

FACULTY PROFILE

NAME: Dr. Eros Vasil Kharshiing

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JOINED ON: 01.07.2008

EDUCATIONAL QUALIFICATION

- Post-doctoral Research
 - ENEA, Rome, Italy (2007-2008)
 - University of Glasgow, UK (2012-2013)
- Ph.D. (2007)
- M.Sc. (2002)

AWARDS/ FELLOWSHIPS/SCHOLARSHIP

- Tobacco Harm Reduction Scholarship (2019-2020)
- DBT-Research Associateship availed at University of Glasgow, UK (2012-2013)
- ENEA Annual Research Fellowship availed at ENEA, Rome, Italy (2007-2008)
- DST-DAAD Scholarship availed at University of Freiburg, Germany (2006)
- DST-DAAD Scholarship availed at University of Freiburg, Germany (2005)
- CSIR-NET SRF availed at University of Hyderabad (2005-2007)
- CSIR-NET JRF availed at University of Hyderabad (2003-2005)
- University Merit Scholarship availed at North-Eastern Hill University, Meghalaya (2000-2002)

TEACHING EXPERIENCE

- Undergraduate Elective and Honours Programme in Botany (2008 onwards)
- Postgraduate Programme in Plant Molecular Biology (2011; 2014; 2017)
- Postgraduate Programme in Botany (2017)

RESEARCH EXPERIENCE

- Research guidance (2012 onwards)
- Post-doctoral Research (2012-2013)
- Post-doctoral Research (2007-2008)
- Ph.D. (2003-2007)

RESEARCH INTERESTS

Photoreceptor function, signaling and application in higher plants.

PROFESSIONAL TRAINING

- FDP on Entrepreneurship Incubation and Innovation conducted by Ramanujan College, University of Delhi (2020)
- Workshop on MOOCs conducted by UGC-HRDC, NEHU (2019)

- UGC-Winter School conducted by UGC-HRDC, NEHU (2014)
- National Workshop Training Course on DNA Barcoding and Genomic Diversity of Bio-resources conducted by Assam University (2012)
- National Workshop on Modelling Biological Systems conduct by Indian Statistical Institute Kolkatta (2011)
- Refresher Course in Botany conducted by UGC-HRDC, NEHU (2011)
- Orientation Programme conducted by UGC-HRDC, NEHU (2010)

MEMBER OF ACADEMIC BODIES

- Member BOS for Botany, NEHU
- Member BOS for Biotechnology, NEHU
- Member Moderation Board for Botany, NEHU
- Member Moderation Board for Microbiology, NEHU
- Examiner Undergraduate Elective and Honours examinations in Botany, NEHU
- Scrutiniser Undergraduate Elective and Honours examinations in Botany, NEHU
- Member District Level Expert Appraisal Committee, Forest and Environment Department, Govt. of Meghalaya

Reviewer for

- Grant Proposal Reviewer - Biotechnology and Biological Sciences Research Council (BBSRC), UK
- Frontiers in Physiology; Section - Plant Physiology (Frontiers, Switzerland)
- Scientia Horticulturae (Elsevier BV)
- Annals of Brazilian Academy of Sciences (Brazilian Academy of Sciences, Brazil)
- Theoretical and Experimental Plant Physiology (Springer US)
- Environmental and Experimental Botany (Elsevier BV)
- Plant Physiology and Biochemistry (Elsevier BV)
- Scientific Reports (Springer Nature)
- Plant Molecular Biology Reporter (Springer Nature)
- Plant Direct (Wiley, UK)
- Biologia Plantarum (Springer)
- AoB Plants (Oxford University Press, UK)

RESEARCH GUIDANCE

Research Associate

- Dr. Preeticia Dkhar

JRF

- Shriravi P Sinha
- Ophilia I L Mawphang
- Hame Bantei Mawkhiew
- Vardhana Lama

Project Intern

- Ramyani Bhattacharjee

RESEARCH PROJECTS

- 2019-2022; Molecular analyses of phytochrome regulation of starch synthesis and degradation in tomato. (Rs 43,91,120)
- 2019-2021; Functional characterisation of LOV/LOV protein (LLP) blue-light photoreceptors in tomato. (Rs 15,92,750)
- 2014-2018; Understanding phototropin regulation of photosynthesis and biomass accumulation in tomato by gene overexpression studies. (Rs 51,22,000)
- 2012-2015; Influence of mutations in photoreceptors genes on the expression of some nuclear and plastid genes in tomato and their effects on photosynthesis. (Rs 20,78,000)
- 2012-2013; Developmental regulation of phototropism (under DBT-Overseas Associateship) (Rs 18,92,000)

RESEARCH COLLABORATIONS

- Lingaraj Sahoo (Professor, Department of Bioscience and Bioengineering, IIT-Guwahati, India)
- Rameshwar Sharma (Professor, RTGR, University of Hyderabad, India)
- Yellamaraju Sreelakshmi (Associate Professor, RTGR, University of Hyderabad, India)
- John Christie (Professor and Director, IMCSB, University of Glasgow, UK)

PUBLICATIONS

- **Kharshiing EV***, Mawphlang OIL, Lama V, Bhattacharjee R and Sahoo L (2022) Manipulation of light environment for optimising photoreceptor activity towards enhancing plant traits of agronomic and horticultural importance in crops. *The Journal of Horticultural Science & Biotechnology* (Accepted) (*Corresponding author) **IF : 1.918**
- Mawkhiew HB, Sahoo L and **Kharshiing EV** (2021) Gene-to-trait knowledge graphs show association of plant photoreceptors with physiological and developmental processes that can confer agronomic benefits. *Genetic Resources and Crop Evolution* 68: 2727-2735 **IF : 1.876**
- **Kharshiing E**, Sreelakshmi Y and Sharma R (2019) The Light Awakens! Sensing Light and Darkness. *Sensory Biology of Plants* (Ed. Sudhir Sopory) 21-57 **IF : Not applicable**
- Sullivan S, **Kharshiing E**, Laird J, Sakai T and Christie J (2019) De-etiolation enhances phototropism by modulating NON-PHOTOTROPIC HYPOCOTYL 3 phosphorylation status. *Plant Physiology* 180: 1119-11131 **IF : 8.005**
- Mawphlang OIL and **Kharshiing EV** (2017) Photoreceptor Mediated Plant Growth Responses: Implications for Photoreceptor Engineering Towards Improved Performance in Crops. *Front. Plant Sci.* doi: 10.3389/fpls.2017.01181 **IF : 6.627**

- Sullivan S, Takemiya A, **Kharshiing E**, Cloix C, Shimazaki K-I, Christie J (2016) Functional Characterisation of Arabidopsis Phototropin 1 in the Hypocotyl Apex. *The Plant Journal* 88: 907-920 (Cover page article for that issue) **IF : 7.091**
- **Kharshiing E*** and Sinha SP (2016) Deficiency in phytochrome A alters photosynthetic activity, leaf starch metabolism and shoot biomass production in tomato. *J of Photochemistry and Photobiology B: Biology* 165: 157-162 (*Corresponding author) **IF : 6.814**
- **Kharshiing E*** and Sinha SP (2015) Plant productivity: Can photoreceptors light the way? *J Plant Growth Regul* 34: 206-214 (*Corresponding author) **IF : 4.640**
- Sharma S, **Kharshiing E**, Srinivas A, Zikihara K, Tokutomi S, Nagatani A, Fukayama H, Bodanapu R, Behera RK, Sreelakshmi Y, Sharma R (2014) A Dominant Mutation in the Light-Oxygen and Voltage2 Domain Vicinity Impairs Phototropin1 Signaling in Tomato. *Plant Physiology* 164: 2030-2044 **IF : 8.005**
- **Kharshiing E**, Sullivan S and Christie J (2013) Initiation of Phototropic Growth - the Where, the How and the Now. *The Biochemist* 35 (5): 8-12 **IF : Not applicable**
- Negi S, **Kharshiing EV**, Sharma R (2011) NO way! Is Nitric Oxide Level in Tomato Regulated by a Mammalian IKK/NF- κ B like Signaling Pathway? *Plant Signal Behaviour* 6 (7): 1049-1052 **IF : 2.734**
- **Kharshiing EV**, Kumar GP, Sharma R (2010) PIN it on Auxin: The role of PIN1 and PAT in tomato development. *Plant Signal Behaviour* 5 (11): 1381-1385 **IF : 2.734**
- Negi S, Santisree P, **Kharshiing EV**, Sharma R (2010) Inhibition of the Ubiquitin-Proteasome Pathway Alters Cellular Levels of Nitric Oxide in Tomato Seedlings. *Molecular Plant* 3: 854-869 **IF : 21.949**
- **Kharshiing EV**, Kumar GP, Ditengou FA, Li X, Palme K, Sharma R (2010) The polycotyledon (pct1-2) Mutant Of Tomato Shows Enhanced Accumulation Of PIN1 Auxin Transport Facilitator Protein. *Plant Biology* 12 (1): 224-228 (Cover page article for that issue) **IF : 3.877**
- Vankadavath NR, Hussain AJ, Reddaiah B, **Kharshiing E**, Basha PO, Gupta S, Sreelakshmi Y, Sharma R. (2009) Computer Aided Data Acquisition Tool for High throughput Phenotyping of Plant Populations. *Plant Methods* 5:18 **IF : 5.827**

ABSTRACTS & PRESENTATION IN NATIONAL/ INTERNATIONAL SEMINAR/ SYMPOSIUM

- Gene-to-trait knowledge graphs show association of plant photoreceptors with physiological and developmental processes that can confer agronomic benefits (International Plant Physiology Virtual Conference; July 2020)
- A role for Phytochrome A in transitory starch metabolism (SOL International Online Meeting; November 2020)
- Photoreceptor regulation of agronomically beneficial traits in plants (Advancement of Biology in the 21st Century, Visva Bharati University, India; February 2020)
- Photoreceptor effects on agronomic traits: Implications for plant photoreceptor engineering towards improved crop performance (Recent Advances in Applied Biological Sciences, NEHU, India; May 2018)
- Photoreceptor effects on photosynthetic activity, shoot biomass and transitory starch metabolism in tomato (International Conference on Functional Plant Biology, Assam University, India; January 2017)
- Mutations in genes involved in light signaling alters photosynthetic activity of isolated chloroplasts in tomato (Assam University, India; March 2014)
- Spatial initiation of phototropic growth (International Symposium on Plant Photobiology, Edinburgh University, UK; June 2013)
- Analysis of a non-phototropic mutant of tomato implicates novel ecological functions for phototropin-like receptors in tomato (International Symposium on Light and Life, University of Hyderabad, India; August 2007)
- Loss of phototropic response alters hypocotyl growth orientation of tomato seedlings in blue light (Workshop on Tomato Genomics, University of Hyderabad, India; November 2006)
- Analysis of Developmental Responses in Tomato by Characterisation of Novel Mutations (2nd Solanaceae Genome Workshop, Ischia, Italy; September 2005)

ADDITIONAL RESPONSIBILITIES SINCE 2018 (IN ST. EDMUND'S COLLEGE)

- Co-ordinator Research and Publication Cell
- In-charge Table-Tennis College teams (Boys and Girls)