

# Resume

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Date of Birth : 05.09.1978

## **Academic Qualifications:** M.Sc, M.Phil. Ph.D.

- 2000: B.Sc. ( with Botany Hons.) from Assam University, Silchar, Assam, India
- 2002: M.Sc [ Life Science] with special paper in Plant Biochemistry from Assam University, Silchar, Assam, India
- 2006: M.Phil [ Life Science (Botany)] from Assam University, Silchar, Assam, India
- 2009: Ph. D[ Life Science (Botany)] from Assam University, Silchar, Assam, India

## **Teaching Experience**

- Seven years of teaching experience including the present job.

## **Research Experience**

- Six years of Research experience
- Worked as JRF in department of Life Science, Assam University, Silchar, July 2007-Feb 2009
- Worked as Research Associate in Department of Biotechnology, Indian Institute of Technology, Guwahati-781039, Assam, India, March 2009- Dec 2009.
- Worked as Assistant Professor in Department of Botany & Biotechnology, Karimganj College, Karimganj-788710, Assam, India, Dec 2009-Jan 2016.

## **Research Area of Interest**

- Biochemistry and molecular studies of abiotic stress and its tolerance and its recovery in plants.
- Currently I focus on abiotic stress tolerance and recovery in crop plants (Metal stress-Cu, As, Cd, etc and water stress and its recovery in plant). I intended to understand physiology molecular biology of abiotic stress recovery and its relation with mineral nutrition in plants. In addition, I am involved in understanding the role of nanoparticle (ZnO, Zn, etc) in abiotic stress tolerance and recovery mechanism in plant.

## **Membership of Professional Bodies**

- Indian Botanical Society, (Life member)
- Indian Science Congress, (Life Member)
- Indian Society of Plant Physiology (Life Member)
- Assam Science Society (Life Member)
- BEES (Society for Biometry Ecology and Econometrics), Karimganj College Karimganj (Life Member)
- GREENS, Karimganj (Annual member)

- Karimganj College, Science Forum (Annual member)

#### **Research Training Course/ Workshop/Programme Attended/ Paper presentation**

- DONEAR Sponsored Short-Term Course on “**Capacity Building for Micropropagation and Genetic Engineering of Bio-fuel Plants**” (15<sup>th</sup> -20<sup>th</sup> Jan, 2007 ) organized by Centre for Energy, IIT Guwahati
- **6<sup>TH</sup> ALL INDIA SUMMER RESEARCH TRAINING PROGRAMME ON MOLECULAR TECHNIQUES** ( May19-2<sup>nd</sup> June, 2008) organized by SMART, Research Department of Microbiology and Biotechnology, Sengunthar Arts and Science College Tiruchengode-637205. Namakkal Dt. Tamil Nadu, India.
- **Visited Gifu University & RIKEN BRC, Tsukuba, Japan** from Jan 26 2010 to 21<sup>st</sup> Feb 2010 in a collaborative project between **DST, Govt of India** and **JSPS, Govt of Japan**.
- Availed SRF-2011(Summer Research fellowship-2011) to work on genetic transformation of rice at Bose Institute, Kolkata under Prof. Arun Lahiri Mazumdar during April – June, 2011.
- 13<sup>th</sup> Indo-US Cytometry Workshop (8<sup>th</sup> -10<sup>th</sup> Oct 2012) on Application of Flo Cytometry in nanotechnology and Plant Genomics- organized by Department of Biotechnology, IIT, Guwahati, Assam , India.
- Three days Workshop on “ **Some modern techniques in Life Science and Bioinformatics**” Organised by IBH, Karimganj College, Karimganj-788710, Assam , India on 27<sup>th</sup> & 29<sup>th</sup> Feb, 2013
- Workshop on “ **Basic Bioinformatics and its application**” Organised by IBH, Karimganj College, Karimganj-788710, Assam , India on 18<sup>th</sup> & 19<sup>th</sup> Feb, 2013
- Hands on Training Workshop on “ **Real Time PCR and its applications** ” ( 24<sup>th</sup> – 31<sup>st</sup> May ,2013)- Organized by Department of Botany , NEHU, Shillong, Meghalaya,India.
- Workshop on “ **Computer Aided Drug Designing:Prospect and Challenges**” Organised by IBH, Karimganj College, Karimganj-788710, Assam , India on 22<sup>nd</sup> March, 2014
- Workshop on “ **Modern Techniques in Life Sciences**” Organised by Department of Botany and Biotechnology & IBH, Karimganj College, Karimganj-788710, Assam , India from 16<sup>th</sup> to 18<sup>th</sup> Aug, 2014
- National workshop on Rashtriya Uchchar Sikha Abhiyan-A Paradigm Shift for quality education and Financing Higher Education on 29<sup>th</sup> Aug, 2014, organized by ACTA, Karimganj College Unit and Central Committee in Collaboration with Assam University, Silchar, Assam, India
- One day orientation workshop on “Sensitization on Biodiversity and Climate Change” organized by ASTEC, Guwahati-5, Assam, India on 4<sup>th</sup> Sept, 2014.

- Presented a paper in oral on **“Growth and antioxidant responses of Zn NP in rice (*Oryza sativa*)”** in International Scientific Conference on Environmental Research: Issues, Challenges and Strategies for Sustainable Development and Livelihood Security at Hotel Kasai, Lumbini, Nepal, organized by Eurasian Academy of Environmental Sciences and Association for the Advancement of Biodiversity Science from 1<sup>st</sup> -3<sup>rd</sup> Nov, 2014.
- Acted as Resource person in Workshop on **“ Some Modern Techniques in Biosciences”** Organised by IBH, Karimganj College, Karimganj-788710, Assam, India from 24<sup>th</sup> to 26<sup>th</sup> Nov, 2014
- Acted as Resource person in Workshop on **“ Some Modern Techniques in Life Sciences & Biotechnology”** Organised by IBH, Karimganj College, Karimganj-788710, Assam, India from 15<sup>th</sup> to 22<sup>nd</sup> Dec, 2014
- Training on **“Molecular Modelling, Computer Aided Drug Designing & Molecular Dynamic Simulation”** conducted by Bioinformatics infrastructure Facility, C.V.Sc., AAU, Khanapara Guwahati from 17<sup>th</sup> to 20<sup>th</sup> March, 2015.
- One day Regional Seminar on **“ Literature in Context: Time Society and Culture”** Department of Bengali in Collaboration with IQAC, Karimganj College, Karimganj, Assam, India on 27<sup>th</sup> March 2015.
- Attended Short Term course on **“Recent Advances in Nanobiophotonics (From Lab to Clinic)”** from 13<sup>th</sup> to 17<sup>th</sup> July, 2015 at IIT Roorkee.

#### **Research Techniques Known**

- Plant Physiological and Biochemical methods for studying Abiotic stress Tolerance in Plants
- Reactive oxygen species (ROS) Signalling during Abiotic stress
- Oxidative stress and Antioxidative Protection metabolism in plants
- I have undertaken Plant Molecular Biology training as RA at IIT, Guwahati, Assam, India from March.2009 to Dec.2009.
- Visited Gifu University & RIKEN BRC, Tsukuba, Japan from Jan 26 2010 to 21<sup>st</sup> Feb 2010 in a collaborative project between DST, Govt of India and JSPS, Govt of Japan.

During this training period, I worked on- Agrobacterium mediated genetic transformation in Cowpea and Mungbean, Isolation of DNA and RNA from plants, Gene isolation and amplification using PCR, Handling of tissue cultures, Gene sequencing and Amino acid polymorphism studies in Cu induced HMA 5 protein in Rice cultivars.

#### **Refresher/Orientation Courses attended**

- Orientation Programme from 7<sup>th</sup> Sept to 4<sup>th</sup> Oct, 2011 Organised by UGC Academic Staff college, Aligarh Muslim University, Aligarh.
- Refresher Course on BioSciences 9<sup>th</sup> Sept to 28<sup>th</sup> Sept, 2013 Organised by UGC Academic Staff college, H P University, Shimla, Himachal Pradesh

#### **Reviewer of Peer reviewed Journals**

- Acta Physiologia Plantarum
- African Journal of Agricultural Research
- Photosynthetica
- Plant Molecular Biology Reporter

### Editorial Board Member

Associate Editor, Ecobios Journal

Associate Editor-IRJIMS (Basic & Applied Science)

### Research Projects ongoing

#### As Principal Investigator

Sl No	Title of the Project	Funding Agencies	Amount Sanctioned	Duration	Manpower	Status
1	Physiological and molecular approaches to water stress tolerance and recovery in Rice: Role of Zn nanoparticles	DBT, Govt of India	Rs 31.016 Lakhs	3 yrs	1 Project Fellow	Ongoing
2	Physiological and molecular approaches to dehydration stress tolerance and recovery in oryza sativa ∴ role of calcium	DST, Govt of India	22 Lakhs	3 yrs	1 Project Fellow	Ongoing

#### As Co-principal Investigator

Sl No	Title of the Project	Funding Agencies	Amount Sanctioned	Duration	Manpower	Status
1	Molecular Characterisation vis-d-vis in vitro assessment of medicinal potentials of probiotic microorganisms with high antibacterial activity isolated from vaginal swab of women of Barak Valley, Assam, India"	DBT, Govt of India	Rs 61.02 Lakhs	3 yrs	1 JRF	Completed

### Publications

1. **Upadhyaya, H.** and Panda, S. K. (2004) Antioxidant efficiency and biochemical variations in five clones of *Camellia sinensis* L.. **Physiol. & Mol. Biol. Plants**.10 (1):115-120.
2. **Upadhyaya, H.** and Panda,S.K. (2004) Responses of *Camellia sinensis* to drought and rehydration . **Biol. Plant.**,48 (4):597-600. **IF-1.97**
3. **Upadhyaya, H** and Panda, S. K. (2004) Pesticide induced alterations in physiological responses

in *Camellia sinensis*. **Ind. J. Plant Physiol.** 9(1):82-85.

4. Panda, S.K., Upadhyay R.K., **Upadhyaya, H.**, (2006). Salinity stress induced physiological and biochemical changes in *Azolla Pinnata*. **Acta. Bot. Hungarica** . 48:369-380.
5. **Upadhyaya, H.**, Khan, M.H. and Panda ,S. K. (2007) Hydrogen peroxide induces oxidative stress in detached leaves of *Oryza sativa*. **Gen. Appl. Plant Physiology**. 33, (1-2), 83-95.
6. **Upadhyaya, H.**, Panda, S.K., Dutta, B.K. (2008). Variation of physiological and antioxidative responses in tea cultivars subjected to elevated water stress followed by rehydration recovery. **Acta Physiologia Plantarum** . 30:457–468, **IF-1.63**
7. **H Upadhyaya, S K Panda, M K Bhattacharjee, Sakhi Dutta.** (2010). Role of arbuscular mycorrhiza in heavy metal tolerance in plants: prospects for phytoremediation. **J. Phytol** 2(7), 16-27.
8. **Upadhyaya H.**, Panda, S.K., Dutta, B. K (2011) CaCl<sub>2</sub> improves post drought recovery potential in tea [*Camellia sinensis* (L) O. Kuntze] **Plant Cell Report** , 30, (4); 495-503 ), **IF-2.27**
9. **Upadhyaya H,** Bhattacharjee MK, Deboshree Roy, Soumitra Shome. (2011) Toxic effect of copper on ten rice cultivars. **Journal of Research in Plant Sciences** 1: 038-044.
10. **Upadhyaya H.**, Dutta, B. K., Sahoo L, Panda, S.K. (2012). Comparative effect of Ca, K, Mn and B on post-drought stress recovery in tea [*Camellia sinensis* (L.) O Kuntze]. **Am J Plant Sci.** 3; 443-460.
11. **Upadhyaya H (2012)** Changes in Antioxidative Responses to Low Temperature in Tea [*Camellia sinensis* (L) O. Kuntze] Cultivars. **International Journal of Modern Botany** 2(4): 83-87.
12. **Upadhyaya H.**, Panda, S.K. (2013). Abiotic Stress Responses in Tea [*Camellia sinensis* L (O) Kuntze]: An Overview. **Reviews in Agricultural Science**, 1:1-10
13. Saha B, **Upadhyaya H**, Choudhury S, Sen A(2013). Studies on the antimicrobial activity of Co<sub>4</sub> (μ<sub>3</sub>-O)<sub>4</sub> (μ-O<sub>2</sub>C. C<sub>6</sub>H<sub>4</sub>-4-Cl)<sub>4</sub> (4-Me-Py)<sub>4</sub> : tetrakis (μ<sub>3</sub>-oxo) tetrakis (μ-4-chlorobenzoato-O) tetrakis (4-methylpyridine) cobalt (III). **The Clarion** 2 ( 2): 6-10.
14. **Upadhyaya H.**, Sahoo L, Panda, S.K. (2013). Molecular Physiology of Osmotic Stress in Plants G.R. Rout and A.B. Das (eds.), **Molecular Stress Physiology of Plants**, DOI 10.1007/978-81-322-0807-5\_7, # Springer India.
15. **Upadhyaya H.**, Dutta, B. K., Panda, S.K. (2013). Zinc modulates drought induced biochemical damages in tea [*Camellia sinensis* ( L) O Kuntze]. **J. Agric. Food Chem.**, 61, 6660–6670, **IF-2.82**
16. A. Sen, **H. Upadhyaya** , M K Bhattacharjee. (2013). Micro propagation of *Asplenium nidus* L, A Near threatened epiphytic medicinal Plant of N E India and its conservation. In T U Khan and SK Borthakur(eds), p 123-130.
17. **Upadhyaya H,** Shome S, Roy D, Bhattacharjee MK (2014). Arsenic induced changes in

growth and physiological responses in *Vigna radiate* seedling: effect of curcumin interaction. **Am J Plant Sci.** 5, 3609-3618.

18. M.K.Bhattacharya, S. Das Purkayastha, **H. Upadhyaya**, K.Pal and S.Das Lala (2015). Effect of certain abiotic factors on growth and antibacterial activity of vaginal Lactobacilli. **Int. J. Curr. Microbiol. App. Sci** (2015) 4(1): 359-363.
19. Sumi Das Purkayastha, MK Bhattacharya, HK Prasad, **H Upadhyaya**, K Pal, GD Sharma (2015) Antimicrobial Activity Of Lactobacillus Fermentum, A Volvo Vaginal Isolate. **Asian J Pharm Clin Res**, 8(2), 371-372
20. **Upadhyaya H**, Roy J, Dutta S (2015) Age dependent Biochemical Responses in *Camellia sinensis*. **FBLIS**, 3(2):39-43
21. **Upadhyaya H.**, Shome S, Tewari S, M K,Bhattacharya, Panda, S.K. (2015). Effect of Zn Np on Growth Responses of Rice. "Nanotechnology: Novel Perspectives and Prospects. 508-512.
22. **Upadhyaya H**, Dutta B.K., Panda S.K(2016) Drought Induced Physiological and Biochemical Changes in Leaves of Developing Seedlings of Tea [*Camellia sinensis* (L) O Kuntze ] Cultivars. **Journal of Tea Science Research**, 6(12):1-11.
23. **Upadhyaya H.**, Shome S, Tewari S, Bhattacharya M K, Panda, S.K. (2016). Zinc nanoparticles induced comparative growth responses in rice (*Oryza sativa* L.) cultivars. "In S Paul, S Tewari (eds) **Frontiers of Research in Physical Sciences**. p71-77