

Curriculum vitae - Vinay Shukla

Department of Biology, University of Oxford, South Park Road, Oxford, UK

DOB: 25-Dec-1989 | Nationality: Indian | Email: vinay.shukla@biology.ox.ac.uk

ORCID: 0000-0002-7838-8565 | Google Scholar: cJ12ZmMAAAJ | web: vshukla.owlstown.net/

Research Experience:

Oct-2021 - Present **Postdoc** at Department of Biology, University of Oxford (UK).
Oct-2018 - Sep-2021 **Postdoc** at Department of Plant Sciences, University of Geneva (CH).
Jan-2018 - Sep-2018 **Postdoc** at PlantLab, Scuola Superiore Sant'anna, Pisa (IT).
Nov-2014 - Jan-2018 **Doctoral dissertation** at PlantLab, Scuola Superiore Sant'anna, Pisa (IT).
Jun-2012 - Oct-2014 **Research associate** at the R&D center of Mahyco Seeds Ltd. (IN).
Dec-2011 - Apr-2012 **Master's thesis** at Central Soil Salinity Research Institute (CSSRI), Bharuch (IN).

Qualifications:

Nov-2014 - Jan-2018 **PhD in Agro-biosciences** (*Curricula* - Genomics and crop science)
Awarded on: 18-01-2018, by Scuola Superiore Sant'Anna, Pisa (IT). Dissertation title- '*Regulation of root growth under hypoxic conditions.*' Supervisor- Prof. Francesco Licausi, Tutor – Prof. Beatrice Giuntoli, Defence committee – Prof. Sabrina Sabatini, Prof. Alexis Maizel, Prof. Chiara Pucciariello, Dr. Daan Weits and Dr. Riccardo Di Mambro.
June-2007 - May-2012 **Master of Science in Biotechnology** from Department of Biotechnology, Veer Narmad South Gujarat University, Surat (IN). Thesis title - '*Performance of wheat accessions irrigated with saline water on vertisols.*'

Teaching / Mentoring:

At Oxford (UK):

- Supervision of short rotation projects, master thesis and research assistants in Oxford:
 - Edward Aplin (Research assistant, 12 months) '*Flooding perception and response in Arabidopsis*' (2023).
 - Elena Cavallini (Master's student, 7 months) '*Impact of exogenous hypoxia on nitrogen fixation in Medicago*' (2022).
 - Thomas Underwood (PhD rotation student, 3 months) '*Engineering an orthogonal oxygen sensing system*' (2022).
 - Marianna Franco (Research assistant, 12 months) '*Flooding perception and response in Arabidopsis*' (2022).
- Demonstrator for research skills classes (Active learning class of maximum 25 students). Theme – Plant Biotechnology (2023).
- Demonstrator for the undergraduate practical classes for Wadham College and Department of Biology-Outreach (Maximum 30 students, 2023).
- Tutor for tutorials at Oxford University (in-depth discussions on a topic/research article with small group of students, topic- *Surviving the deluge: improving crop tolerance to flooding conditions*-2022).
- Interviewer for the admissions in the master's in biology course at the Department of Biology (2022-2023 for Pembroke College).

At Geneva (CH):

- Supervision of practical class of 'Plant Physiology' for 3 weeks with undergraduate students at University of Geneva for three consecutive years with – Shineka Logeswaran, Marylène Bacaicoa Cisterna, Romain Martinuzzi, Céline Mettraux, Fabio Rocha Da Costa, Cindy Frischknecht and Lucas Descombes (2018-2021).

At Pisa (IT):

- Supervision of short rotation projects, master thesis and research assistants at PlantLab, Sant'Anna School of Advanced Sciences –
 - Vincenzo Scribano (Bachelor's student, 6 months) '*Assessment of the effect of ERF-VII interacting proteins on the hypoxia response in a transient transformation system.*' (2017)
 - Mikel Lavilla (Master's student, 9 months) '*Development of oxygen sensor in yeast.*' (2017)

Funding Awards:

- The John Fell Oxford University Press Fund (MPLS - Mathematical, Physical and Life Sciences Division internal research funding at Oxford University). Research support awarded for '**Spatial transcriptomics** of secondary vasculature in oxygen-insensitive mutant.' **Amount £8,330**, December-2023.
- Lockey fund (MPLS Division internal research funding at Oxford University). Awarded for participation in the 5th International Symposium on Plant Apoplastic Diffusion Barriers - 2022. **Amount £943**, April-2022.
- **Travel award** for participation in the conference of the International Society of Plant Anaerobiosis September-2022.

Achievements:

- **Seal of excellence** from Marie Skłodowska-Curie actions for Individual Fellowship application (2021, Total score - 87.8%, fellowship not awarded for insufficient funds).
- Best poster presentation at ISRR11/Rooting2021, May-2021, '*Building that wall: Suberin plasticity for nutrient acquisition.*'
- Best poster presentation at National Conference on Contemporary Developments at Biotech – Bioinfo Interface-2012, Gujarat, India.

Invited Talks & Oral Presentations:

- Gregor Mendel Institute of Molecular Plant Biology, Austrian Academy of Sciences – 2023 Vienna (AT), '*In the ground, out of breath: how roots meet their oxygen demand?*' (Invited)
- Genetics Society Seed Plant SIG meeting – 2023, Durham (UK), '*Swapping sensors: a synthetic biology approach to investigate the evolution of hypoxia sensing in multicellular eukaryotes.*' (Oral)
- International Society for Plant Anaerobiosis (ISPA) conference – 2022, Bamberg (DE), '*Swapping sensors: a synthetic biology approach to investigate the evolution of hypoxia sensing in multicellular eukaryotes.*' (Oral)
- Postdoc-day symposium – 2021 at University of Geneva (CH), '*Building that wall: Suberin plasticity for nutrient acquisition.*' (Oral)
- Plant Biology Department - 2018 of University of Geneva, Geneva (CH), '*Regulation of Arabidopsis root architecture by oxygen availability.*' (Invited)
- 'Laboratorio di biologia' of Scuola Normale Superiore - 2017, Pisa (IT), '*Regulation of Arabidopsis root architecture by oxygen availability.*' (Invited)
- International Society for Plant Anaerobiosis (ISPA) conference - 2016, (DK), '*Regulation of Arabidopsis root architecture by oxygen availability.*' (Oral)

Poster Presentations:

- 5th International Symposium on Plant Apoplastic Diffusion Barriers – 2022, Dundee (GB-SCT).
- ISRR11/Rooting - 2021, Virtual Meeting Hosted by the University of Missouri Columbia, Missouri (US).
- 4th International Symposium on Plant Apoplastic Diffusion Barriers – 2019, Bonn (DE).
- Rooting conference – 2017, Umea, (SE).
- National Conference on Contemporary Developments at Biotech-Bioinfo Interface – 2012, Gujarat, (IN).

Training:

- MPLS Innovation Leadership Programme. (Researcher Training and Development course), Oxford (UK). (2023)
- 'Galaxy introduction for life scientists' workshop for NGS analysis using Galaxy, by Swiss Institute of Bioinformatics. (2021)
- HandsOn- Introduction to R course, Half-day workshop on introduction to R by BioSC at UNIGE. (2019)
- EMBL advanced course on 'Whole Transcriptome Data Analysis' European Molecular Biology Laboratory (EMBL), Heidelberg (Germany) (2016)

List of Publications: (h-index – 10, total citations – 391 from Google Scholar)

1. Dalle Carbonare, L., Basile, A., Rindi, L., Bulleri, F., Hamedeh, H., Iacopino, S., **Shukla, V.**, Weits, D.A., Lombardi, L., and Sbrana, A. (2023). Dim artificial light at night alters gene expression rhythms and growth in a key seagrass species (*Posidonia oceanica*). **Sci Rep** 13, 10620. (Citations: Web of Knowledge; 0, Google Scholar; 0)
2. Weits, D.A., Zhou, L., Giuntoli, B., Carbonare, L.D., Iacopino, S., Piccinini, L., Lombardi, L., **Shukla, V.**, Bui, L.T., and Novi, G. (2023). Acquisition of hypoxia inducibility by oxygen sensing N-terminal cysteine oxidase in spermatophytes. **Plant Cell Environ** 46, 322–338. (Citations: Web of Knowledge; 5, Google Scholar; 10)
3. **Shukla, V.**, Han, J.-P., Cléard, F., Lefebvre-Legendre, L., Gully, K., Flis, P., Berhin, A., Andersen, T.G., Salt, D.E., and Nawrath, C. (2021). Suberin plasticity to developmental and exogenous cues is regulated by a set of MYB transcription factors. **Proceedings of the National Academy of Sciences** 118, e2101730118. (Citations: Web of Knowledge; 52, Google Scholar; 65)
4. **Shukla, V.**, and Barberon, M. (2021). Building and breaking of a barrier: suberin plasticity and function in the endodermis. **Curr Opin Plant Biol** 64, 102153. (Citations: Web of Knowledge; 25, Google Scholar; 29)
5. **Shukla, V.**, Lombardi, L., Pencik, A., Novak, O., Weits, D.A., Loreti, E., Perata, P., Giuntoli, B., and Licausi, F. (2020). Jasmonate signalling contributes to primary root inhibition upon oxygen deficiency in *Arabidopsis thaliana*. **Plants** 9, 1046. (Citations: Web of Knowledge; 15, Google Scholar; 22)
6. Bui, L.T., **Shukla, V.**, Giorgi, F.M., Trivellini, A., Perata, P., Licausi, F., and Giuntoli, B. (2020). Differential submergence tolerance between juvenile and adult *Arabidopsis* plants involves the ANAC017 transcription factor. **The Plant Journal** 104, 979–994. (Citations: Web of Knowledge; 31, Google Scholar; 51)
7. Basile, A., Fambrini, M., Tani, C., **Shukla, V.**, Licausi, F., and Pugliesi, C. (2019). The Ha-ROXL gene is required for initiation of axillary and floral meristems in sunflower. **genesis** 57, e23307. (Citations: Web of Knowledge; 9, Google Scholar; 12)
8. Puerta, M.L., **Shukla, V.**, Dalle Carbonare, L., Weits, D.A., Perata, P., Licausi, F., and Giuntoli, B. (2019). A ratiometric sensor based on plant N-terminal degrons able to report oxygen dynamics in *Saccharomyces cerevisiae*. **J Mol Biol** 431, 2810–2820. (Citations: Web of Knowledge; 19, Google Scholar; 23)
9. Carbonare, L.D., White, M.D., **Shukla, V.**, Francini, A., Perata, P., Flashman, E., Sebastiani, L., and Licausi, F. (2019). Zinc excess induces a hypoxia-like response by inhibiting cysteine oxidases in poplar roots. **Plant Physiol** 180, 1614–1628. (Citations: Web of Knowledge; 13, Google Scholar; 18)
10. **Shukla, V.**, Lombardi, L., Iacopino, S., Pencik, A., Novak, O., Perata, P., Giuntoli, B., and Licausi, F. (2019). Endogenous hypoxia in lateral root primordia controls root architecture by antagonizing auxin signaling in *Arabidopsis*. **Mol Plant** 12, 538–551. (Citations: Web of Knowledge; 80, Google Scholar; 111, Recommended on F1000Prime)
11. Giuntoli, B., **Shukla, V.**, Maggiorelli, F., Giorgi, F.M., Lombardi, L., Perata, P., and Licausi, F. (2017). Age-dependent regulation of ERF-VII transcription factor activity in *Arabidopsis thaliana*. **Plant Cell Environ** 40, 2333–2346. (Citations: Web of Knowledge; 41, Google Scholar; 50)

Commentaries:

1. Swain, J., **Shukla, V.**, Licausi, F., & Gupta, K. J. (2024). Unearthing the secrets of ERFVIIIs: new insights into hypoxia signaling. **Trends in Plant Science**, 29(3), 275–277.

Industrial collaboration: With Air Liquide (France) to test the effect of root oxygenation on crop yield in hydroponics.

Outreach Activities: 2016-2017 - Part of the organizing committee of 'Night of researchers - Bright-2016' at Plantlab, Scuola Superiore Sant'anna, Pisa (Italy). <https://www.bright-night.it/>

Languages: English : Fluent Hindi: Mother tongue

Scientific Peer Reviewing: Peer review for journals: PNAS, Current Biology, Scientific Reports, New Phytologist, Physiologia Plantarum, and Journal of Experimental Botany.