

Curriculum Vitae

Personal Data

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Current affiliation, engagements & address : Principal Scientist (Agri. Microbiology),
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Mahaveer P Sharma

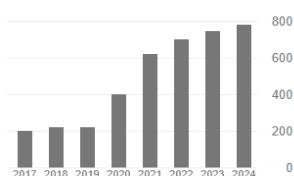
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TITLE	CITED BY	YEAR
Impact of agrochemicals on soil microbiota and management: A review RS Meena, S Kumar, R Datta, R Lal, V Vijayakumar, M Brtnicky, ... Land 9 (2), 34	624	2020
Inoculation of zinc solubilizing Bacillus aryabhattai strains for improved growth, mobilization and biofortification of zinc in soybean and wheat cultivated in Vertisols of ... A Ramesh, SK Sharma, MP Sharma, N Yadav, OP Joshi Applied Soil Ecology 73, 87-96	465	2014
Microbial community structure and diversity as indicators for evaluating soil quality SK Sharma, A Ramesh, MP Sharma, OP Joshi, B Govaerts, ... Biodiversity, biofuels, agroforestry and conservation agriculture, 317-358	254	2011
Improved photosynthetic efficacy of maize (Zea mays) plants with arbuscular mycorrhizal fungi (AMF) under high temperature stress S Mathur, MP Sharma, A Jajoo Journal of Photochemistry and Photobiology B: Biology 180, 149-154	225	2018
Speciation, contamination, ecological and human health risks assessment of heavy metals in soils dumped with municipal solid wastes	177	2021

Education

Academic/educational qualifications

- Post doc (2013-2014) USDA-ARS, BARC, Beltsville, MD, USA
- Ph. D (Microbiology) 2002, Jiwaji University, Gwalior, M.P, India
- M.Sc (Agriculture) Plant Nematology 1991 (Gold medalist), Rajasthan Agricultural University, Campus Udaipur, Rajasthan, India
- B.Sc (Agriculture) 1984-88, Rajasthan Agricultural University, Campus Jobner, Rajasthan, India
- DAFEX (A six-month correspondence course on Design and Analysis of MPTS field experiments) 1993 Winrock International Institute for Agriculture Development, Kesetsart, Bangkok, Thailand.
- PGD-IPR-One year Post Graduate Diploma in Intellectual Property Rights 2009 (approved by WIPO, Geneva), Indra Gandhi National Open University, New Delhi.

Professional positions held

- Feb 2012 to date – Principal Scientist (Agri. Microbiology) Indian Institute of Soybean Research (ICAR), Indore (M.P)-452001, India

- Deputation abroad as Visiting Scientist in USDA-ARS, MD, USA from Oct 2013 to April 2014
- Feb 2006-Feb 2012 – Senior Scientist (Agri. Microbiology) Directorate of Soybean Research(ICAR), Indore (M.P)-452001, India
- April 2004 to Feb 2006 - Fellow, Centre for Mycorrhizal Research, Bioresources & Biotechnology Division & Adjunct faculty TERI School of Advanced Studies, TERI, New Delhi 110 003, India
- 1994 to March 2004-Research Associate Centre for Mycorrhizal Research Bioresources & Biotechnology Division, The Energy and Resources Institute (TERI), New Delhi 110 003, India
- May 1992 to August 1993- Project Fellow in USDA & Winrock International F/FRED project on VAM in the establishment of fuel wood/fodder tree legumes in arid zones of India at Department of Botany, University of Delhi, Delhi, India.

Statement of professional experience

Dr. Mahaveer P Sharma is currently working in Agricultural Research Service as Principal Scientist (Agricultural Microbiology) at Indian Institute of Soybean Research, Indore (Under ICAR (Indian Council of Agricultural Research)-DARE, Ministry of Agriculture & Farmers Welfare, Govt. of India). Dr Sharma earned his undergraduate and master's degrees in Agriculture from Rajasthan Agricultural University, Bikaner and Ph.D. from Gwalior. He has received gold medal award during his master's program. Dr Sharma's research involves in plant-microbe interactions involving the uses of plant growth promoting microbes particularly arbuscular mycorrhizal fungi in improved plant growth, soil carbon sequestration, drought tolerance and overall productivity of crops. He has been awarded many awards like best paper presentation, travel grant awards for visiting abroad in various scientific meetings/conferences and has won several external research grants (DBT, DST, ICAR) for his research on applied aspects of plant-AMF-microbe interaction. He has also been awarded the prestigious DBT-CREST Award-2013 by Department of Biotechnology, Govt. of India. He is fellow of Mycological Society of India. There are about 110 important research articles published in refereed journals, magazines and reviews articles in books of international repute and has many microbial accessions with NCBI database and cultures deposited in International Microbial Repository Authorities to his credit.

Special attainments and visited abroad

- Visited MIDI, Sherlock's Microbial Identification INC. Newark, Delaware, USA and participated in 9th International Symbiosis Congress in Oregon State University, Corvallis, Oregon, USA from July 12-26, 2018.
- Visited Research Institute of organic Agriculture, Frick, Switzerland, Swiss Federal Institute of Technology (ETH) and Agroscope, Zurich, Switzerland for developing linkages in mycorrhizal research and soil nutritional aspects from July 21-23, 2015.
- Participated in 8th International Symbiosis Congress in University of Lisbon, Portugal from July 12-18, 2015.
- Deputed abroad by ICAR-DARE Govt of India under DBT-CREST Overseas award at USDA- ARS, BARC, Beltsville, MD, USA from Oct 2013 to April 2014 and worked fatty acid biomarkers.
- Participated in Rhizosphere 3 International conference in Perth,, Australia from Sept 25-30, 2011 and made a oral presentation during the modeling and up-scaling session.
- Deputed by TERI under a MoU agreement to organize a training on basic aspects of mycorrhizal research for Agricultural scientists at Soil and Water Research Institute, Ministry of Agriculture, Republic of Iran in Tehran (Feb 21st-9th March 2001).
- Established Agribusiness Incubation Centre at ICAR-IISR, Indore (2020) to engage hand holding of agri-startups and incubates in the area of soy food processing & product utilization and biofertilizer production.
- Organized/conducted a short-term training on basic techniques of AM fungi for biofertilizer industry production staff from June 14-17, 2011 at ICAR-IISR, Indore.
- Organized two research industry-interface meet on "opportunities for Agri-Startups and entrepreneurs in soy food processing, value addition and soybean production technologies during March 2021 and Feb 2024.

Current research interests and activities focus on-

- Ecosystem development of technological interventions for microbial technologies and soyfood processing sector (Agri-Business Incubation of startups and entrepreneurs)
- Development of ROC/*invitro* system for mass production of AM fungal biofertilizer and its quality assessment
- High throughput method of phospholipids analysis in soil for studying microbial community and overall soil health assessment
- Liquid formulation of bacterial biofertilizers
- Exploitation of AM fungi and soybean rhizobia in sustainable plant production, mitigating drought and minimizing global warming by sequestering carbon in soil.

Professional honors, recognitions, awards and fellowships (descending order)

- **Gold medal award** by the Rajasthan Agriculture University on having stood first during Master's degree programs (1998)
- **Best paper poster award** for the contribution entitled “Metabolic Diversity of Root Nodulating Soybean Rhizobia Isolated from Malwa Region of Central” during First Asian PGPR Congress for sustainable Agriculture held at ANGRAU, Hyderabad (21-24 June 2009) authors (Sharma et al.).
- **Best paper award** for the contribution entitled “Soil Carbon Sequestration through Glomalin Production by Arbuscular Mycorrhizal Fungi in Soybean-Maize Intercropping System Under Organic and Inorganic Farming Practices” presented during National Workshop on Carbon Sequestration in Forest and Non Forest Ecosystems (February 16-17, 2015) at JNKVV, Jabalpur; Authors (Agnihotri, Sharma and others).
- **Best paper award** (Thirumalachar young scientist award) for the contribution entitled “Glomalin: A potential soil carbon sequestrator evaluated under organic and inorganic farming practices of soybean-based cropping system” during National conference on fungal biotechnology and 43rd Annual Meeting of Mycological Society of India held at BISR, Jaipur from Nov 16-18, 2016 (Authors: Agnihotri, Sharma and others).
- **Best paper poster award** for the contribution on “application of moisture tolerant rhizobia recovered from current seed chain soybean varieties with AM fungi enhanced nodulation leghaemoglobin grain yield and saved fertilizers in a field trial” during National conference on enhancing productivity of oilseed in changing climate scenario conference held at ICAR- Directorate of Groundnut Research, Junagarh, Gujarat from 7- 9 April, 2018 (Bharti, Sharma and others).
- **Best paper poster award** for the contribution on “Coordination of crop and soil management practices built up higher mycorrhizal biomass which enhances soil carbon sequestration assessed in the rhizosphere of soybean in a long field trial” during National Conference on organic waste management for food and environment security held during Feb 8-10, 2018 held at ICAR-IISS, Bhopal (Authors- Agnihotri, Sharma and others)
- Awarded DBT-CREST Overseas Award 2012-13 to work on signature fatty acid biomarkers in USDA-ARS, USA.
- Awarded competitive travel grants (three times) from SERB, DST Govt. of India for visiting Australia, Portugal & USA to present research work in Rhizosphere 3 International Conference and International Symbiosis Congress held in Perth, Lisbon and Oregon during 2011, 2015 & 2018 respectively.
- Awarded certificate of reviewing by Elsevier for outstanding contribution in reviewing papers of Elsevier journals (European J Soil Biology, Ecological Engineering, Applied Soil Ecology, Bioresource technology, Progressive Agriculture etc.).
- Nominated as expert member of project approval committee for 3 years by Department of Science and Technology, Govt of MP, Bhopal to review the project and other research activities of MP Biotechnology Council, Bhopal.
- Nominated as member, Board of studies in life sciences, Mandsour University, MP, India during 2016-2019).
- Elected as Secretary, Society for Soybean Research and Development, Indore (2020-2023)
- Elected Fellow, Mycological Society of India, Chennai (2020)
- Nominated as member, Board of studies, SAGE University, Indore, MP, India (2020-2023).
- National Scientific Advisory Board of the Long-term farming systems comparison (SysCom) project hosted by FiBL, Frick, Switzerland at Bio Re India, Kasrawad, Khargone, MP, India

Patents/registration of microbes

NCBI Gene bank accessions of microbes (PGPR) recovered and identified from soybean rhizospheresoil and root nodules

- Sharma MP and Sharma SK (2011) *Burkholderia arboris* 12c (Accession no. JF 792427)
- Sharma MP and Sharma SK (2011) *Bradyrhizobium japonicum* De-5a (Accession no. JF 792425)
- Sharma MP and Sharma SK (2011) *Bradyrhizobium liaoningense* 17c (Accession no. JF 792426)
- Sharma S.K. and M.P. Sharma (2011) *Pseudomonas aeruginosa* FU-2 (Accession no. JF499946)
- Sharma S.K., Aketi Ramesh Shivaji,S. and M.P. Sharma, (2011) *Streptomyces roseofulvus* DI-6 (Accession no. JF792522).
- Sharma S.K., M.P. Sharma and Aketi Ramesh (2011). *Acinetobacter calcoaceticus* BK-5 (Accession no. JF792523)
- Sharma M.P., Bharti,A. and Garg, S. (2016) *Paenibacillus mucilaginosus* Ind-6 (Accession no. KX230049)
- Sharma M.P., Bharti,A. and Garg, S. (2016) *Paracoccus marinus* Ind-7 (Accession no. KX230050)
- Sharma M.P., Bharti,A. and Garg, S. (2016) *Bacillus niacin* Ind-8 (Accession no. KX230051)
- Sharma M.P., Bharti,A. and Garg, S. (2016) *Bradyrhizobium daqingense* Ind-10A (Accession no. KX230052)
- Sharma M.P., Bharti,A. and Garg, S. (2016) *Bradyrhizobium liaoningense* Ind-11 (Accession no. KX230053)
- Sharma,M.P., Bharti,A. and Maheshwari,HS (2019) *Bradyrhizobium kavangense* strain IND 15 (Accession no. MN197775)
- Sharma,M.P., Bharti,A. and Maheshwari,HS (2019) *Beijerinckia fluminensis* strain IND 16 (Accession no. MN197776)
- Sharma,M.P., Bharti,A. and Maheshwari, HS (2019). *Bradyrhizobium subterraneum* strain IND 17 (Accession no. MN197777)
- Sharma,M.P., Bharti, A. and Maheshwari, HS (2019). *Bradyrhizobium yuanmingense* strain IND 18 (Accession no. MN197778).

Significant Achievements

- Identified triacontanol a new plant growth promoting natural phytohormone and AMF combination for improved productivity of soybean
- Standardized FAME–MIDI and high-throughput column-chromatography methods for microbial identification and PLFA-based microbial community profiling; established the first PLFA facility in the ICAR system.
- Developed and commercialized a vermicompost-amended organic potting mix for Arbuscular Mycorrhizal (AM) fungi production through Agrinnovate India Ltd. to Biome Technologies, Maharashtra.
- Created a gene pool of soybean rhizobia from Central India and identified two elite strains with enhanced nodulation and growth potential, now under commercialization.
- Established and led the Agribusiness Incubation (ABI) Centre at ICAR-IISR (2020), supporting startups in soy-based food processing, value addition, and biofertilizer technologies.
- Standardized single-spore culture and glomalin extraction protocols for AM fungi, enabling research on AM fungi multiplication and soil carbon sequestration.
- Trained and supported the national system as a resource person for quality testing of commercial AMF inocula and for AMF-related capacity-building programs.
- Mentored over 20 agri-startups, enabled 7 to successfully launch businesses; organized 20+ trainings for farmers/FPOs in soy processing benefiting ~300 FPOs and 1,200 farmers.
- Led the institute's technology transfer cell, executing MoUs/MoAs with industries for microbial inoculants, specialty soybeans, soil-moisture conservation technologies, and farm implements; organized 3 industry meets (2021, 2024, 2025).
- Developed microbial consortia bioformulations, contributed to national research on soil carbon sequestration, and secured four competitive grants (>₹2 crore) strengthening soybean research and its value-addition ecosystem.

Current Grants/Projects (As Principal Investigator): 07

1. Development of Environmentally Friendly Controlled-Release P-fertilizer and its Evaluation with Plant Growth Promoting Microbes on Soybean Productivity and Soil Microbial Health; collaborative project with IISER, Bhopal and TERI New Delhi (2023-2026); **Funded by DBT, Govt of India**
2. ICAR funded project-AMAAS Network subproject- Biopolymer coating of soybean seeds with microbial consortia for improved productivity of soybean and soil health (2024-2026; **AMAAS Network project NBAIM, Mau.**
3. Agri-Business Incubator-incubation of start-ups and entrepreneurs involved in microbial biofertilizers, soy food processing and seed business sectors (Feb 2020 onwards)
4. Interaction effect of phytohormones and AMF for enhanced nodulation, growth, yield of soybean with improved AMF symbiosis in the rhizosphere under IRC, ICAR-IISR, Indore funded (2020-ongoing)
5. Identification of high-trehalose producing soybean rhizobia and their integration with AM for enhanced drought tolerance in Soybean under AMAAS network subproject, ICAR-NBAIM, Mau (2014- to continue)
6. Assessing the bioavailability of nutrients and reduction of heavy metals in soil amended with inorganic and organic waste in presence of AM fungi and biochar funded by DBT Twinning NER project with IIT Guwahati (2017 to 2020) Inoculum development of niche AM fungi for application in soybean-based cropping system under IRC, ICAR-IISR, Indore funded (2013-2019)

7. Soil Carbon sequestration through Agricultural Practices and Mycorrhizal Fungi in Soybean-Maize Cropping System” under National Programme on Soil Carbon sequestration Research, DST, New Delhi (2013- 2016)

Publications: Total 142

Books and technical bulletin: 04

1. Deepak Kumar, Sanjay K. Singh, Nutan Kaushik, Mahaveer P. Sharma (2025) Plant Biostimulants and Growth Regulators in Sustainable Agriculture. Hardcopy: ISBN: 9781779641441; E-Book ISBN: 978-1-77964-145-8 Pages: 488pp Apple Academic Press (CRC press), USA. (Under production)
2. Pandey N, **Sharma MP**, Bharti A, Sohani Y (2023) Agri-Business Incubation Centre: Soybean processing, value addition and various food Product technologies, Technical Bulletin (Hindi version), ICAR-IISR, Indore pp 26.
3. Giri B and **Sharma MP** (2021). Plant Stress Biology: Strategy and Trends (Eds: Giri B, Sharma MP). ISBN 978-981-15-9379-6 ISBN 978-981-15-9380-2 (eBook) <https://doi.org/10.1007/978-981-15-9380-2> ; Springer Nature Singapore Pte Ltd. 2020
4. Navale MU, Gupta GK, **Sharma MP** and Srivastava SK (2010). Intellectual Property Rights in Agriculture- A brief insight to IPR relevant to Indian Agriculture. Directorate of Soybean Research (ICAR), Indore 47p.
5. Sharma MP (1997) Agricultural Knowledge Test. Ramesh Publishing House, New Delhi, 352 pp.

Research papers published in the past 10 years

1. Agnihotri R, Pandey A, Sharma MP*, Prakash A, Ramesh A, Maheshwari HS, Verma RK, Nargund R, and Billore SD (2024) Enhanced soil carbon storage and arbuscular mycorrhizal fungal biomass in a long-term nutrient management under soybean-based cropping system. *Environment Science & Pollution Research* (2024); <https://doi.org/10.1007/s11356-024-35490-1> (**NAAS 11.8**)
2. Raghavendra N, Verma RK, Ramesh A, and Sharma MP, Mudakappa H, Govindasamy P (2024) Short-Term Benefits of Tillage and Agronomic Bio-fortification for Soybean–Wheat Cropping in Central India. *Clean-Soil, Air, & Water*, 2024; 0:e202300300 <https://doi.org/10.1002/clen.202300300>
3. Chauhan IP, Verma P, Bhattacharya A, Shiv Narayan, Sharma MP, Choure K, Mishra A (2025) Intervention of *Bacillus subtilis* Enhance Defence Activity in Soybean as Compared to Chemical Fungicide During Charcoal Rot Disease. *Journal of Plant Growth Regulation*. 44: 2734-2749; <https://doi.org/10.1007/s00344-024-11572-9>. (**NAAS 10.8**)
4. Khalili A, Ramesh A, **Sharma MP** (2024) Soil rhizosphere pH, enzymatic and microbial activities under different nitrogen and sulfur fertilization of soybean (*Glycine max* L.). *J. Soil Science and Plant Nutrition*. 24: 3986-3999; Doi: <https://doi.org/10.1007/s42729-024-01822-w> (**NAAS 9.90**).
5. Chourasiya D, Ramesh A, Maheshwari HS, Anil Prakash, Drijber R, and **Sharma MP** (2024) Mass production of arbuscular mycorrhizal fungi on the sorghum plants inoculated with *Burkholderia arboris* using soybean mill waste and vermicompost-amended soil-sand substrate. *Current Microbiology* 81:129; <https://doi.org/10.1007/s00284-024-03662-4>. (**NAAS 8.60**).
6. Khalili A, Khalofah A, Ramesh A, **Sharma MP** (2024) Temporal synchronization of nitrogen and sulfur fertilization: Impacts on nutrient uptake, use efficiency, productivity, and relationships with other micronutrients in soybean. *Agronomy* **2024**, 14, 570. <https://doi.org/10.3390/agronomy14030570>.
7. Khalili A, Ramesh A, **Sharma MP** (2023) Effect of nitrogen and sulfur applications on growth, chlorophyll content and yield of soybean (*Glycine max* L.) Merrill. *E-Planet*, 21: 29–34.

8. Bhattacharjya S, Ghosh V, Sahu A, Agnihotri R, Pal N, Sharma P, Manna MC, **Sharma MP**, and Singh AB (2024) Utilizing soil metabolomics to investigate the untapped metabolic potential of soil microbial communities and their role in driving soil ecosystem processes: A review. *Applied Soil Ecology*, Vol. 195, 105238, <https://doi.org/10.1016/j.apsoil.2023.105238>. (NAAS 10.80)
9. Jaiswal S, Bhatt J, Rajput L, Maheshwari H, Vennampally N, Kumar S, Pandey V & **Sharma, MP** (2023). Soybean Bacterial Endophytes *Bacillus subtilis* (EB-1) and *Bacillus amyloliquefaciens* (EB-2) against anthracnose survival in leaf and soil. *Biological Forum- An International Journal* 15(10): 1305-1309.
10. Jaiswal S, Rajput L, Bhatt J, Maheshwari H, Kumar S, **Sharma MP**, Vennampally N, Pandey V, Shivakumar M, Sharma R, & Behera K (2023). Soybean bacterial endophytes against anthracnose disease collected from Karnataka State: An in-vitro study. *International J. Environ and Climate Change*. Volume 13 (11):1835-1845, Article no.IJECC.108140.DOI: 10.9734/IJECC/2023/v13i113341.
11. Laad P, Patel P, Guruprasad KN, **Sharma MP** and Kataria S, Brestic C (2023) Effect of UV exclusion and AMF inoculation on photosynthetic parameters of *Glycine max*. DOI *Photosynthetica* 61 (Special Issue): 236-243; Doi: <https://10.32615/ps.2023.014> (NAAS **8.70**)
12. Bharti A, Maheshwari HS, Garg S, Anwar K, Pareek A, Satpute G, Prakash A and Sharma MP (2023) Exploring potential soybean bradyrhizobia from high trehalose-accumulating soybean genotypes for improved symbiotic effectiveness in soybean. *International Microbiology* 26: 973–987. doi:10.1007/s10123-023-00351-3 (NAAS 9.09).
13. Shanmugaiah V, Gauba A, Hari SK, Ram Prasad, Ramamoorthy V and Sharma MP (2023) Effect of silicon micronutrient on plant's cellular signaling cascades in stimulating plant growth by mitigating the environmental stressors. *Plant Growth Regulation*. **100**: 391-408 <https://doi.org/10.1007/s10725-023-00982-6>. (NAAS 10.20)
14. Maheshwari HS, Bharti A, Garg S, Bisht S, Ramesh A, and Sharma MP (2022). CROPMATE, a commercial plant growth promoting rhizobacteria (PGPR) formulation promotes nodulation, nutrient acquisition, and yield in soybean. *Soybean Research* 20(1): 22-35
15. Agnihotri R, Gujre N, Mitra S and Sharma MP (2022). Decoding the PLFA profiling of microbial community structure in soils contaminated with municipal solid wastes. *Environmental Research* 219:114993doi: <https://doi.org/10.1016/j.envres.2022.114993> (NAAS 14.30).
16. Suresh P, Rekha M, Gomathinayagam S, Ramamoorthy V, Sharma MP, Sakthivel P, Sekar K, Valan Arasu M, Shanmugaiah V (2022). Characterization and Assessment of 2, 4-Diacetylphloroglucinol (DAPG)-Producing *Pseudomonas fluorescens* VSMKU3054 for the Management of Tomato Bacterial Wilt Caused by *Ralstonia solanacearum*. *Microorganisms*. 10 (8):1508. <https://doi.org/10.3390/microorganisms10081508>. (NAAS 10.50)
17. Agnihotri R, Sharma MP, Bucking H, Dames J and Bagyaraj DJ (2022). Methods for assessing the quality of AM fungal bio-fertilizer: Retrospect and future directions. *World Journal of Microbiology and Biotechnology* 38(6):97 DOI: [10.1007/s11274-022-03288-3](https://doi.org/10.1007/s11274-022-03288-3) (NAAS 8.80).
18. Neha, Bhardwaj Y, Sharma MP, Pandey J and Dubey SK (2022) Response of crop types and farming practices on soil microbial biomass and community structure in tropical agro-ecosystem by lipid biomarkers. *J Soil Science & Plant Nutrition*. **22**, 1618–1631 <https://doi.org/10.1007/s42729-022-00758-3>. (NAAS 9.90).

19. Khande R, Sharma SK, Ramesh A and Sharma MP (2021). Impact of zinc solubilizing *Bacillus* species on soil enzyme activities in the soybean and wheat rhizosphere. *Soybean Research* 19(2):1-20.
20. Sharma SK, Dhyani R, Ahmad E, Maurya PK, Yadav M, Yadav RC, Yadav VK, Sharma PK, Sharma MP, Ramesh A and Saxena AK (2021). Characterization and low-cost preservation of *Chromobacterium violaceum* strain TRFM24 isolated from Tripura state, India. *Journal of Genetic Engineering and Biotechnology*. 19:146 <https://doi.org/10.1186/s43141-021-00241-z>.
21. Mathur S, Agnihotri R, Sharma MP, Reddy VR, and Jajoo A (2021). Effect of High-Temperature Stress on Plant Physiological Traits and Mycorrhizal Symbiosis in Maize Plants. *J. Fungi* 2021, 7, 867. <https://doi.org/10.3390/jof7100867> (NAAS 10.70)
22. Agnihotri R, Sharma MP, Prakash A, Ramesh A, Bhattacharjya S, Patra AK, Manna MC, Kurganova I, Kuzyakov Y (2021). Glycoproteins of arbuscular mycorrhiza for soil carbon sequestration: Review of mechanisms and controls. *Sci Total Environ*. Vol 806 (2), 150571 doi: 10.1016/j.scitotenv.2021.150571. (NAAS 15.80)
23. Gujre N, Mitra S, Agnihotri R, Sharma MP, Gupta D (2021). Novel agrotechnological intervention for soil amendment through areca nut husk biochar in conjunction with vetiver grass. *Chemosphere*. doi: 10.1016/j.chemosphere.2021.132443. (NAAS 14.80).
24. Agnihotri R, Pandey A, Bharti A, Chourasiya D, Maheshwari HS, Ramesh A, Billore SD and Sharma MP (2021). Soybean processing mill waste plus vermicompost enhances arbuscular mycorrhizal fungus inoculum production. *Current Microbiology*. 78 (7): 2595-2607; 10.1007/s00284-021-02532-7 (NAAS 8.60)
25. Anand V, Kashyap M, Sharma MP, Bala K (2021). Impact of hydrogen peroxide on microalgae cultivated in varying salt-nitrate-phosphate conditions. *J of Environment Chemical Engineering*. 9(9):105814; <https://doi.org/10.1016/j.jece.2021.105814> (NAAS 13.70)
26. Gujre N, Agnihotri R, Rangan L, Sharma MP, Mitra S (2021) Deciphering the dynamics of glomalin and heavy metals in soils contaminated with hazardous municipal solid wastes. *J. of Hazardous Materials*; DOI: 10.1016/j.jhazmat.2021.125869 (NAAS 19.60).
27. Chourasiya D, Gupta MM, Sahni S, Oehl F, Agnihotri R, Buade R, Maheshwari HS, Prakash A and Sharma MP (2021). Unraveling the AM fungal community for understanding its ecosystem resilience to changed climate in agro-ecosystems. *Symbiosis* 84: 295–310. <https://doi.org/10.1007/s13199-021-00761-9>. (NAAS 8.50)
28. Agnihotri, R., Bharti, A., Ramesh, A., Prakash, A., Sharma, M.P. (2021). Glomalin related protein and C16:1 ω 5 PLFA associated with AM fungi as potential signatures for assessing the soil C sequestration under contrasting soil management practices. *European. J. Soil Biology* 103: 103286. <https://doi.org/10.1016/j.ejsobi.2021.103286> (NAAS 10.20).
29. Sharma MP (2021) Appraisal of native AM fungi in improving the plant productivity, soil health and sequestering soil carbon in agro-ecosystems. *Kavaka* 56:13-21. doi: 10.36460/Kavaka/56/2021/13-21.
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