Dr. Pawan Shukla

Scientist- C,
Seribiotech Research Laboratory (SBRL),
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Career

- *Scientist-C: SBRL, Bangalore (April 2021 to Present)*
- *Scientist-C: CSR&TI, Pampore (July 2019 to March 2021)*
- *Scientist-B: CSR&TI, Pampore (Nov 2015 to June 2019)*
- *Dr. D. S. Kothari Postdoctoral Fellow: University of Hyderabad (Aug 2014 to Oct 2015)*

Education

- *Ph.D. Plant Sciences* ***Oct 2014***
  University of Hyderabad, India
- *M.Sc. in Biotechnology* ***June 2006***
  University of Hyderabad, India
- *B.Sc. in Botany* ***May 2004***
  Lucknow University

Ph.D. Dissertation topic

- "**Cysteine protease-cystatin combination as an alternate strategy to barnase-barstar system for pollination control in plants**" Supervisor: Prof. P. B. Kirti, *Dept. of Plant Science, University of Hyderabad, India*

Publications

- International Journal Publications: **: 19**
- National Journal Publications: **: 08**
- Book/Book Chapters: **: 08**
- National and International conference participation and presentations**: 11**
- International/National patents: **: 01** (filed)

Honors

- Awarded ARO-Postdoctoral fellowship in 2015, Volcani Center, Israel but did not join for fellowship
- Awarded UGC CSIR lectureship, a National Eligibility Test for Lectureship conducted by the UGC/CSIR and eligible for holding the post of Lecturer in India (2007).
- Awarded CSIR-SRF (Senior Research fellowship) from January 2010 onwards.
- Awarded CSIR- JRF (Junior Research Fellowship) from January 2008 to December 2009.
- Scholarship awarded from July 2004-April 2006 by (DBT), Government of India, New Delhi.
- UGC-Dr. D.S. Kothari Postdoctoral fellowship on 08th August, 2014
- UPE II travel grant from University of Hyderabad to attend International conference on Genetics & Breeding Technologies conference, Vienna, Austria (06-02-2013)

Project Completed

1. **PIB-3579:** "**Identification of cold tolerant genes for the improvement of mulberry genotype**." In collaboration with SBRL, Bangalore, Funded by Central Silk Board (Duration: June 2016-2018)

Peer-reviewed Journal Publications

International Journals

1. Naveen Kumar Singh, **Pawan Shukla**, and P. B. Kirti. "A CBL-interacting protein kinase AdCIPK5 confers salt and osmotic stress tolerance in transgenic tobacco." **Scientific Reports** 10.1 (2020): 1-14.
2. Akanksha Sharma, Vijayan Sambasivam, **Pawan Shukla**, Sakshi Rampuria, and Pulugurtha Bharadwaja Kirti. "An in vitro generated variant of *Tephrosia villosa* defensin (α-TvD1) enhances biotic stress tolerance in transgenic tobacco." **Journal of Plant Pathology** (2020): 1-11.
3. Gulab Khan Rohela, Phanikanth Jogam, Mohammad Yaseen Mir, Aftab Ahmad Shabnam, **Pawan Shukla**, Sadanandam Abbagani & Azra Nahaid Kamili (2020). Indirect regeneration and assessment of genetic fidelity of acclimated plantlets by using SCOT and ISSR markers in Morus alba Cv. Chinese white. **Biotechnology Reports**, 35: e00417. (Elsevier Journal). https://doi.org/10.1016/j.btre.2020.e00417
4. Gulab Khan Rohela, **Pawan Shukla**, Muttanna, Rajesh Kumar & Sukhen Roy Chowdhury (2020). Mulberry (Morus spp.): An Ideal plant for sustainable development. **Trees, Forests and People** (Elsevier Journal). p. 100011
5. Ranjana Gautam, Israr Ahmed, **Pawan Shukla**, Rajesh Meena and P. B. Kirti (2019) Genomewide characterization of ALDH Superfamily in Brassica rapa and enhancement of stresstoleran ce in heterologous hosts by BrALDH7B2 expression. **Scientific Reports**: 7; 9(1):7012. doi: 10.1038/s41598-019-43332-1.
6. Ranjana Gautam, **Pawan Shukla**, and P. B. Kirti (2019) Targeted expression of a cysteine protease (AdCP) in tapetum induces male sterility in Indian mustard, *Brassica juncea*. **Functional & Integrative Genomics**: 1-12. Doi:10.1007/s10142-019-00674-3
7. **Pawan Shukla**, Ramesha A. Reddy, Kangayam M. Ponnuvel, Gulab Khan Rohela, Aftab A. Shabnam, S. S. Chauhan, M. K. Ghosh and R. K. Mishra (2019) Selection of suitable reference genes for quantitative real-time PCR gene expression analysis in Mulberry (Morus alba L.) under different abiotic stresses. **Molecular Biology Reports**. DOI: 10.1007/s11033-019-04631-y (**as corresponding author**).
8. **Pawan Shukla**, Ranjana Gautam, Naveen K. Singh, Israr Ahmed, P.B. Kirti (2019) A proteomic study of cysteine protease induced cell death in anthers of male sterile tobacco transgenic plants. **Physiology and Molecular Biology of Plants**. DOI: 10.1007/s12298-019-00642-y (**as corresponding author**).
9. Israr Ahmed, Deepanker Yadav, **Pawan Shukla**, P.B. Kirti (2018) Heterologous expression of Brassica juncea annexin, AnnBj2 confers salt tolerance and ABA insensitivity in transgenic tobacco seedlings. **Functional and Integrative Genomics**. 1-11. DOI: 10.1007/s10142-018-0614-z.
10. Gulab Khan Rohela, Phanikanth Jogam, Aftab Ahmad Shabnam, **Pawan Shukla**, Sadanandam Abbagani & M.K. Ghosh (2018) In vitro regeneration and assessment of genetic fidelity of acclimated plantlets by using ISSR markers in PPR-1 (Morus Sps.): An economically important plant. **Scientia Horticulturae**. 241:313-321. https://doi.org/10.1016/j. scienta.2018.07.012
11. **Pawan Shukla**, N. K. Singh, Ranjana Gautam, Israr Ahmed, Deepankar Yadav, A. Sharma, P. B. Kirti (2017) Molecular Approaches for Manipulating Male Sterility and Strategies for Fertility Restoration in Plants. **Molecular biotechnology**. 59(9-10):445-57(**as corresponding author**).
12. Israr Ahmed, Deepanker Yadav, **Pawan Shukla**, T. Vineeth, P.C. Sharma, P.B. Kirti (2017) Constitutive expression of *Brassica juncea* annexin, AnnBj2 confers salt tolerance and glucose and ABA insensitivity in mustard transgenic plants. **Plant Science**. 265:12-28.

13. **Pawan Shukla**, Subhashini, M., Singh, N. K., Ahmed, I., Trishla, S., & Kirti, P. B. (2016). Targeted expression of cystatin restores fertility in cysteine protease induced male sterile tobacco plants. **Plant Science**. Vol. 246, Pages 52–61, doi:10.1016/j.plantsci.2016.02.010 (**as corresponding author**).

14. Deepanker Yadav, Israr Ahmed, **Pawan Shukla**, Prasanna Boyidi and Pulugurtha Bharadwaja Kirti (2016). Overexpression of *Arabidopsis AnnAt8* Alleviates Abiotic Stress in Transgenic *Arabidopsis* and Tobacco. **Plants** 5(2), 18, doi:10.3390/plants5020018

15. Dilip Kumar, Sakshi Rampuria, Naveen Kumar Singh, **Pawan Shukla**, P. B. Kirti (2015) Characterization of a vacuolar processing enzyme expressed in *Arachis diogoi* in resistance responses against late leaf spot pathogen, *Phaeoisariopsis personata*. **Plant Molecular Biology** DOI 10.1007/s11103-015-0318-x.

16. G. Meur, **Pawan Shukla**, Aparna Dutta-Gupta, P. B. Kirti (2015) Characterization of *Brassica juncea–Alternaria brassicicola* interaction and jasmonic acid carboxyl methyl transferase expression. **Plant Gene**. 3:1-10.

17. **Pawan Shukla**, N. K. Singh, Dilip Kumar, S. Vijayan, Israr Ahmed, P.B. Kirti (2014) Expression of a pathogen induced cysteine protease (AdCP) in tapetum results in male sterility in transgenic tobacco. **Functional and Integrative Genomics**, 14:307–317 DOI: 10.1007/s10142-014-0367-2

18. N. K. Singh, K. R. Kumar, D Kumar, **Pawan Shukla** and P. B. Kirti (2013) Characterization of a pathogen induced thaumatin-like protein gene AdTLP from Arachis diogoi, a wild peanut. **PloS one**; 8 (12):e83963.

19. S. Vijayan, N. K. Singh, **Pawan Shukla**, P. B. Kirti (2013) Defensin (TvD1) from Tephrosia villosa exhibited strong anti-insect and anti-fungal activities in transgenic tobacco plants. **Journal of pest science**. ; 86 (2):337-44.

National Journals

1. Muttanna, Satish Y, **Pawan Shukla**, Rajesh Kumar & Sukhen Roy Chowdhury. Critical Assessment of Technical Programme under Tribal Sub Plan in Jammu & Kashmir. **Asian Journal of Agricultural Extension, Economics & Sociology** 37(3): 1-5, 2019.

2. **Pawan Shukla**, Ramesha A. Reddy, Kangayam M. Ponnuvel, Gulab Khan Rohela, Aftab A. Shabnam, S. S. Chauhan, M. K. Ghosh and R. K. Mishra (2018) Comparative analysis of gene expression profiles among contrasting mulberry varieties under cold stress condition. **Journal of Experimental Biology and Agricultural Sciences**. 6(6): 973 – 982

3. Gulab Khan Rohela, Aftab Ahmad Shabnam, **Pawan Shukla**, Ravindra, Azra Nahaid Kamili and M.K Gosh (2018). Rapid one step protocol for the in vitro micro propagation of Morus multicaulis var. Goshoerami, an elite temperate mulberry variety. **Journal of Experimental Biology and Agricultural Sciences**. 6(6): 936-946 DOI: 10.18006/2018.6(6).936.946

4. Gulab Khan Rohela, Aftab Ahmad Shabnam, **Pawan Shukla**, Ravindra, Mudasir Gani, Srinivasulu Y and Sharma S.P. (2018) In vitro clonal propagation of PPR-1, a superior temperate mulberry variety. **Indian Journal of Biotechnology** 07(0ctober): 619-625.

5. Gulab Khan Rohela, Aftab Ahmad Shabnam, **Pawan Shukla**, Azra Nahid Kamili & Mrinal Kanti Ghosh (2018). Effect of various factors in protoplasts isolation from temperate mulberry. **International Journal of Adv. Res. in Sci. Eng.** 7(Spl Issue: 04): 3056-3065.

6. Aftab A. Shabnam, S.S. Chauhan, **Gulab Khan**, **Pawan Shukla**, Pawan Saini and M.K. Ghosh (2018). Mulberry breeding strategies for North and North West India. **International Journal of Adv. Res. in Sci. Eng.** 7(Spl Issue: 04): 2124-2133.

7. **Pawan Shukla**, Gulab Khan Rohela, Aftab A. Shabnam and S. P. Sharma (2016) Prospect of Cold Tolerant Genes and Its Utilization in Mulberry Improvement. **Indian Horticulture Journal**; 6(Special): 127-129, ISSN: 2249-6823

8. Gulab Khan Rohela, **Pawan Shukla**, Ravindra, Mudasir Gani, Aftab A. Shabnam, Y. Srinivasulu and S. P. Sharma (2016) Somatic Hybridization as a Potential Tool for Mulberry Improvement: A Review. **Indian Horticulture Journal**; 6(Special): 46-49

Books/ Book Chapters:

1. **Omics Technologies for Sustainable Agriculture and Global Food Security** (2021) Springer International Publishing Editor: Anirudh Kumar, Rakesh Kumar, **Pawan Shukla**, Manish Pandey (**In Press**)
2. **Gulab Khan Rohela**, Pawan Shukla, Pawan Saini, Rajesh Kumar, Vijayan Kunjupillai & Sukhen Roy Chowdhury (**2021**). Improvement of Mulberry (*Morus* spp.) by Protoplast Culture **(Book Chapter** *Submitted to Taylor & Francis Publishers***)** (**accepted**).
3. Editor in a **book** on "**उत्तर पश्चिम भारत में प्रचलित रेशम उत्पादन की तकनिकी**" published by CSR&TI, Pampore (2019).
4. Editor in a course material book on "**Course Material for Training in Basic Sericulture**" published by CSR&TI, Pampore (2018).
5. Abin Sebastian, **Pawan Shukla**, Ashwini Kumar Nangia and Majeti Narasimha Vara Prasad (2019) Transgenics in Phytoremediation of Metals and Metalloids: From Laboratory to Field. In Transgenic Plant Technology for Remediation of Toxic Metals and Metalloids, Elsevier. pp. 3-22.

6. **Pawan Shukla** & M. K. Ghosh (2018) Compiled & Edited, The Course material for Training on Basic Sericulture. Publication No. 02 of CSR & TI, Central Silk Board, Pampore (J&K)-192 121
7. G.K.Rohela, & **Pawan Shukla** (2018) Preparation of land/Pits. A chapter in Course material for Training on Basic Sericulture. Publication No. 02 of CSR & TI, Central Silk Board, Pampore (J&K)-192 121
8. G.K.Rohela, & **Pawan Shukla** (2018) Preparation of cuttings and raising nursery. A chapter in Course material for Training on Basic Sericulture. Publication No. 02 of CSR & TI, Central Silk Board, Pampore (J&K)-192 121

Patents

Filed one Indian patent on "A METHOD FOR PREPARATTION OF HYBRID SEED USING TARGETED EXPRESSION OF A CYSTATIN" (**Patent Application No. 2013/CHE/2014 dated 17.04.2014**).