 7th March 2007: **DBT Over Seas Associate ship** in the Department of Biology, Israel Institute of Technology, Technion, Haifa 32000, Israel, during the period from 8th March 2006 to 7th March 2007. Title of the Project: ***Common pathways to leaf senescence and defence response: proteomic approach***.
- ☞ Nov 1999 to July 2009: Scientist, Plant Biotechnology at The Regional Plant Resource Centre, Bhubaneswar, Odisha.
- ☞ July 2009 to Jan 2013: Senior Scientist, Plant Pathology, Central Institute for Cotton Research, Nagpur, Maharashtra.
- ☞ Jan 2013 to July 2015: Senior Scientist, Plant Pathology, Central Rice Research Institute (CRRI), Cuttack, Odisha.
- ☞ July 2015 to Contd.: Principal Scientist, Plant Pathology, National Rice Research Institute (formerly CRRI), Cuttack, Odisha.

Students Guidance:

(a) No. of Ph.D. Students Guided:Awarded: 9 nos.

1. Miss I. Mattagajasingh was awarded with her Ph.D. degree on the thesis work entitled 'Studies on molecular phylogeny of the genus *Mammillaria*' by the Utkal University, Bhubaneswar, Orissa on 21st November 2003.
2. Mr. L.K. Acharya (Regn. No.06-Botany, 2003--2004, Utkal University) has been awarded with his Ph.D. on the thesis work on 'Study of the phylogeny of some of leguminous taxa through, taxonomical, biochemical and molecular techniques' by the Utkal University on March 2007.
3. Mrs. Ajantaa Pal (Regn. No. 81 Sc.- Botany, 1990-1991, Utkal University) was awarded with the Ph.D. degree on "Genetic Transformation of *Amaranthus* spp. using *Ri and Ti* plasmid vectors" by the Utkal University on 30th August, 2008.
4. Mr. Manoj K. Panda (Regn no. Bot-46, 2006-07) was awarded with the Ph.D. degree on "Genetic diversity of rare and endangered tree species of eastern ghat using molecular markers" by The Utkal University on 27th April 2011.
5. Mr. Akhil K Debata, Regn No. 45-Botany-2006-07, was awarded with PhD. Degree on 16th Nov, 2013 by Utkal University, Bhubaneswar, Odisha.
6. Mr. Pradosh K Acharya, reg. No. 47-Botany, 2006-07, was awarded with PhD. Degree on 16th Nov, 2013 by Utkal University, Bhubaneswar, Odisha.
7. Hemanta K Sahoo, Regn 19, Botany 2007-08, Utkal University awarded with his PhD degree in February 2018 on "Studies on the Diversity, Distribution and Ethobotany of Wild-Edible Plants of Simplipal Biosphere Reserve with Special Reference to Assessment of Nutritional Value of Commonly Preferred Species".
8. Miss Shasmita has been awarded with her PhD degree on 31st January 2020by the Department of Botany, Ravenshaw University, Cuttack on "Induction of Defense Against Sheath Blight and Bacterial Blight Diseases in Rice (Oryza sativa L.)".
9. Miss Swagatika Mohanty was awarded with the Ph.D. Degree in Plant Pathology on 8th January 2021 by the Odisha University of Agriculture and Technology, Bhubaneswar, Odisha.
10. Mr. Ansuman Khandual was awarded with his Ph.D. Degree on 12th February 2021 by the Odisha University of Agriculture and Technology, Bhubaneswar, Odisha.

Students working for their Ph.D. degree: At present four students are working for their Ph.D. work.

(b) **No. of M.Sc. Students Guided**: Awarded 12 nos.

I. Tanmaoyee Kishan, Roll No. 12BOT/18, "Sensitivity of *Rhizoctonia solani* to Hexaconazole", Dept of Botany, CBSH, OUAT, BBSR, 2020
II. Ms Krishna compoleted her M.Phil from Centurion Univ, Bhubaneswar, Odisha.
III. Miss Rashmishree Patro, Regn No. 1261028004 of Siksha 'O' Anusandhan University, Bhubaneswar, Odisha worked on "Isolation, Molecular Characterization and Evaluation of Indigenous Trichoderma Spp. for Health Management of Rice" for her M.Tech (Biotech) Degree (2014).
IV. Miss Shibani Rath of Centre of Biotechnology, SOA University, Bhubaneswar worked on "Identification of different species of bamboo using PCR based molecular markers. (2009).
V. Miss Suprava Sahoo, Regn No. 0741737009 of Centre of Biotechnology, SOA University, Bhubaneswar worked on "Phylogenetic relationship among different species of *Ipomea* using molecular markers. (2009).
VI. Mr.Subrat Kumar Kar, Regn No. 0741737011 of Centre of Biotechnology, SOA University, Bhubaneswar worked on "Genomic relations among five species of *Ziziphus* using RAPD and ISSR markers" (2009).
VII. Miss Sujaya Dhar, MBT-407, Department of Biotechnology, Berhampur University, Berhampur, Orissa, worked on "Genomic relations among 13 taxa of the Tribe Bambuseae of the family Poaceae using ISSR markers". (2008).
VIII. Mr. Mahesh Ch Sahu, Roll No. 907009, Regn No. 2418/03 of PG Department of Botany & Biotechnology, Khlaikote (Auotnomous) College, worked on "Study of genetic diversity

among varieities of *Solanaum melongana* by using molecular marker, inter simple sequence repeats (ISSRs)". (2008).

IX. Miss Aparna Priyadarshini Patra of Department of Agricultural Biotechnology, College of Agriculture, Orissa Univ of Ag & Tech, Bhubaneswar, Orissa worked on "Study of genetic Diversity in Beetel Vine (Piper betle, L.) through molecular markers." (2006).

X. Mr. Srikanta Jena, Department of Biotechnology, Utkal University, Bhubaneswar worked on Studies on genetic diversity among different cultivars of mango (*Mangifera indica* L.) using PCR based molecular markers (RAPD& ISSR) (2005).

XI. Mr. Manoj Ku Bisoyi of PG Department of Botany & Biotechnology, Khlaikote (Auotnomous) College, worked on "Studies on genomic relation among six species of Sesbania using RAPD and ISSR markers" (2005).

XII. Mr. Ranjan Ku Shaw of of PG Department of Botany & Biotechnology, Khlaikote (Auotnomous) College, worked on "Identification of 14 cultivars of *Catharanthus roseus*, an important medicinal plant using molecular markers". (2005).

XIII. Sambit Ku Jagdev, IASE U/R/05/01/30881 of IASE University (Bhubaneswar Campus), IDCO Tower 2000, Mancheswar, Bhubaneswar worked on 'Study of genetic relations among five species of Calliandra (Leguminosae) through molecular markers" for **B.Tech, Biotechnology**. (2008).

Awards:

- Awarded with the Dr. **Sabuj Sahoo Memorial Lifetime Achievement Award** in the International Conference on Plant Science in Post Genomics Era, March 14-16, 2020, Institute of Life Sciences, Bhubaneswar, Odisha
- Received **AZRA Fellowship Award** (2020) during XVII AZRA International Conference jointly organized by UAS, Raichur, Karnataka, AZRA Bhubaneswar, Odisha and Entomological Society of India, IARI, New Delhi. 12th to 14th Feb 2020, UAS, Raichur, Karnataka.
- Elected as **Fellow of Association of Rice Research Workers** on 2nd June 2019 during 54th Indian Rice Group Meeting.
- "**Sir C.V. Raman Life time Achievement National Award**" for outstanding excellence and remarkable achievement in the field of Teaching, Research & Publications on 28th Oct 2018 at Chennai by IRDP group of journals, Chennai.
- Received **Distinguished Achievement Award -2015** for innovative research at the frontiers of Plant Pathology and for exceptional potential to shape the future through intellectual and inspired leadership in Plant Biotechnology awarded by Association for the Advancement of Biodiversity Science, 2015.
- Elected as **Fellow of Society of Association for the Advancement of Biodiversity Science**, 2015.
- Elected as **Fellow of Scientific Society of Advanced Research and Social Change**,2015
- Received **Anand Prakash Award** for 2014 for significant contribution in Plant Protection from Applied Zoologists Researchers Association.
- Received **SAB Merit Award** for 2012 from the Society of Applied Biotechnology for outstanding achievement in Agricultural Biotechnology.
- Elected as a **Fellow of the Society of Applied Biotechnology**, 2012.
- Qualified the National Eligibility Test (***NET***) conducted by Agricultural Scientists Recruitment Board (ASRB), Indian Council Of Agricultural Research (ICAR), New Delhi, in the Year 1996.
- Got Post-Doctoral Fellowship of **Department of Biotechnology**, Government of India, New Delhi, in the session 1997 – 1999 and placed at National Research Centre on Plant Biotechnology, IARI, and New Delhi.
- Worked as a Visiting Scientist in the Department of Biology, Israel Institute of Technology, Technion, Haifa 32000, Israel, during the period from 8th March 2006 to 7th March 2007.
- Has been awarded with *The Long term **DBT Overseas Associate shipAward*** for the year 2004-2005 and working on "Common pathways to leaf senescence and defense response

in plants: proteomic approach." Under the supervision of Prof. S. Gepstein and Prof B.A. Horwitz, Department of Biology, The Technion-Israel Institute of Technology, Haifa, Israel.

Recognitions:

- Elected as Zonal President (Eastern Zone) (2020) of Indian Phytopathological Society, New Delhi.
- Nominated as a member of IMC at ICAR-NIBSM, Raipur.
- *Has been selected as a Member of Asian Council for Science Editor till 2018*
- Enlisted in Live DNA Database with **Live DNA Regn. No. 91.649** (http://livedna.net/?dna=91.649). **ORCID ID: https://orcid.org/ 0000-0001-6451-0358. Scopus author Id=56523846200**
- Web of Science Researchers ID:**G-8749-2013**
- Acted as External Examiner in Department of Botany and Biotechnology of Calcutta University, Utkal University, Sambalpur University, Orissa University of Agriculture and Technology, Nagpur University, Gauhati University and Osmania University.
- Recognized as Research guide in the Discipline of Botany by Utkal University, Bhubaneswar, Orissa and Ravenshaw University, Cuttack.
- Invited as **Chief Guest** in The 37th Annual Seminar and delivered 24th**Bairiganjan Memoral Lecture** at Christ College, Cuttack on 1st February 2013.
- Delivered **Dr. Anil S. Khalatkar Memorial Lecture** at Post Graduate Department of Botany, Rashtrasant Tukadoji Maharaj Nagpur, University,Nagpur on 24th January, 2012.
- Acted as Guest Faculty in The Utkal University (Botany Deptt and Biotechnology Deptt.), Ravenshaw College (Biotech), Khalikote College (Biotech.) of Orissa.
- Delivered invited talks to different Seminars and Symposiums.
- Members of editorial board of numbers of journals of National and International reputes including Annals of Plant Protection Sciences, Asian Journal of Biotechnology, International Journal of Botany, International Journal of Plant Pathology, Plant Pathology Journal, Journal of Plant Science, International Journal of Modern Botany, etc.
- **Editor in Chief**: Journal of Scientific Achievements, ISSN: 2207-4236, http://jsciachv.com/editorial-team/ as on 29th March 2019.
- Acted as reviewer for Aquatic Botany, Caryologia, Cell Biology International, Genes & Genomics, Genetica, Indian Journal of Biotechnology, Indian Journal of Geo Marine Sciences, Indian Phytopathology, African J Biotech, African Journal of Agricultural Research, African Journal of Microbiology, Agricultural Sciences(AS), American Journal of Plant Sciences, International Journal of Genetics and Molecular Biology, International Research Journal of Agricultural Science, Journal of Ecology and Natural Environment, Journal of Plant Breeding and Crop Science, Research in Pharmaceutical Biotechnology, Science Asia, Science Journal of Biotechnology,Tropical Life Science Research, Indian Journal of Genetics, Indian Journal of Legume Research, Molecular Biology Reports, Plos One, Euphytica, Genomics etc.

Best Poster/Presentation in National/International Seminars/Symposia:

- Jena R., Swain, H., Khandual, A., Samanta, S., and **Mukherjee A.K**.* (2021). Isolation and molecular characterization of wild rice endophytes as biocontrol agent a in effective management of rice diseases. in the International Conference on Plant Science in Post Genomics Era, March 14-16, 2020, Institute of Life Sciences, Bhubaneswar, Odisha (**Awarded with the best poster presentation**).
- Harekrushna Swain, Totan Adak, Sarmistha Sarangi, Ansuman Khandual, Soumendra K. Naik and **Arup K Mukherjee*** (2020). "Chlamydospore of *Trichoderma* promotes plant growth and imparts higher stress tolerance as compared to conidia"."In: Proceeding of "International Conference on Agriculture (Agri-Vision 2020)", Institute of Life Science (ILS), Bhubaneswar, 27th-28th January 2020. **(Awarded with Young Investigator Award in the Oral Session)**
- Sarmistha Sarangi, Harekrushna Swain, Totan Adak, Gourav Kumar, Pratap Bhattacharya, S. T. Mehetre and **Arup K. Mukherjee***(2020). "Management of rice straw by using *Trichoderma* for plant growth promotion and stress tolerance". "In: Proceeding of "International Conference on Agriculture (Agri-Vision 2020)", Institute of Life Science (ILS), Bhubaneswar, 27th-28th January 2020. **(Awarded with Best Poster Presentation Award).**
- S Mohanty, S.K. Sahoo, S.S. Mahapatra, A. Khandual and **A.K. Mukherjee** (2019). Botanicals in management of Sheath Blight of Rice: A needful approach. National Conference on Biodiversity,Biotechnology& Bioinformatics: Innovative and Emerging Trends-2019.Date -

22nd and 23rd February,2019.P.G. Department of Botany, Berhampur University. (**Best Oral paper**)

- ☞ Samal P, Bal A, Samal R, Sarangi S, Swain H, Molla K A, Ray S, Behera L, Kar M K, **Mukherjee A K.** (2019).Differential gene regulation in susceptible and resistance rice varieties under the influence of sheath blight attack**. International Seminar** on Current Avenues in Microbial and Plant Sciences (CAMPS 2019) February 23-25,2019, University of Gour Banga,Malda,West Bengal,India (**Best Oral paper**).

Session Chair in Conference/Seminars:

- ☞ Co-chaired a session in the International Seminar on Current Advances in Microbial and Plant Sciences (CAMPS-2019), 23-25th February, 2019, University of Gour Banga, Malda, West Bengal, India.
- ☞ Chaired two sessions IBM 2014, Kolkata
- ☞ Chaired two sessions SAB Trichur, 2015
- ☞ Chaired one session AICRIP Plant Pathology section, 2019.

Extension Activities:

- ☞ Co-ordinator of Mera Gaon Mera Gourav Cluster XVIII 2015-till date.
- ☞ Organized Field Day in Chandol, Kendrapara and also two IPM trainings.
- ☞ As a member of Rice Value Chain visited different farmers' field and advised them on crop protection.
- ☞ Member of CRS advisory team advised farmers from Puri, Sakshigopal and Nimapara.
- ☞ As a member secretary of Agro Advisory service provide advisories for farmers of Eastern India.
- ☞ Provide training to different farmers from Odisha and other states regularly.

Publications in Journals and Proceedings:

(a)	Research Papers Published/Accepted:	112
(b)	News Letters:	6
(c)	Books/Technical Bulletin etc.	3
(d)	Book Chapters/Training Manual	22
(e)	Review articles:	6
(f)	Symposium papers/Abstracts:	20
(g)	Gen Bank (NCBI Submission:	41
(h)	Deposition of culture in IMTECH, Chandigarh:	14

Products:(i). Developed one *Trichoderma* based bio fungicide against soil and seed borne cotton pathogens named as *TrichoCash* which performed extremely well for continuous three years (2013-14, 2014-15, 2015-16) in the All India Coordinated Cotton Improvement Project (AICCIP) against *Fusarium* wilt of cotton.
(ii).Associated with release of 8 rice varieties namely **CR Dhan 506** (CVRC), CR Dhan 311(high protein & high Zinc) and CR Dhan 507 (SVRC) and **CR Dhan 510** has been identified in the current year 2016-17 for CVRC.**CR Dhan -309** (CVRC), CR Dhan -102 & CR Dhan 210 (SVRC); **CR Dhan 312** (CVRC).

Success Story:

Das Lipi, Sharma SG, Samal P, Patnaik SSC, Sahu RK, Rath PC, Mishra SK, Panda BB and **Mukherjee AK** (2017) Success Story on '**Rice value chain in PPP mode for increasing farm income and entrepreneurship'**, 1-4. ICAR-NRRI, Cuttack.

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Patent filed:

Mukherjee, A.K.,Adak, T. Swain, H, Behera, S.P., Dhua, U., Jena, M., Bagchi, T.B.,Bhattacharya, P.Kumar, A. and Dangar.T.K et.al. (2015). Multiuse composition of talcum powder based product containing novel *Trichoderma* sp. Complete **Patent file No. 1240/KOL/2015.**

Membership of Professional Societies: Member of (i)Founder member of the Genome India International. (ii) Life Member of Society of Applied Biotechnology (iii) Life Member of National Academy of Biological Sciences, (iv) Life member of Society of Association for the Advancement of Biodiversity Science, (v)Life member of Scientific Society of Advanced Research and Social Change, (vi) Life member of Applied Zoologists Researchers Association (vii) Society of Biotechnology and Bioinformatics. (viii) Life Member of Indian Phytopathological Society.

Externally funded research projects handled:14 nos.

Externally aided projects Implemented (With Instt EAP Nos.)	**PI/Co-PI**	**Funding Agency**	**Budget in Lakhs (Rs)**	**Period**
1. Accelerated decomposition of rice straw using novel *Trichoderma* strains and its mutants (Funded by Board of Research in Nuclear Sciences, DAE, Govt of India, No. 35/14/35/2016-BRNS/35159 dt 01/12/2016.). **EAP-233**	PI	BNRS, DAE, Govt. of India	21.4615	2017-2020
2. Use of microbes for management of abiotic stresses in rice: **EAP-186**	PI	EC-IFAD (STRASA)	15.00	2015-2020
3. National Innovations on Climate Resilient Agriculture (NICRA) **:EAP-158**	Co-PI	ICAR	77 .20 (2016-17)	
4. Study of host induced gene silencing (HIGS) and its utility in Rice-*R solani* pathosysytem to control sheath blight disease.. DST Science & Engineering Research Board (SERB) sanction order no **ECR/2015/000517** dated **06 August, 2016: EAP-226**	Co-PI/PI	DST, SERB	39.65436	2016-2019 (terminated on 2017)
5. Maintenance, characterization and use of EMS mutants of upland variety Nagina-22 for functional genomics in rice-phase-II, **EAP-213**.	Co-PI	DBT	120.31880	2015-2020
6. Incentivizing Research in Agriculture: Molecular genetic analysis of resistance/tolerance to different stresses in rice, wheat, chickpea and mustard including sheath blight complex genomics **EAP-201**	Co-PI	ICAR	70.18	2016-2020
7. CRP on molecular breeding, **EAP-211**	Co-PI	ICAR	54.27	2016-2020
8. Agri-Business Incubation Centre, **EAP-215**	Co-PI	NAIF, IP&TM – ICAR	60.00	2016-2017
9. CRP on Agro biodiversity: PGR Management and Use of Rice (Component I & II)-**EAP-204**	Co-PI	CRP-Agrodiversity	Variable	2015-2020
10. IT enabled self-sufficient sustainable seed system for rice: **EAP-251**	Co-PI	RKVY	432.00	2017-2020
11. Vyapar initiatives in krishi and agri startup RKVY Agribusiness incubator- RABI-RAFTAAR: **EAP-284** .	Co-PI	RKVY	233.00	2018-2020

Extension Works:

- Farmers' awareness program on Use of BCA at Chandol on 14th Jan 2021 with 100 farmers.
- Ganeshpur, Crop Cutting and demostration

Achievements:

DR. ARUP KUMAR MUKHERJEE completed his graduation and post-graduation from the Visva Bharati University and then joined as SRF at CRRI, Cuttack with ICAR SRF ship. During his PhD. work he studied different components of slow blasting resistance in rice. He has developed different techniques to estimate the host tissue damaged during the host pathogen interaction. He has developed a technique to estimate accurately the lesion area of rice blast disease. He has also studied the effect of nitrogen application on partial resistance to blast which has been published in a highly reputed journal like '**Journal of Agricultural Sciences'**. He has compared different parameters for studying the slow blasting resistance in rice which has brought him a publication in **The European Journal of Plant Pathology**. His extensive studies on the blast disease epidemiology have resulted in a number of publications in different journals of National and International repute. While working as a Post Doctoral Fellow he has tagged and mapped the white rust resistance gene in *Brassica juncea* which has been published in "Plant Breeding". He has studied genetic diversity of loose smut pathogen of wheat using RAPD, ISSR and AFLP markers.While working as Scientist in the Regional Plant Resource Centre, Bhubaneswar, Orissa, India, Dr. Mukherjee is engaged on studying molecular phylogeny and characterization of different tree species. Recently while working as Scientist in the Regional Plant Resource Centre, Bhubaneswar, Orissa, India, Dr. Mukherjee is engaged on studying molecular phylogeny and characterization of different tree species. He has already completed the molecular characterization of different groups of mangrove species using RAPD and AFLP markers. He and his group have standardized the isolation of highly mucilaginous plants of the family Cactaceae and also studied the genetic relations among the 31 species of *Mammillaria*. He is actively involved in studying the molecular phylogeny of three tribes like Desmodieae, Millettieae and Cassiineae of the family Leguminaseae. His group has justified the differentiation of the Genus *Cassia* to three genera *Cassia*, *Senna* and *Chamaechrista*. His group has characterized different cultivars of ginger, turmeric, *Mussaenda*, *Chrysanthemum*, Rose, *Canna*, Mango and different rare and endangered plants of the Eastern Ghats using molecular markers like RAPD and ISSR markers. In his post Ph.D. He has studied the genomics and proteomics of host pathogen interaction as **Visiting Scientist** in the prestigious Israel Institute of Technology, Technion, Haifa 32000, Israel on ***"Common pathways to leaf senescence and defense response: proteomic approach"*** Dr. Mukherjee has identified number of genes which are up regulated both in senescence and defense against pathogen attack in plants. Dr. Mukherjee for the first time identified, cloned and sequenced the genes expressed during the compatible interaction between *Arabidopsis thaliana* and *Alternaria brassicicola*. He also studied for the first time the comparative proteomics of *A. brassicicola* cultured in different host plant (compatible and incompatible interaction) extract and identified number of genes which are expressed in *A. brassicicola* when cultured in incompatible plant extract. Dr. Mukherjee reported **two new cotton pathogens from India** using molecular diagnostics. He and his group identified new biocontrol agent to control soil and seed borne cotton pathogens. He has published **105 research papers** in different reputed national and international journals including**Frontiers in Microbiology**, **Microbiological Research**, **Scientific Reports, Functional Plant Biology,Phytopathology, Frontiers in Plant Science**,**Journal of Proteomics, BMC Plant Biology, Biologia Plantarum, Euphytica, Scientia Horticulturae, Botanical Journal of Linnean Society** and many more. He has guided **10 PhD, and 15M.Sc**. Students. He has been awarded Received **SAB Academic Merit Award-2012** from the Society of Applied Biotechnology for outstanding achievement in Agricultural Biotechnology. Selected as a **Fellow of the Society of Applied Biotechnology**, 2012. He is member of Editorial Board of number of International Journals and he is also reviewer of reputed journals like Genes & Genomics, African J Biotech, Plant Molecular Biology Reports, Molecular Biology Reports, Journal of Plant Breeding and Crop Science, Caryologia, Genetica, Tropical Life Science Research, Indian Journal of Biotechnology, Indian Journal of Geo Marine Sciences, Science Asia, Aquatic Botany, Cell Biology International, Research in Pharmaceutical Biotechnology, International Journal of Genetics and Molecular Biology, American Journal of Plant Sciences, Science Journal of Biotechnology, African Journal of Microbiology, International Research Journal of Agricultural Science, African Journal of Agricultural Research, Indian Phytopathology

Significant Contributions In Plant Pathology:

- Tagged and Mapped white rust resistance gene in *Brassica juncea f*or the first time in India (***Plant Breeding*** **(Germany) 20 (6): 483-487**).
- Differentiated compatible and incompatible interactions in *Arabidopsis thaliana* with *Alternaria brassicicola* for the first time {***BMC Plant Biology*** **9:31. doi:10.1186/1471-2229-9-31, 2009**}.
- Identified the genes expressed during an incompatible interaction in *Arabidopsis thaliana* with *Alternaria brassicicola* using proteomics approach for the first time ***(J. Proteomics*. 73:709-720.,2010)**
- Reported Cotton Leaf Roll Dwarf Virus a new disease for cotton for the first time in India (**New Disease Reports, 25:22, 2012**) which was utilized for identification the disease from other countries (Australasian Plant Dis. Notes 10: 24, 2015; Australasian Plant Dis. Notes 11: 29, 2016; Plant Disease, 103(7), 1803, 2019).
- Identified *Sclerotium delphinii* a new pathogen in cotton of India for the first time **(*Journal of Plant Pathology*. 97(2):303-305, 2015).**
- A novel biocontrol agent has been identified to control seed and seedling diseases of cotton and developed formulation **(*3 Biotech.* 4(3):275-281, 2014).**
- Identified different Trichoderma isolates as (i) growth stimulator in paddy (ii) Bicontrol of Rice diseases(***Microbiological Research*** **214:83-90., 2018**) (iii) Decomposition of rice straw.
- Reported reappearance of Grassy stunt diseases in rice in Nimapada, Odisha **(NRRI Newsletter, January-March 2017).**

Date:02-07-2021
Place: Cuttack **(ARUP K. MUKHERJEE)**

Publications:

A. Research Papers: Total 112
Impact factor: ≥ 7=1
≥ 5=6

≥ 4=6
≥ 3=8
≥ 2=10
≥ 1=24
≥1= 4

No IF =53

(i) **Papers with Science citation indexing (Total International IF=160.019, Total Citations=1249):**

1. Samanta, S.; Nayak, S., Dhua, U., and **Mukherjee, A.K***. (2021).Genotypic-phenotypic diversity and distinctiveness among *Magnaporthe grisea* isolates from rice and weed *Echinochloa colonum*. ***Journal of Phytopathology***.DOI: 10.1111/jph.13026 (in press). **IF-1.789.**
2. Mohapatra, S., Panda, A.K., Basta, A.K., **Mukherjee, A.K.,** Pradhan, S.K. (2021).Development of submergence tolerant, bacterial blight resistant and high yielding near isogenic lines of popular variety, 'Swarna' through marker-assisted breeding approach.***Frontiers in Plant Science*.** doi: 10.3389/fpls.2021.672618. Published on line 22/06/2021. **IF=5.753.**
3. Samal, P., Molla, KA., Ball, A., Roy, S., Swain, H., Khandula, A., Sahoo, P., Behera, M., Jaiswal, S., Iquebal, A., Behera, L., Chakraborti, M., Kar, M., **Mukherjee, A.K***. (2021). Comparative transcriptome profiling reveals basis of differential sheath blight disease response in tolerant and susceptible rice genotypes.***Protoplasma**https://doi.org/10.1007/s00709-021-01637-x**IF=3.356**
4. Sarangi, S, Swain, H., Adak, T., Bhattacharyya, P., **Mukherjee, A.K.*** Kumar, G., Mehtre, S.T. (2021). *Trichoderma* mediated rice-straw compost promotes plant growth and imparts stress tolerance. ***Environmental Science and Pollution Research.***https://doi.org/10.1007/s11356-021-13701-3.**IF=4.223**
5. Bhattacharyya,P., Bisen,J., Bhaduri, D., Priyadarshini, S., Chakraborti, M., Adak, T., Selvan,P., **Mukherjee**, **A.K.** et. al. (2021).Turn the wheel from waste to wealth: Economic and environmental gain of sustainable rice straw management practices over field burning in reference to India.***Science of The Total Environment*.** DOI: 10.1016/j.scitotenv.2021.145896, published on 16th Feb 2021. **IF= 7.963.**
6. Swain, H, Adak,T.**Mukherjee, A.K***., Sarangi,S., SAMAL,P., Khandual,A., Jena, R., Bhattacharyya,P., Naik, S.K., Mehetre,S.T., Baite,M.S., Sunil Kumar M and Zaidi, N.W. (2021). Seed bio priming with Trichoderma strains isolated from tree bark improves plant growth, antioxidative defense system in rice and enhance straw degradation capacity. ***Frontiers in Microbiology***.12:633881. Doi:10.3389/fmicb.2021.633881, Accepted on 25th January 2021. **IF=5.64**
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A. **<u>Publications in News Letter/News paper/Popular articles:</u>**

1. Yadav,MK., Aravindan S., **Mukherjee,A.K**., Lenka, S. and Sharma, SK. (2016). Detection of seed borne fungi by conventional and modern methods. Indian Farming 66(2):39-41.

2. Yadav,MK., Aravindan S., **Mukherjee,A.K**., Bag,MK., Lenka, S., Ghritlahre, SK (2015). Viral Diseases of Soybean Popular Kheti, 3(3):138-143.
3. Pokhare, SS., Berliner, J., Adak, T., Kumar, U., Mukherjee, AK. (2015). Entomopathogenic nematodes:insec biocontrol agents. Indian farming 65(9)20-23. (online published 65(2).
4. Yadav, MK., Aravindan S., **Mukherjee,A.K**., Bag, MK., and Lenka, S(2015). Sheath Rot: Emerging Threat to Rice Production. *Everyman's Science* 5:286-288.
5. Dhua, U., and **Mukherjee, A.K.** (2015). Identification of causal organism of brown spot produced on rice leaves at CRRI, Cuttack. CRRI Newsletter.36 (1): p-18.
6. Adak,.T., **Mukherjee, A.K.,** Berliner, J and Pokhare, SS.(2015). Synthesis and characterization of silver nanoparticles. CRRI Newsletter.36 (1):18-19.
7. Dhua, U., Behera, L., **Mukherjee, A.K.** (2014).Mating type analysis of *Magnaporthe oryzae* populations in coastal odisha. CRRI Newsletter, 35 (3): p-19. (ISSN 0972-5865).
8. Singh, J., **Mukherjee, AK.,** And Tayade, A. (2012). BT kapashichi bud khutne, sukhne: karan o upay (in Marathi). Agroown, 11th August, 2012.
9. **Mukherjee, A.K.,** Mukherjee, P.K. and Kranthi, S. (2012). Identification of *Sclerotium delphini* causing seed rot and seedling rot in cotton. CICR News Letter.28 (2): 4-5.
10. Mukherjee, P.K., **Mukherjee, A.K.,** SampathKumar A and Kranthi, S. (2012). Development of Trichoderma formulation for management of root diseases of cotton. CICR News Letter.28(2): p-5.
11. Raj, S., **Mukherjee, A.K.,** Meshram, MK., Kranthi, S., and Shastri, CK. (2012). Development of multi disease resistant (MDR)lines. CICR News Letter.28(3&4): p-8.

B). PAPERS PRESENTED IN SYMPOSIA*:*

1. **Mukherjee, A.K. (2021).** Role of Trichoderma Diversity in Sustainable Agriculture. Plenary Speaker. International Conference on **Plant Science in Post Genomics Era,** Institute of Life Sciences, Bhubaneswar, Odisha, India, March 14-16, 2021.
2. **Mukherjee, A.K.** (2020). Invited lecture on "Identification of QTLs and Resistance genes in Rice infected with *Rhizoctonia solani*" in the National Webinar on "Plant disease management in the Genomics era" organized by Department of Botany, Centurion University of Technology and Management, Odisha on 30th Dec, 2020.
3. **Mukherjee A.K.** (2020). Invited lecture in BIIS-7 webinar (Biotech Innovation Ignition School-7) starting on December 1-21, 2020 on "Application of microbial diversity for sustainable health management of Crops: Use of Trichoderma spp". Dated 9th Dec 2020 organised by SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions) in collaboration with BIRAC (Biotechnology Industry Research Assistance Council, Department of Biotechnology, Govt. of India).
4. **Mukherjee, A.K.** (2020). Invited lecture as Key Note Speaker in International Conference on"Omics in Plant - Pathogen Interactions and their implication" organized by NIT, Rourkella, 16th to 18th Nov. 2020.
5. **Mukherjee A.K.** (2020). Microbial Diversity to Products for sustainable management of crop: Trcihoderma spp. the example. **Invited Talk** at National Conference on 'Emerging Trends in Plant Science Research (ETPSR 2020) during 01-03-2020 to 03-03-2020. Ravenshaw University, Cuttack, Odisha.
6. **Mukherjee A.K.** (2020). Trichoderma in good agriculture practices for enhancing farmers' income. **Invited Lecture as Key Note Speaker.**International Conference on Agriculture (Agrivision-2020),January 27-28, 2020, Bhubaneswar, Odisha.
7. **Mukherjee A.K.** (2019). Application of Trichoderma in management of rice straw and it's application in rice health management. **Lead Talk** at Eastern Zonal Conference (IPS) and National Symposium on "Mitigating Biotic Stresses in Agriculture for 21st Century: Changing Market Paradigm at Uttar Banga Krishi Viswa Vidyalaya, PUNDIBARI, COOCHBEHAR WB., 5-6 Nov, 2019.
8. **Dr. A.K. Mukherjee** delivered invited Talk on "Microbial Diversity in Eco Friendly and Sustainable Agriculture: Use of *Trichoderma* spp." In the International Seminar on Current Advances in Microbial and Plant Sciences (CAMPS-2019), 23-25th February, 2019, University of Gour Banga, Malda, West Bengal, India.

9. **Dr. A.K. Mukherjee** delivered invited talk on “Polymerase Chain Reaction: Genetic Diversity to Marker Assisted Breeding- Way to success.” In the National Seminar on “Biotechnological Interventions in Stress Management” organised by Rama Devi Women’s university, Bhubaneswar, Odisha on 12th January 2019.
10. **Dr. A.K. Mukherjee** delivered lecture on "Role of *Trichoderma* on climate resilient agriculture**"** for oral presentation in the “**National Seminar on Climate Change & World Peace**” on Dec 27-29, 2018 at Prof. M.S. Swaminathan Hall, OUAT, Bhubaneswar.
11. **Dr. A.K. Mukherjee** delivered lecture on "Management of Rice Crop using Microbes" in the International Conferences on Agriculture & Horticulture (Agritek-2018) during November 26-27 at Holiday Resorts, Puri, Odisha, India.
12. **Dr. A.K.Mukherjee***delivered a talk on “Trcihoderma spp: Genetic Diversity to Utility” in the* International Seminar *“*Indian Biodiversity Meet (IBM)”organized by Indian Statistical Institute, Kolkata from 15th March to 17th March 2018*.*
13. **Dr. A.K. Mukherjee** delivered invited talk 'Pathogens behavior in compatible and incompatible interaction using proteomics approach: A case study in*Alternaria brassicicola* infecting *Arabidopsis thaliana' in the* National Symposium on “*Challenges and Perspective in Plant Health Management under Climate Change Scenario” November, 23 – 24, 2017 at Kalyani, Nadia, India, organized by BCKV, Kalyani and Indian Phytopathological Society.*
14. **Dr. A.K.Mukherjee** delivered a lecture on “Novel *Trichoderma* strains for holistic plant health management” as Key Note Speaker in the 14th International Workshop on Trichoderma and *Gliocladium* (TG2016): Principles and Practice; 27-30th November 2016, Nagpur, India.
15. **Dr. A.K. Mukherjee** Presented a paper entitled “Riboflavin(vitamin B2) mediated defence in three rice varieties with different degrees of susceptibility against bacterial blight as indicated by chlorophyll fluorescence” as plenary speaker in the International Conference in Bacterial Blight held in Manila, Philippines, Oct 17 to 19, 2016.
16. **Mukherjee, A.K.** (2016). National Seminar on Plant Genomics and Biotechnology: Challenges and Opportunities in 21st Century” on 23-24th January, 2016, Orissa University of Agriculture and Technology, Bhubaneswar, Odisha.
17. **Mukherjee, A.K.** *(2015).* Polymerase chain reaction based molecular markers for assessment of genetic diversity in forest trees and horticultural crops. Presented as invited talk in the International Symposium on Biodiversity, Agriculture, Environment and Forestry. Organized by the Association for the Advancement of Biodiversity Science. *Ooty, Tamil Nadu, India, Dec 11- 12, 2015.*
18. **Mukherjee, A.K**., Swain H.K., Behera, SP., Adak, T., Bagchi, TB. Bhattacharya, P., Jena, M and Dhua, U. (2015). Utilization of Trichoderma diversity isolated from the above ground sources for rice health management. Presented as oral talk in the International Symposium on Biodiversity, Agriculture, Environment and Forestry. Organised by the Association for the Advancement of Biodiversity Science. *Ooty, Tamil Nadu, India, Dec 11to 12, 2015.*
19. S. Mohanty, S.K. Sahoo, S.S. Mahapatra, A. Khandual and **A.K. Mukherjee** (2019). Botanicals in management of Sheath Blight of Rice: A needful approach. In “National conference on Biodiversity, Biotechnology and Bioinformatics: Innovative and Emerging Trends -2019 (NCBBBIET-2019)” Berhampur University, Bhanjabihar, Odisha-760007, 22nd - 23rd February, 2019**. (Best Oral Presentation).**
20. M.K. Kar, A. Bal, A. Swain, R. Mishra, A. Mahender, S.K. Mohanty,***A. Mukherjee****, L. Behera and G.J.N. Rao (2015).*Molecular and *in silico* approaches for mapping of resistance to Rice Tungro Disease. INTERNATIONAL RICE SYMPOSIUM- IRS2015 NOV 18-20 HYDERABAD.
21. S. Lenka, L.K.Bose and **A. K. Mukherjee** (2015). *Screening of wild rice accessions of Oryza rufipogon for resistance against sheath blight pathogen,Rhizoctonia solani Kuhn* INTERNATIONAL RICE SYMPOSIUM-IRS2015 NOV 18-20 HYDERABAD.
22. Shanti Prava Behera, Harekrushna Swain, Torit B Bagchi, and **Arup K Mukherjee** *(2015).*Evaluation of *Trichoderma spp*. isolated from rice rhizosphere for management of rice diseases and growth promotion.INTERNATIONAL RICE SYMPOSIUM- IRS2015 NOV 18-20 HYDERABAD.
23. *M. K. Bag, **A. Mukherjee**, M. Yadav. (2015).Post flowering diseases of rice: potential threat to rice production.* .INTERNATIONAL RICE SYMPOSIUM- IRS2015 NOV 18-20 HYDERABAD.

24. Behera,L., **Mukherjee, A.K**., Kulakarni, K. and Apoorva, MJ (2015). Microsatellite based DNA fingerprints for Elucidation of Genetic Diversity in Rice (Oryza sativa L.). Poster presented in 5th International Conference on Next Generation Genomics and Integrated Breeding for Crop Improvement (NGGIBCI- V) at ICRISAT, Patancheru, India.18th to 20th February 2015.
25. **Mukherjee AK,**Mukherjee,P.K. and Kranthi, S.(2014) Identification and characterization of a bacterial biocontrol agent for broad spectrum antifungal activity. Presented in the AZRA Silver Jubilee International Conference on"Probing Biosciences for Food Security and Environmental Safety"organized by Applied Zoologists Researchers Association (AZRA), CRRI, Cuttack, Odisha, 16th to 18th Feb, 2014.
26. **Mukherjee AK** (2014).Application of Molecular markers for studying genetic diversity and molecular taxonomy of plants. Paper presented in the International conference on India Biodiversity Meet 2014, November 21-23, 2014. Organised by Indian Statistical Institute, Kolkata, India. November 21-23, 2014.
27. **Mukherjee, A.K.** Isolation, characterization, evaluation and utilization of local biocontrol agents for management of plant pathogens in sustainable agriculture. Presented as Guest Speaker in the National Seminar on "Exploration of microbes for social welfare" on 23rd Dec, 2013. Organised by the PG Dept of Microbiology, OUAT, Bhubaneswar, Odisha, India
28. **Mukherjee,A.K.,** (2013). Identification of genes for resistance against pathogenesis related accelerated programmed cell death in plants. .Presented in the National seminar on "GM Crops and Food Security" on 31st October 2013. Department of Biotechnology, Siksha Bhawan, Visva Bharati, Shantiniketan.
29. **Mukherjee A.K.** (2013). Application of Molecular marker in studying genetic diverisity of mangroves. Presented in the national Seminar on "Biodiversity and Conservation in Climate Change Scenario" organised by the Department of Biodiversity and Conservation, Central University of Orissa, Koraput, Orissa. 23-24th Nov. 2013.
30. Gokte-Narkhedkar, N., GulsarBanu, J., **Mukherjee,A.K.,** , Kranthi, S. and Kranthi K (2012). Neem for management of plant parasitic nematodes in cotton. *World Neem Conference*, Nagpur. 21st to 24th November 2012.
31. **Mukherjee, A.K** (2012). Proteomics of Host-Pathogen Interactions. Invited talk Presented in: 2nd International Symposium on Innovative and Modern Technologies for Agricultural Productivity. Food Security and Environmental Management. 19-20 Nov. 2012. Trichur, Kerala.
32. **Mukherjee, AK.,** Mukherjee, P.K., Kranthi, S. (2012). Cotton Leaf Roll Virus. Is it a new strain of chickpea stunt disease associated virus? Presented in: 2nd International Symposium on Innovative and Modern Technologies for Agricultural Productivity. Food Security and Environmental Management. 19-20 Nov. 2012. Trichur, Kerala.
33. Deshmukh, R.K., Kharkar, A., Borkar, S., Gajabhie, R. Gotmare, V., Lokanathan, T.R., Prakash, A.H., **Mukherjee,A.K.,** , Vijayakumari, P.R., Santhy, V. Meena, R.A., Rathinavel, K., Singh, S.B., and Singh, V.V. (2011). Assessment of hybrid seed quality produced by reciprocal crosses of parents of released hybrids of cotton. Presented in: National Seed Congress held at Pune (M.S.), 29th-31st January, 2011.
34. Deshmukh, R.K., Borkar, S., Kharkar, A., **Mukherjee,A.K.,** , Gotmare, V., Singh, S.B., Gajabhie, R., Prakash, A.H., Rathinavel, K., Meena, R.A., Vijayakumari, P.R., Santhy, V. Bhat, M.G. and Singh, V.V. (2011). Assessment of hybrid seed quality produced by reciprocal crosses of parents of released hybrids of cotton. Presented in: National Seed Congress held at Pune (M.S.), 29th-31st January, 2011.
35. Ukey, RC., **Mukherjee, AK**., Gawande, SJ and Meshram, MK (2009). Microflora assay from Bt cotton seedling rhizosphere. In National symposium on "Bt-Cotton: Opportunities and Prospects" at Central Institute for Cotton Research, Nagpur 440010 on November 17-19, 2009.
36. **Mukherjee, A.K.** (2008). Applications of molecular markers for study of mangrove genetic diversity. Presented in the National Seminar on "Wetland & Mangrove Biodiversity in Orissa Coast." Regional Plant Resource Centre, Bhubaneswar, Odisha, India.5th April, 2008.
37. Acharya, L.K., **Mukherjee, A.K.** and Panda, P.C. (2004). Molecular characterization of five medicinally important species of *Typhonium* (Araceae) through random amplified polymorphic DNA. In: *Proc. Symp. Ind. Sci. Cong*. Bhubaneswar Chapter. Utkal University, Bhubaneswar, Orissa, India, Dec. 11-12, 2004.
38. **Mukherjee, A. K**., and Nayak, P. (1997). Importance of spore production ability as a component of slow blasting resistance in rice. *Proc. International Conference on Integrated Plant Disease Management for Sustainable Agriculture.* 10-15 Nov.1997, New Delhi, INDIA.

39. **Mukherjee, A. K.,** Suriya Rao, A. V., De, R. N. and Nayak, P. (1997). Genetic diversity among slow blasting rice genotypes. *Proc. International Conference on Integrated Plant Disease Management for Sustainable Agriculture.* 10-15 Nov.1997, New Delhi, INDIA.
40. **Mukherjee, A. K**., and Nayak, P. (1995). Parameters for assessment of rice blast disease *Proc. Global Conference on Advances in Research on Plant Diseases and their Management,* Udaipur, Rajasthan, INDIA, Feb,12-17, 1995.
41. **Mukherjee, A. K.** and Nayak, P. (1995). Slow blasting genotypes in management of rice blast disease. *Proc. Global Conference on Advances in Research on Plant Diseases and their Management,* Udaipur, Rajasthan, INDIA, Feb,12-17, 1995.
42. **Mukherjee, A. K.,** Mohapatra, N. K. and Nayak, P. (1994). Incidence severity relationship and its application in rice blast management. *Proc. Indian Phytopathological Society Zonal Meeting,* Bhubaneswar, Orissa, INDIA, Dec, 16-17. 1994.
43. Mohapatra, N. K., **Mukherjee, A. K**., Mishra, A. K. and Nayak, P. (1994). Spatial dispersion pattern and sequential sampling plan for use in the integrated management of rice blast disease. *Proc. Indian Phytopathological Society Zonal Meeting*, Bhubaneswar, Orissa, INDIA, Dec, 16-17.1994.
44. Harekrushna Swain, Totan Adak, Sarmistha Sarangi, Ansuman Khandual, Soumendra K. Naik and **Arup K Mukherjee*** (2020). "Chlamydospore of *Trichoderma* promotes plant growth and imparts higher stress tolerance as compared to conidia"."In: Proceeding of "International Conference on Agriculture (Agri-Vision 2020)", Institute of Life Science (ILS), Bhubaneswar, 27th-28th January 2020. **(Awarded with Young Investigator Award in the Oral Session).**
45. Sarmistha Sarangi, Harekrushna Swain, Totan Adak, Gourav Kumar, Pratap Bhattacharya, S. T. Mehetre and **Arup K. Mukherjee***(2020). "Management of rice straw by using *Trichoderma* for plant growth promotion and stress tolerance". "In: Proceeding of "International Conference on Agriculture (Agri-Vision 2020)", Institute of Life Science (ILS), Bhubaneswar, 27th-28th January 2020. **(Awarded with Best Poster Presentation Award).**

C). Books Authored:

1. Nagrare, S.S., Kranthi, S., Kranthi, K.R., Naik, CV., Kumar, R., Dharajothi, B., Udikeri, S.S., **Mukherjee, A.K.**, Mukherjee, P.K. et.al. (2013). Handbook of Cotton Plant Heath. Published by Central Institute of Cotton Research, Nagpur, Maharashtra, India. PP. 100.
2. Prakash, A. Rao, J., **Mukherjee, A.K.** et.al. (2014). Climate change: Impact on crop pests. Published by AZRA, Cuttack, Odisha, PP. 200.ISBN-81-900947-2-7

D). *CHAPTERS IN BOOKS:*

International:

1. Swain H., **Mukherjee A.K***. (2020) Host–Pathogen–*Trichoderma* Interaction. In: Sharma A., Sharma P. (eds) *Trichoderma*. Rhizosphere Biology. Springer, Singapore. https://doi.org/10.1007/978-981-15-3321-1_8 ISBN (Print) 978-981-15-3320-4
2. Nayak, S., Samanta, S., and **Mukherjee, A.K*.** (2020) Beneficial Role of *Aspergillus* sp. in Agricultural Soil and Environment. In: Frontiers in Soil and Environmental Microbiology. (Edited By S.K. Nayak and B.B. Mishra). CRC Press, Taylor & Francis Group 6000 Broken Sound Parkway NW, Suite 300 Boca Raton, FL 33487-2742, eBook ISBN: 9780429485794, ISBN: 13: 978-1-138-59935-2 (Hardback). 365 Pages.
3. Sarkar, R.K.,**Mukherjee, A.K**., and Chakrabortty, K.(2019). Seed priming alleviates stress tolerance in rice (Oryza sativa.L.). In: "Priming and pre-treatment of seeds and seedlings: Implications in Plant Stress Tolerance and Enhancing Productivity in Crop Plants" (eds. Hasanuzzaman, M and Fotopoulos, V.) Pages:181-204. Springer Nature Singapur Pvt. Ltd. 2019. ISBN 978-981-13-8625-1
4. Nayak, S and **Mukherjee, AK** *(2015). Management of Agricultural Wastes Using Microbial Agents. In: Waste Management: Challenges, Threats and Opportunities (ISBN: 978-1-63482-195-7) (RP Singh and A. Sarkar eds) Publisher Nova Scientific, USA. Pages: 7x10 - (NBC-C).

National:

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