



## Dr. Harisingh Gour Vishwavidyalaya (A Central University)

| Title             | Dr. | First/<br>Middle<br>Name                                                                                                                                            | Sonal | Last<br>Name | Mathur | Photograph                                                                          |
|-------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|--------|-------------------------------------------------------------------------------------|
| Designation       |     | Assistant Professor (Botany)                                                                                                                                        |       |              |        |  |
| Affiliation       |     | Dr. Harisingh Gour Vishwavidyalaya<br>(A Central University), Sagar (M.P.)                                                                                          |       |              |        |                                                                                     |
| Phone No.         |     | 9926073316                                                                                                                                                          |       |              |        |                                                                                     |
| Email ID          |     | ap_sonalm@dhsgsu.edu.in;<br>mathurksonal@gmail.com                                                                                                                  |       |              |        |                                                                                     |
| ORCID             |     | <a href="https://orcid.org/0000-0002-7273-1588">https://orcid.org/0000-0002-7273-1588</a>                                                                           |       |              |        |                                                                                     |
| Google scholar ID |     | <a href="https://scholar.google.com/citations?user=ozMq0k0AAAAJ&amp;hl=en&amp;oi=ao">https://scholar.google.com/citations?user=ozMq0k0AAAAJ&amp;hl=en&amp;oi=ao</a> |       |              |        |                                                                                     |
| Linkedin          |     | Sonal Mathur; <a href="mailto:mathurksonal@gmail.com">mathurksonal@gmail.com</a>                                                                                    |       |              |        |                                                                                     |

### EDUCATIONAL PROFILE

| Degree   | Institution                                      | Year | Remarks |
|----------|--------------------------------------------------|------|---------|
| B. Sc.   | Dr. Harisingh Gour Vishwavidyalaya, Sagar (M.P.) | 2000 |         |
| M. Sc.   | Vikram Vishwavidyalaya, Ujjain (M.P.)            | 2003 |         |
| M. Phil. | NA                                               |      |         |
| Ph. D.   | Devi Ahilya Vishwavidyalaya Indore (M.P.)        | 2013 |         |

### CAREER PROFILE

| Organization / Institution                                             | Designation                          | Duration                                                   | Role                                                         |
|------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------|--------------------------------------------------------------|
| Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar (M.P.) | Assistant Professor (Botany)         | November 07 <sup>th</sup> 2024- Till date                  | Teaching, Research (Permanent)                               |
| Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore, (M.P.)               | Assistant Professor (Biotechnology)  | September 23 <sup>rd</sup> – November 5 <sup>th</sup> 2024 | Teaching, Research (Permanent)                               |
| School of Life Science Devi Ahilya University, Indore (M.P.)           | Diamond Jubilee Post doctoral Fellow | August 9, 2024 – September 21 <sup>st</sup> 2024           | Research, Teaching, Lab Management, Mentoring Ph.D. students |

|                                                                                     |                                       |                                                                   |                                                                        |
|-------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>United State Department of Agriculture (USDA-ARS), Beltsville, Maryland, USA</b> | <b>ORISE Established Scientist</b>    | <b>August 11<sup>th</sup> 2020 – August 10<sup>th</sup> 2023</b>  | <b>Research</b>                                                        |
| <b>School of Life Science Devi Ahilya University, Indore (M.P.)</b>                 | <b>UGC-PDF-SA-II for Women</b>        | <b>February 2<sup>nd</sup> 2015- 1<sup>st</sup> February 2020</b> | <b>Research, Handling projects, Mentoring Ph.D., SRF, JRF students</b> |
| <b>School of Life Science Devi Ahilya University, Indore (M.P.)</b>                 | <b>Research Scholar</b>               | <b>April 1<sup>st</sup> 2014- January 31<sup>st</sup> 2015</b>    | <b>Research</b>                                                        |
| <b>School of Life Science Devi Ahilya University, Indore (M.P.)</b>                 | <b>CSIR-SRF-EXT</b>                   | <b>April 1<sup>st</sup> 2013- March 31<sup>st</sup> 2014</b>      | <b>Research</b>                                                        |
| <b>Maharaja Institute of Information Technology, Ujjain (M.P.)</b>                  | <b>Assistant Professor</b>            | <b>September 06<sup>th</sup> 2005- June 21<sup>st</sup> 2007</b>  | <b>Teaching, Examination incharge</b>                                  |
| <b>Kendriya Vidyalaya, Ujjain (M.P.)</b>                                            | <b>Computer Teacher (Contractual)</b> | <b>August 8<sup>th</sup> 2004- March 31<sup>st</sup> 2005</b>     | <b>Teaching</b>                                                        |
| <b>Govt. SKP College, Dewas (M.P.)</b>                                              | <b>Guest Faculty (Botany)</b>         | <b>September 6<sup>th</sup> 2003-January 2004</b>                 | <b>Teaching</b>                                                        |
|                                                                                     |                                       |                                                                   |                                                                        |

#### **Areas of Interest / Specialization**

Abiotic stresses, Climate change, Crop physiology, Plant physiology, Photosynthesis, Arbuscular Mycorrhiza, Plant stress Biology, Plant-microbial interactions, Organic Pollutants

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## Publications

1. **Mathur S.**, Seo B.S., Reddy K.R., Reddy VR (2024). Morpho-phenological responses of early and late soybean maturity groups to diverse day lengths and temperature regimes. *Industrial Crops and Products*. 221: 119362. doi.org/10.1016/j.indcrop.2024.119362. IF = 5.6. Q1.
2. **Mathur S.**, Bheemanahalli R., Jumaa S.H., Kakar N., Reddy V.R., Gao W., Reddy K.R. (2024). Impact of ultraviolet-B radiation on early-season morpho-physiological traits of *indica* and *japonica* rice genotypes. *Frontiers in Plant Science*. 15:1369397. https://doi.org/10.3389/fpls.2024.1369397. PMID: 38495369. PMCID: PMC10941760 IF 5.3 (Five year IF). Q1.
3. **Mathur S.**, Seo B.S., Jajoo A., Reddy K.R., Reddy V.R. (2023). Chlorophyll fluorescence is a potential indicator to measure photochemical efficiency in early to late soybean maturity groups under changing day lengths and temperatures. *Frontiers in Plant Science*. 122: 8464. doi: 10.3389/fpls.2023.1228464. PMID: 37936935.PMCID: PMC10627226. IF 5.3 (Five year). Q1.
4. **Mathur S.**, Agnihotri R., Sharma M.P., Reddy V.R., Jajoo A. (2021). Effect of high-temperature stress on plant physiological traits and mycorrhizal symbiosis in maize plants. *Journal of Fungi*. 7: 867. doi: https://doi.org/s10.3390/jof7100867. PMID: 34682289. IF = 4.5 (Five year). Q1.
5. Jajoo A., **Mathur S.** (2021). Role of arbuscular mycorrhizal fungi as an underground saviuor for protecting plants from abiotic stresses. *Physiology and Molecular Biology of Plants*. 27(11):2589–2603. doi: 10.1007/s12298-021-01091-2.PMID: 34924713.IF = 3.7(Five Year). Q1.
6. **Mathur S.**, Sunoj V.S.J., Elsheery N.I., Reddy V.R., Jajoo A., Cao K.F. (2021). Regulation of photosystem II heterogeneity and photochemistry in two cultivars of C4 crop sugarcane under chilling stress. *Frontiers in Plant Science*, 12: 627012. doi: .3389/fpls.2021.627012. PMID: 33643354.PMCID: PMC7902769. IF 5.3 (Five year IF). Q1.
7. **Mathur S.**, Jajoo A (2020). Arbuscular mycorrhizal fungi protects maize plants from high temperature stress by regulating photosystem II heterogeneity. *Industrial Crops and Products*. 143:111934. IF 5.6. Q1.
8. **Mathur S.**, Tomar R.S., Jajoo A. (2019). Arbuscular Mycorrhizal fungi (AMF) protects photosynthetic apparatus of wheat under drought stress. *Photosynthesis Research*. 139: 227–238. doi: 10.1007/s11120-018-0538-4. PMID: 29982909. IF = 2.8. Q1.

9. **Mathur S.**, Raikalal P., Jajoo A. (2019). Physiological responses of wheat to environmental stresses. In: Hasanuzzaman et al. (Eds.) *Wheat Production in Changing Environment*, **Springer Nature**, Singapore, doi.org/10.1007/978-981-13-6883-7\_2.
10. **Mathur S.**, Sharma M.P., Jajoo A. (2018). Improved photosynthetic efficacy of Maize (*Zea mays*) plants with Arbuscular Mycorrhizal Fungi (AMF) under high temperature stress. **Journal of Photochemistry and Photobiology B: Biology**, 180: 149–154. doi: 10.1016/j.jphotobiol.2018.02.002. PMID: 29425887. **IF 5.3 (Five year IF). Q1.**
11. **Mathur S.**, Jain L., Jajoo A. (2018). Photosynthetic efficiency in sun and shade plants. **Photosynthetica**. 56 (1): 354-365. doi: 10.1007/s11099-018-0767-y. **IF = 3.189. Q2.**
12. **Mathur S.**, Tripathi V., Jajoo A. (2018). Damaging effects of ultraviolet radiations (UVR) on photosynthetic apparatus. In: Singh V.P. et.al. (Eds). *Environment and Photosynthesis a Future Prospect*. Pp 333-351.
13. Sharma C., **Mathur S.**, Tomar R.S., Jajoo A. (2018). Investigating role of Triton X-100 in ameliorating deleterious effects of anthracene in wheat plants. **Photosynthetica**. 56(2): 652-659. Doi : 10.1007/s11099-017-0715-2. **IF = 3.189. Q2.**
14. **Mathur S.**, Kalaji H.M., Jajoo A. (2016). Investigation of deleterious effects of chromium phytotoxicity and photosynthesis in wheat plant. **Photosynthetica**. 54 (2): 185-192. doi: 10.1007/s11099-016-0198-6. **IF = 3.189. Q2.**
15. **Mathur S.**, Jajoo A. (2015). Investigating deleterious effects of ultraviolet (UV) radiations on wheat by a quick method. **Acta Physiologia Plantarum**. 37:121. doi: 10.1007/s11738-015-1874-z. **IF 2.8 (Five Year). Q1.**
16. **Mathur S.**, Jajoo A. (2014). Alterations in photochemical efficiency of photosystem II in wheat plant on hot summer day. **Physiology and Molecular Biology of Plants**. 20(4):527-31. doi: 10.1007/s12298-014-0249-z. PMID: 25320476. **IF = 3.7(Five Year). Q1.**
17. **Mathur S.**, Agrawal D., Jajoo A. (2014). Photosynthesis: Response to High Temperature Stress. **Journal of Photochemistry and Photobiology B: Biology**, 137 : 116–126. doi: 10.1016/j.jphotobiol.2014.01.010. PMID: 24796250. **IF 5.3 (Five year IF). Q1.**
18. **Mathur S.**, Jajoo A. (2014). Effect of heat stress on growth and crop yield of Wheat (*Triticum aestivum*). In: P. Ahmad, M.R. Wani (Eds.), *Physiological Mechanisms and Adaptation Strategies in Plants under changing Environment*, Springer publishers, New York, pp. 163-191.
19. **Mathur S.**, Mehta P., Jajoo A. (2012). Effects of dual stress (high salt and high temperature) in wheat leaves (*Triticum aestivum*). **Physiology and Molecular Biology of Plants**. 19(2): 179–188. doi: 10.1007/s12298-012-0151-5. PMID: 24431485. **IF = 3.7(Five Year). Q1.**

20. Tomar R.S., **Mathur S.**, Allakhverdiev S.I., Jajoo A. (2012). Changes in PS II heterogeneity in response to osmotic and ionic stress in wheat leaves (*Triticum aestivum*). ***Journal of Bioenergetics and Biomembranes***. 44: 411-419. doi: 10.1007/s10863-012-9444-1.PMID: 22576351. IF= 3.853(Five Year). **Q2**.
21. **Mathur S.**, Allakhverdiev S.I., Jajoo A. (2011). Analysis of high temperature stress on the dynamics of antenna size and reducing side heterogeneity of Photosystem II in wheat leaves (*Triticum aestivum*). ***Biochimica et Biophysica Acta***. 1807: 22–29. doi: 10.1016/j.bbabi.2010.09.001.PMID: 20840840. IF 4 (Five Year). **Q1**.
22. **Mathur S.**, Jajoo A., Mehta P., Bharti S. (2011). Analysis of elevated temperature-induced inhibition of photosystem II by using chlorophyll a fluorescence induction kinetics in wheat leaves (*Triticum aestivum*). ***Plant Biology***. 13:1-6. doi: 10.1111/j.1438-8677.2009.00319.x. PMID: 21143718. IF= 3.877. **Q1**.
23. **Mathur S.**, Singh P., Mehta P., Jajoo A. (2011). Effects of high temperature and low pH on photosystem 2 photochemistry in spinach thylakoid membranes. ***Biologia Plantarum***. 55(4): 747-751. IF 1.747. **Q2**.
24. Tongra T., Mehta P., **Mathur S.**, Agrawal D., Bharti S., Los D., Allakhverdiev S.I., Jajoo A. (2011). Computational analysis of pH induced changes in Chlorophyll *a* fluorescence transients. ***Biosystems***. 103: 158-163. doi: <https://doi.org/10.1016/j.biosystems.2010.07.019>. IF = 2.
25. Jajoo A., **Mathur S.**, Mehta P., Yoshioika M., Allakhverdiev S.I., Yamamoto Y. (2010). Study on the effects of chloride depletion on photosystem II using different chloride depletion methods. ***Journal of Bioenergetics and Biomembranes***. 42: 47–53. doi: 10.1007/s10863-009-9260-4.PMID: 20054625. IF= 3.853 (Five Year). **Q2**.
26. Singh-Rawal P., Jajoo A., **Mathur S.**, Mehta P., Bharti S. (2010). Evidence that pH can drive state transitions in isolated thylakoid membranes from spinach. ***Photochemical and Photobiological Sciences***. 9: 830-837. doi: 10.1039/c0pp00055h PMID: 20480090. IF= 4.328 (Five Year). **Q2**.
27. Mehta P, Jajoo A, **Mathur S**, Bharti S (2010). Chlorophyll a fluorescence study revealing effects of high salt stress on Photosystem II. ***Plant Physiology and Biochemistry***, 48: 16-20. doi: 10.1016/j.plaphy.2009.10.006. PMID: 19932973 **IF 6.2 (Five year IF)**. **Q1**.
28. Mehta P., Jajoo A., **Mathur S.**, Allakhverdiev S.I., Bharti S. (2009). High Salt stress in coupled and uncoupled thylakoid membranes: a comparative study. *Biochemistry (Moscow)*, 74: 761-767. IF = 2.4 (Five Year). **Q2**.

29. Jajoo A., Sahay A., Singh P., **Mathur S.**, Zharmukhamedov S.K., Klimov V.V., Allakhverdiev S.I., Bharti S. (2008). Elucidating the site of action of oxalate in photosynthetic electron transport chain in spinach thylakoid membranes. *Photosynthesis Research*. 97: 177-184. doi: 10.1007/s11120-008-9314-1. PMID: 18563623. IF = 2.8. **Q1**.

### Research Projects (Major Grants/Research Collaboration)

#### Research Collaboration

Adaptive Cropping Systems Laboratory, Beltsville, Maryland, USA.

School of Life Science Devi Ahilya University, Indore (M.P.).

### Awards

1. Mentor to Doctoral Students at Clemson University, South Carolina, USA (completed) and to South Dakota University for six months under the ACSESS Peer Review Mentorship program (2024), American Society of Agronomy (ASA), Crop Society of America (CSA) annual meeting, USA.
2. First Prize in the ORISE STEM Trivia Extravaganza held in the USA in February 2022.
3. Ranked 4th among scientists at Devi Ahilya University, Indore, according to the AD Scientific Index for 2022. This ranking is based on my publications within the entire university.
4. Invited and visited Guangxi University, China for 3 Weeks (March 2019) to perform experiments.
5. Awarded Second Prize in National Seminar on Abiotic Stresses, Challenges and Opportunities, TNAU, Coimbatore, 2018.
6. Awarded International Travel Grant from Council of Scientific and Industrial Research (CSIR), New Delhi, India to attend International Symposium on Photosynthesis and

Chloroplast Biogenesis, Kurashiki (Japan), 2018.

7. Awarded Young Talent Award in International Conference “Photosynthesis Research for Sustainability” held in Pushchino (Russia) June 2016.
8. For attending conference in Russia (June 2016), International Travel Grant was funded by Department of Science and Technology, New Delhi.
9. For attending conference in Russia (June 2016), International Travel Grant was funded by Madhya Pradesh Council of Science and Technology Bhopal.
10. Selected as UGC-PDF-SAI (for women) for the year 2014-15.
11. Awarded Young Scientist Award (Agricultural Sciences) 2014 by Madhya Pradesh Council of Science and Technology (MPCST) Bhopal, INDIA.
12. Selected as SRF-EXT (CSIR-SRF-EXT) in Council of Scientific and Industrial Research (CSIR) 2013-14.
13. For attending conference in Azerbaijan (June 2013), International Travel Grant was funded by Madhya Pradesh Council of Science and Technology Bhopal (Not Aailed).
14. Won Best Researcher Award 2012 by Madhya Pradesh Council of Science and Technology (MPCST) Bhopal, INDIA.
15. For attending conference in Azerbaijan (July 2011), International Travel Grant was funded by Department of Science and Technology (DST) New Delhi (availed).
16. For attending conference in Azerbaijan (July 2011), International Travel Grant was funded by Council of Scientific and Industrial Research (CSIR) (Not availed).
17. Selected as Senior Research Fellow (CSIR-SRF) in Council of Scientific and Industrial Research (CSIR) in Apr 2010- 31st March 2013.
18. Visited Pushchino (Moscow Region Russia) for experiments from DST (Sep 2008-Oct 2008), in Indo-Russian Project.
19. Selected as DST-JRF (Department of Science and Technology, India) in Indo-Russian Project in June 2007- Jan 2010.
20. Best Paper Presentation UGC sponsored National Seminar at Govt. Girl's College Ujjain (2007).

## Scientific Services

**Handling Editor** for *Frontiers in Cellular and Infection Microbiology*.

**Review Editor** for *Frontiers in Plant Science*

**Reviewer** for many *Peer Reviewed Journals* (*Plant Science, Environment and Experimental Botany, Field Crop and Research, Nature Scientific Reports, American Society of Horticultural Science (HortScience)*),

*Frontiers in Plant Science, PLOS one, Plant Physiology and Biochemistry etc.).*

#### **Invited talk/Conference/ Seminars and Workshops Attended**

1. Invited as Eminent speaker for Winter Colloquium (2025) held at Department of Zoology, Dr. Harisingh Gour VV (A Central University), Sagar, M.P.
2. Invited as a Resource Person at International Workshop and Hands on Training on Chloroplast Bioenergetics (IWHTCB) (Jan 4<sup>th</sup> to 10<sup>th</sup> 2024), School of Life Science, University of Hyderabad.
3. ASA, CSSA and SSSA Annual Meeting in Baltimore, Maryland, Nov 6-9, 2022 (Presented).
4. ASA, CSSA and SSSA Annual Meeting in Salt Lake City, UT, 2021 (Presented).
5. Virtual conference on Proteomics in Agriculture and Healthcare, organized by School of Life Sciences, University of Hyderabad, India, (March 13-15, 2021).
6. Webinar on Genomics strategies for Improvement of abiotic stress tolerance in crop plants, organized by ICAR-National Institute of Abiotic Stress Management, Baramati, India, (November 27, 2020).
7. 1<sup>st</sup> Brazilian Symposium on Photosynthesis (Virtual, Oct 2020).
8. Invited talk at “State Key Laboratory of Conservation and Utilization of Subtropical Agro-Bioresources, College of Forestry”, Guangxi University, Nanning, Guangxi, People’s Republic of China (March 2019).
9. National Seminar on abiotic Stress Management, Challenges and Opportunities, at TNAU, Coimbatore, India, (Oct 2018) .
10. International conference on “Research sustainability for Photosynthesis” held in Hyderabad in Nov 2017.
11. International conference on “Research sustainability for Photosynthesis” held in Puschino (Russia) in June 2016.
12. Attended India International Science Festival held at IIT Delhi from 4-8 December 2015, selected and sponsored from MPCST, Bhopal.
13. National Plant Physiology Conference held in Junagadh in 2013 (Presented).
14. Attended one day seminar at Goa University (2013).
15. International conference on “Research sustainability for Photosynthesis” held in Azerbaijan Baku in July 2011.
16. International Conference held in Devi Ahilya University (Nov-2008), “Photosynthesis in the global Prospective” in Honor of Prof. Govindjee (Illinois U.S.A.) (Presented).