

Ritesh GHOSH

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| Areas of expertise | Plant molecular physiology, Plant mechanobiology, Plant epigenetics, Plant-environment interaction | Google Scholar |
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Professional positions

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| 2024 – Present | Assistant Professor Grade-I, Indian Institute of Technology - Kharagpur, India |
| 2023 – 2024 | Technical Manager, Department of Biosciences, Durham University, UK |

Academic positions

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| 2021 – 2023 | Royal Society Newton International Fellow, Imperial College London, UK |
| 2020 – 2021 | Lawski Foundation Postdoctoral Fellow, Lund University, Sweden |
| 2017 – 2020 | Postdoc, INRAE/ Université Clermont Auvergne, PIAF lab, France |
| 2016 – 2017 | Postdoc, Yeungnam University, South Korea |
| 2009 – 2011 | Researcher, Bose Institute, India |

Degrees

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| 2011 – 2016 | Ph.D. in Molecular Genetics & Biotechnology, Yeungnam University, South Korea |
| 2007 – 2009 | M. Sc., Bose Institute, University of Calcutta, India Subject: Plant Molecular Biology & Biotechnology |
| 2004 – 2007 | B. Sc., Scottish Church College, University of Calcutta, India Subject: Botany (Honours), Chemistry, Zoology |

Award & Scholarship

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| 2021 – 2023 | Royal Society - Newton International Fellowship 2020, UK. (Grant amount £121,882) |
| 2020 – 2021 | Lawski Foundation Postdoctoral Scholarship 2020, Sweden |
| 2008 - 2009 | Scholarship for academic proficiency by Bose Institute, Calcutta |
| 2005 | 'Certificate of Merit' by Scottish Church College, Calcutta for academic proficiency |

TRAINING and CERTIFICATES

- 2023: Leadership Effectiveness by Imperial College Business School, UK
- 2023: Introduction to Management by Imperial College Business School, UK
- 2023: Research Project Management by Imperial College London, UK
- 2022: Scientific Entrepreneurship by Imperial College Business School, UK
- 2022: Public Engagement for Independent Researchers by Royal Society, UK

TEACHING:

- “Introduction to Biotechnology” to B.Tech students at Indian Institute of Technology, Kharagpur.
- “Plants sense the touch too – an introduction to plant mechanobiology” to UG students as part of Research Masterclasses at Durham University, UK.
- “How to read and present primary research papers” to MSc Biomechanics students at Imperial College London.

SUPERVISING ACTIVITY

- March 2021**, Supervised a Master student for his thesis for Molecular Genetics course at Lund University, Sweden. *Thesis title*: Expression analysis of mechanoresponsive genes in cereals after jasmonic acid treatment.
- July – August 2018**, Supervised a Master (M1) student for his thesis at the Department of Plant Integrative Biology and Breeding, Université Clermont Auvergne, France. *Thesis title*: Role of epigenetic marks in poplar accommodation to stem bending.
- August 2010**, Supervised a Master student for her thesis at Bose Institute, Calcutta, India. *Thesis title*: Characterization of ARID/HMG – a high mobility group protein from *Arabidopsis thaliana*.

KEY PUBLICATIONS

1. O. Alyammahi, S. Kappachery, S. Sasi, R. Ghosh *et al.*, Ectopic expression of the potato StD26 encoding a ribosomal protein S27 enhances salt tolerance in *Arabidopsis thaliana*. **Journal of Plant Growth Regulation**, 2023.
2. E. Darwish, R. Ghosh *et al.*, The dynamics of touch-responsive gene expression in cereals. **Plant Journal**, 2023.
3. S. Sashi, S. Kappachery, J. Venkatesh, R. Ghosh *et al.*, Overexpression of potato StPIP2-7 ameliorates PEG-induced osmotic stress in transgenic *Arabidopsis* plants. **Plant Growth Regulation**, 2023.
4. E. Darwish, R. Ghosh *et al.*, Touch signalling and thigmomorphogenesis are regulated by complementary CAMTA3- and JA-dependent pathways. **Science Advances**, 2022.
5. R. Ghosh* *et al.*, Mechanostimulation: a promising alternative for sustainable agriculture practices. **Journal of Experimental Botany**, 2021. **Co-corresponding author*.
6. R. Ghosh*, B. Choi* *et al.*, Proteomic changes in the SV-treated *Arabidopsis thaliana* facilitate defense response during *Botrytis cinerea* infection. **Plant Pathology Journal**, 2019. **Equal contribution*.
7. M.A. Gururani, J. Venkatesh, R. Ghosh *et al.*, Chlorophyll-a fluorescence evaluation of PEG-induced osmotic stress on PSII activity in *Arabidopsis* plants expressing SIP1. **Plant Biosystems**, 2017.
8. B. Choi*, R. Ghosh* *et al.*, Positive regulatory role of sound vibration treatment in *Arabidopsis thaliana* against *Botrytis cinerea* infection. **Scientific Reports**, 2017. **Equal contribution*.
9. R. Ghosh *et al.*, Expression analysis of sound vibration-regulated genes by touch treatment in *Arabidopsis*. **Frontiers in Plant Science**, 2017.
10. D.M. Kasote*, R. Ghosh* *et al.*, Multiple reaction monitoring mode based liquid chromatography-mass spectrometry method for simultaneous quantification of brassinolide and other plant hormones involved in abiotic stresses. **International J of Analytical Chemistry**, 2016. **Equal contribution*.
11. R. Ghosh *et al.*, Exposure to sound vibrations lead to transcriptomic, proteomic, and hormonal changes in *Arabidopsis*. **Scientific Reports**, 2016. *Evaluated at F1000*.
12. A. Roy, A. Dutta, D. Roy, P. Ganguly, R. Ghosh *et al.*, Deciphering the role of the AT-rich interaction domain and the HMG-box domain of ARID-HMG proteins of *Arabidopsis thaliana*. **Plant Molecular Biology**, 2016.
13. R.C. Mishra, R. Ghosh, H. Bae: Plant acoustics: in the search of a sound mechanism for sound signaling in plants. **Journal of Experimental Botany**, 2016.
14. R. Ghosh *et al.*, Developmental- and stress-mediated expression analysis of cinnamoyl-CoA reductase 1 (CCR1) from *Hibiscus cannabinus*. **Journal of Plant Interactions**, 2015.
15. D. Roy, A. Paul, A. Roy, R. Ghosh *et al.*, Differential acetylation of histone H3 at the regulatory region of OsDREB1b promoter facilitates chromatin remodelling and transcription activation during cold stress. **Plos One**, 2014.

Preprint:

- R. Ghosh* N. Leblanc-Fournier*: Temporal modification of H3K9/14ac and H3K4me3 histone marks mediates mechano-responsive gene expression during the accommodation process in poplar. **Co-corresponding author* [in **BioRxiv**, DOI:10.1101/2023.02.12.526104]

TALKS

- *Insights into sound vibration-mediated molecular alteration and its effect on stress response in Arabidopsis*. Seoul National University, South Korea (2017); Korea University, South Korea (2017); Institute for Integrative Biology of the Cell (I2BC), France (GDR PhyP Workshop, 2018)
- *Plant-sound vibration interaction: an ocean of possibilities*. National Institute of Agricultural Botany, Cambridge, UK (2023); Lincoln Medical School, UK (Invertebrate Sound and Vibration Meeting 2023)
- *Mechanostimulation: a promising strategy for sustainable agriculture*. 4th Royal Society Research Fellows' Network, UK (2022); Postdoctoral Research Showcase, Imperial College London (2022); Vellore Institute of Technology, India (2022), Royal Society Meeting of Minds, UK (2023)
- *Role of histone modifications in mechano-responsive gene expression in poplar*. 10th International Plant Biomechanics Conference, France (2022); Vellore Institute of Technology, India (**KEY NOTE**, 2022)

PEER REVIEW ACTIVITIES

Invited reviewing activities in: *Plos One*, *Journal of Biotechnology*, *Plant Cell & Environment*, *Trends in Ecology & Evolution*, *Plant Physiology and Biochemistry*, *Journal of Experimental Botany*

OUTREACH ACTIVITY

May 2023: Organized 'Living Materials workshop' as a member of by Biological Form & Function Lab, *Imperial College London* for the students of *Central Saint Martins, London*.

Keywords: Bio design, 3D printing, Plant root, Fungi.