

PERSONAL PROFILE

Dr. A.K. Mishra
Senior Professor
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Academic Qualifications:

Degree	Institution	Year
B.Sc.	Banaras Hindu University	1988
M.Sc.	Banaras Hindu University	1990
Ph.D.	Banaras Hindu University	1995

Professional Employments:

Name of the post	Name of the Department	Name of the Inst/Univ.	Duration
Senior Professor	Botany Department	Banaras Hindu University	2020-Present
Professor	Botany Department	Banaras Hindu University	2010-2020
Associate Professor	Botany Department	Banaras Hindu University	2007-2010
Reader	Botany Department	Banaras Hindu University	2004-2007
Assistant Professor	Botany Department	Arunachal University	1999-2004
Research Associate	Botany Department	Banaras Hindu University	1996-1999

Specialization: Cyanobacterial Stress Biology & Cell Signalling

Brief write-up on area of specialization

Our research investigates carbon and nitrogen metabolism regulation in cyanobacteria, focusing on the global nitrogen regulator gene *NtcA* and PII protein under varying calcium and iron conditions. Iron deficiency induces membrane damage in cyanobacteria, and our findings reveal *NtcA* role in regulating fatty acid desaturation in *Anabaena* sp. PCC 7120. Iron deficiency also stimulates siderophore production in *Anabaena oryzae*, aiding iron uptake and potentially mitigating cadmium toxicity. Additionally, we have explored cyanobacteria's ability to degrade organophosphate pesticides by identifying the involvement of two proteins viz. WP_017310637.1 and WP_017343813.1. Furthermore, we have isolated a novel bioactive compound from cyanobacteria and characterized as 9-Ethyliminomethyl-12-(morpholin-4-ylmethoxy)-5,8,13,16 tetraazahexacene - 2, 3 dicarboxylic acid (EMTAHDCA) with antibacterial and anticancer properties. Our research focus also includes the investigation of orthocaspases involvement in cell death mechanisms triggered by abiotic stress in *Anabaena* PCC 7120. We also have been working on several aspects of cyanobacterial metabolisms and stress-signaling attributes. However, in recent times we are working on understanding certain key metabolisms and signaling prospects in heterocytous cyanobacteria like zinc tolerance mechanism, regulation of sulfur homeostasis, mechanistic signal transduction of circadian cycle, nitric oxide signaling mediated by NOS enzyme and regulation, as well as the pertinence of different cell demise modalities.

Academic Achievements

- **Teaching experience:** 26 years (Undergraduate & Postgraduate.)
- **Research experience:** 31 Years
- Ph.D awarded- 18
- Research Article Published – 125
- Books Published- 04
- H index- 27
- I₁₀-64
- Project completed - 11 (3 DBT + 3 ICAR, New Delhi + 1 UGC, New Delhi + 2 DST + 2 CSIR)

Awards/Recognitions/ Honors

- Elected as Fellow of the National Environmental Science Academy, 2024
- Distinguished Scientist Award- 2023 by the National Environmental Science Academy
- Selected under the International Collaboration/ Exchange Programme to visit Czech Republic Under the Indian National Science Academy (INSA) bilateral Exchange Programme, 2012
- Direct CSIR Research Associateship awardee (March, 1998)
- Member of Research Advisory Committee, Indian Council of Agricultural Research-National Bureau of Agriculturally Important Microorganisms (ICAR-NBAIM), Mau.
- Member, Board of Studies, Life Science, Central University of South Bihar, Gaya
- Member, Board of Studies, Dr. Ram Manohar Lohia Avadh University, Faizabad
- Member, Board of Studies Jananayak Chandrashekar University, Ballia
- Guest Editor, Frontiers in Marine Sciences.
- Ex-Editor, Journal of Environmental Science and Health, Part B (Taylor & Francis)
- Editor, Journal of Bioresources (Taylor & Francis)

Administrative Responsibilities

- Member, Planning and Policy Committee, Department of Botany, Banaras Hindu University, Varanasi
- Coordinator, Industrial Microbiology, Department of Botany, Banaras Hindu University, Varanasi (March, 2017- June, 2020)
- Coordinator, Applied Microbiology, Department of Botany, Banaras Hindu University, Varanasi (July, 2021- 2024)

Membership

- Life Member, Asian PGPR Society
- Life Member, Indian Botanical Society
- Life Member, Microbiological Society of India
- Life Member, National Environmental Science Academy (NESA)

No. of Ph.D. students guided- 17

Research Projects (Complete/Ongoing):

1. Polyphasic assessment of diversity of phototrophic microorganisms from cold environments and their bioprospection potential. (**Completed**- From 2020-2023 supported by Department of Science & Technology, New Delhi, India). **Amount – 35,25,906.00/-**
2. Characterization and immobilization of pesticide induced protein(s) of cyanobacterium Fischerella sp. for bioremediation of pesticide contaminated water systems. (**Completed**- 2018-2024 supported by Indian Council of Agricultural Research-AMAAS, New Delhi) **Amount- 34,16,675/-**
3. Characterization of novel photoprotective MAAs and antimicrobial carotenoids from natural pigmented yeasts endemic to northeastern region. (**Completed**- 2018-2021 supported by DBT-New Delhi). **Amount- 29.3 lakhs**
4. Isolation and selection of naturally occurring and genetically modified cyanobacterial strain for their potential use in biodegradation of agricultural pesticides (organophosphate) (**Completed project**- 2014-2018 supported by Indian Council of Agricultural Research, New Delhi). **Amount – 55,32,000/-**

5. Assessment of IAA induced quorum sensing molecules in yeasts and their possible role in metabolic regulation during indigenous alcoholic fermentations (**Completed project-** 2013-2016 supported by Department of Biotechnology, New Delhi). **Amount- 29,73,000/-**
6. Genetic diversity and phylogenetic analyses of cyanobacteria based on *nifK*, *psbA* and *ntcA* conserved sequences (**Completed project-** 2012-2015 supported by University Grants Commission, New Delhi). **Amount- 5,06,000/-**
7. Physiological, biochemical and molecular assessment of Frankia strains associated with *Hippöphae salicifolia* D. Don (**Completed project-** 2009-2012 supported by Department of Biotechnology, New Delhi, India). **Amount -25,36,100/-**
8. Assessment of molecular diversity and phylogeny of heterocystous cyanobacteria based on DNA polymorphism (**Completed project-** 2008-2010 supported by Department of Science & Technology, New Delhi, India). **Amount 20,83,000/-**
9. Isolation and characterization of cyanophages infecting fresh water cyanobacterial populations (**Completed project-** 2003 supported by Council of Scientific and Industrial Research, New Delhi, India). **Amount- 7,09,853/-**
10. Assessment of molecular diversity and phylogeny of heterocystous cyanobacteria based on DNA polymorphism (**Completed project- supported by** Department of Science & Technology, New Delhi, India).

Books:

1. Cyanobacteria: From Basic Science to Applications (Eds. Mishra, A.K., Tiwari, D.N. and Rai, A.N.), Academic Press (Elsevier), ISBN: 978-0-12-814667-5.
2. Cyanobacteria: Metabolisms to Molecules (Eds. Mishra, A.K., Singh, S.S.), Academic Press (Elsevier), ISBN-13: 978-0-44-313231-5
3. Stress Biology in Photosynthetic Organisms (Eds. Mishra, A.K., Singh, S.S.) Academic Press (Springer Nature), ISBN- 978-981-97-1882-5

Full List of Publications:

1. Samujjal Bhattacharjee, Neha Gupta and **Arun Kumar Mishra** (2025). Proteolytic processing mediated activation of orthocaspases accelerates stress induced regulated cell death in cyanobacteria. *International Journal of Biological Macromolecules*, 322(1): 146650. <https://doi.org/10.1016/j.ijbiomac.2025.146650>
2. Sanjay Sharma, Sindhunath Chakraborty, Vandana Sindhu, **Arun Kumar Mishra** and Satya Shila Singh (2025). Elucidating the role of compatible solutes in growth protection and amelioration of oxidative stress in the thermophilic cyanobacterium *Mastigocladus* sp. TA-8 during temperature shifts. *Extremophiles*, 29(40)
3. Sanjay Sharma, Vandana Sindhu, **Arun Kumar Mishra** and Satya Shila Singh (2025) Unravelling the acclimation strategies in thermophilic cyanobacterium *Mastigocladus* sp. TA-8 at sub-optimal temperature using proteomics coupled with physiological and biochemical attributes. *Plant Physiology and Biochemistry*, 229, Part A, 110384
4. Ankit Srivastava, Anirbana Parida, Samujjal Bhattacharjee, Neha Gupta, Satya Shila Singh, and **Arun Kumar Mishra**, (2025). Harnessing SDS as a source of sulfur: a

- bioremediation strategy of *Fischerella* sp. lmg1. *Biodegradation*, 36(61).
5. Neha Gupta, Ankit Srivastava, and **Arun Kumar Mishra**. (2025). Deciphering the impact of NOS-derived NO on nitrogen metabolism and carbon flux in the heterocytous cyanobacterium *Aphanizomenon flos-aquae* 2012/KM1/D3. *Plant Physiology and Biochemistry*, 109515.
 6. Samujjal Bhattacharjee and **Arun Kumar Mishra** (2024). Unveiling the abiotic stress-induced cell death modalities in the heterocytous cyanobacterium *Anabaena* sp. PCC 7120. *Environmental and Experimental Botany*, 228. Part B, 106050.
 7. Neha Gupta, Ankit Srivastava and **Arun Kumar Mishra** (2024). Nitric Oxide synthases in cyanobacteria: Diversity, Cellular Implications and Ecological Pertinence. *Journal of Plant Growth Regulation*. <https://doi.org/10.1007/s00344-024-11503-8>
 8. Anumeha Singh, Samujjal Bhattacharjee, Alka Bhardwaj, Satya Shila Singh and **Arun Kumar Mishra** (2024). Elucidating the structure of novel cyanobacterial siderophore produced by *Anabaena oryzae* and its implication in removal of cadmium. *Journal of Applied Phycology*. <https://doi.org/10.1007/s10811-024-03335-6>.
 9. Tameshwar Prasad Jaiswal, Sindhunath Chakraborty, Ranjan Kumar Tiwari, Priyanka, **Arun Kumar Mishra** and Satya Shila Singh (2024). Diversity analysis of cyanobacteria from the Tatapani Hot Spring of Chhattisgarh and exploration of their industrially as well as environmentally valuable properties. *Algal Research*,82(2): 103653.
 10. Aditi Mishra, Sindhunath Chakraborty, Tameshwar Prasad Jaiswal, Samujjal Bhattacharjee, Shreya Kesarwani, **Arun Kumar Mishra** and Satya Shila Singh (2024). Untangling the adaptive strategies of thermophilic bacterium *Anoxybacillus rupiensis* TPH1 under low temperature. *Extremophiles*, 28-31.
 11. Mrinalini Parmar, Tameshwar Prasad Jaiswal, Samujjal Bhattacharjee, Satya Shila Singh and **Arun Kumar Mishra** (2024). *Westiellopsis tiwarii* sp. Nov., a new cyanobacterium from North- East Soils. *Microbiology*,
 12. Surbhi Kharwar and **Arun Kumar Mishra** (2024). Decrypting the effect of sulfate stress on the cyanobacterium *Anabaena* sp. PCC 7120 ug physiological, proteome and transcript analysis in conjunction with bioinformatics. *Plant Stress*, 100512.
 13. Neha Gupta, Samujjal Bhattacharjee, & **Arun Kumar Mishra** (2024). NOS-derived NO mediated physiological and biochemical responses of heterocytous cyanobacterium *Aphanizomenon flos-aquae* 2012/KM1/D3 against H₂O₂-induced oxidative stress. *Algal Research*, 79, 103496.
 14. Samujjal Bhattacharjee, Prashansa Singh, Alka Bhardwaj & Arun Kumar Mishra (2024) Cell death in photoautotrophs. In: *Stress Biology in Photosynthetic Organisms: Molecular Insights and Cellular Responses* (Ed. Mishra, A.K.,) Singapore: Springer Nature, ISBN- 978-981-97-1882-5, pp. 385-410
 15. Neha Gupta, Ankit Srivastava, Anirban Parida & Arun Kumar Mishra (2024) Nitric Oxide: A double-edged sword in photosynthetic stress responses. In: *Stress Biology in Photosynthetic Organisms: Molecular Insights and Cellular Responses* (Ed. Mishra, A.K.,) Singapore: Springer Nature, ISBN- 978-981-97-1882-5, pp.347-374
 16. Samujjal Bhattacharjee, Ankit Srivastava, Anirbana Parida, Neha Gupta, Prashansa Singh, Satya Shila Singh, and **Arun Kumar Mishra**, (2023). Efficient biodegradation

- of sodium dodecyl sulfate (SDS) by the cyanobacterium *Fischerella* sp. lmgal harbouring SdsA1 hydrolase. *Journal of Applied Phycology*: 1-13
17. Surbhi Kharwar and **Arun Kumar Mishra** (2023). Nitrogen and Redox Metabolism in Cyanobacterium *Anabaena* sp. PCC 7120 Exposed to Different Sulfate Regimes. *Current Microbiology*, **80**, 265.
 18. Tameshwar Prasad Jaiswal, Sindhunath Chakraborty, Sanjay Sharma, Aditi Mishra, **Arun Kumar Mishra** and Satya Shila Singh (2023). Prospects of a hot spring-originated novel cyanobacterium, *Scytonema ambikapurensis*, for wastewater treatment and exopolysaccharide-enriched biomass production. *Environmental Science and Pollution Research*, 1-21.
 19. Aditi Mishra, Shreya Kesarwani, Tameshwar Prasad Jaiswal, Samujjal Bhattacharjee, Sindhunath Chakraborty, **Arun Kumar Mishra**, and Satya Shila Singh (2023) Decoding whole genome of *Anoxybacillus rupiensis* TPH1 isolated from Tatapani hot spring, India and giving insight into bioremediation ability of TPH1 via heavy metals and azo dyes. *Research in Microbiology*: 104027.
 20. Sindhunath Chakraborty, Samujjal Bhattacharjee, Balkrishna Tiwari, Tameshwar Jaishwal, Satya Shila Singh, and **Arun Kumar Mishra** (2023). Deciphering the mechanisms of zinc tolerance in the cyanobacterium *Anabaena sphaerica* and its zinc bioremediation potential. *Environmental Science and Pollution Research* 30(4): 9591-9608.
 21. Ankit Srivastava, Neha Gupta and **Arun Kumar Mishra**, 2023. Cyanophage: interacting mechanism and evolutionary significance. In: *Cyanobacteria: Metabolisms to Molecules* (eds. Mishra, A.K., and Singh, S.S.), pp. 255-274, Elsevier, ISBN: 978-0-443-13231-5
 22. Neha Gupta, Samujjal Bhattacharjee and **Arun Kumar Mishra**, 2023. Stress biology and signal perception in cyanobacteria. In: *Cyanobacteria: Metabolisms to Molecules* (eds. Mishra, A.K., and Singh, S.S.), pp. 383-411, Elsevier, ISBN: 978-0-443-13231-5.
 23. Alka Bhardwaj, Prashansa Singh, Neha Gupta, Samujjal Bhattacharjee, Ankit Srivastava, Anirbana Parida and **Arun Kumar Mishra**. Cyanobacteria: a key player in nutrient cycling. In: *Cyanobacteria: Metabolisms to Molecules* (eds. Mishra, A.K., and Singh, S.S.), pp. 579-597, Elsevier, ISBN: 978-0-443-13231-5.
 24. Surbhi Kharwar, Samujjal Bhattacharjee, and **Arun Kumar Mishra** (2022). Deciphering salinity tolerance in the cyanobacterium *Anabaena sphaerica*: an evaluation of physiological and biochemical adjustments. *Acta Physiologiae Plantarum* 44 (12): 127.
 25. Neha Gupta and **Arun Kumar Mishra** (2022). Iterative analysis of metabolic modulation in the cyanobacterium *Aphanizomenon flos-aquae* 2012 KM1/D3 upon nitric oxide synthase derived NO induction. *Environmental and Experimental Botany* 201: 104967
 26. Anirbana Parida, Samujjal Bhattacharjee, Prashansa Singh and **Arun Kumar Mishra** (2022). Physiological and biochemical modulations in the thermophilic cyanobacterium *Westiellopsis* sp. TPR-29 under high sulphur supplementation. *Journal of Bioresources*, 9(2): 20-25.

27. Madhu Tiwari, **Arun Kumar Mishra**, and Debasis Chakrabarty, (2022). Agrobacterium-mediated gene transfer: recent advancements and layered immunity in plants. *Planta* 256.2: 1-13.
28. Balkrishna Tiwari, Prashansa Singh, Sindhunath Chakraborty, Satya Shila Singh and **Arun Kumar Mishra**, (2021). Degrading ability and robust antioxidative defence system led to SDS tolerance in cyanobacterium *Fischerella* sp. Imga1. *Journal of Environmental Science and Health, Part B, B*, 56(11), 962-968
29. Sindhunath Chakraborty and **Arun Kumar Mishra**, (2021). Effects of zinc toxicity on the nitrogen-fixing cyanobacterium *Anabaena sphaerica*- ultrastructural, physiological and biochemical analyses. *Environmental Science and Pollution Research*, 1-15
30. Surbhi Kharwar, Samujjal Bhattacharjee and **Arun Kumar Mishra**, (2021). Disentangling the impact of sulfur limitation on exopolysaccharide and functionality of Alr2882 by in Silico approaches in *Anabaena* sp. PCC 7120. *Applied Biochemistry and Biotechnology*, 193:1447-1468.
31. Samujjal Bhattacharjee, Surbhi Kharwar, and **Arun Kumar Mishra**, (2021). Insights into the phylogenetic distribution, diversity, structural attributes and substrate-specificity of putative cyanobacterial orthocaspases. *Frontiers in Microbiology*, section Aquatic Microbiology, 12, 682306
32. Ekta Verma, Sindhunath Chakraborty, Surbhi Kharwar, Balkrishna Tiwari, Satya Shila Singh and **Arun Kumar Mishra**, (2021). Nitrogen starvation-induced oxidative stress relieves P II-mediated inhibition of acetyl-CoA carboxylase (ACCase) activity and signals enhanced lipid synthesis in *Synechococcus* PCC 7942. *Journal of Applied Phycology*, 33:313-329.
33. Swati Dahiya, Aparajita Shilpie, Gowtham Balasundaram, Raja Chowdhury, Pradeep Kumar, and **Arun Kumar Mishra**, (2021). Diversity of algal species present in waste stabilisation ponds and different factors affecting its enrichment and phototaxis." *Chemistry and Ecology*: 1-15.
34. Meenakshi Srivastava and **Arun Kumar Mishra**, (2021). Comparative analysis of paddy soil denitrifying bacteria with soil phospholipid fatty acid profile. *Geomicrobiology Journal*, 38(5):404-414.
35. Surbhi Kharwar, Samujjal Bhattacharjee and **Arun Kumar Mishra**, (2021). Bioinformatics analysis of enzymes involved in cysteine biosynthesis: First evidence for the formation of cysteine synthase complex in cyanobacteria. *3 Biotech*, 11(7), 354
36. Tameshwar Jaiswal, Sindhunath Chakraborty, Prashant Singh, **Arun Kumar Mishra** and Satya Shila Singh (2021). Description of hot spring dwelling *Mastigocladus ambikapurensis* sp. nov., using a polyphasic approach. *Plant Systematics and Evolution* 307:33.
37. Surbhi Kharwar, Samujjal Bhattacharjee, Sindhunath Chakraborty and **Arun Kumar Mishra**, (2021). Regulation of sulfur metabolism, homeostasis and adaptive responses to sulfur limitation in cyanobacteria. *Biologia*, 76(10), 2811-2835
38. Neha Gupta, Ankit Srivastava, Alka Bhardwaj, Satya Shila Singh and **Arun Kumar Mishra**, (2021). Comprehending the effect of salinity stress and tolerance mechanism in cyanobacteria: A review. *Journal of Bioresources*, 8(2):1-9
39. Ekta Shukla, Prashant Singh, V.K. Singh, S.S. Singh and **Arun Kumar Mishra**, (2021). Homology modeling in combination of phylogenetic assortment, a new

- approach to resolve the phylogeny of selected heterocystous cyanobacteria based on phycocyanin encoding *cpcBA*-IGS locus. *Vegetos*, 34:339-354
40. Samujjal Bhattacharjee and **Arun Kumar Mishra**, (2020). The Tale of Caspases-homologs and their evolutionary Outlook: Deciphering programmed cell death in cyanobacteria. *Journal of Experimental Botany*, 71(16):4639-4657
 41. Sindhunath Chakraborty and **Arun Kumar Mishra**, (2020). Mitigation of zinc toxicity through differential strategies in two species of the cyanobacterium *Anabaena* isolated from zinc polluted paddy field. *Environmental Pollution*, Volume 263, Part B, 114375
 42. Madhu Tiwari, Suchi Srivastava, Poonam C. Singh, **Arun Kumar Mishra** and Debasis Chakraborty (2020). Functional characterization of tau class glutathione-S- transferase in rice to provide tolerance against sheath blight disease. *3Biotech*, 10, 84
 43. Surbhi Kharwar and **Arun Kumar Mishra**, (2020). Unraveling the complexities underlying sulphur deficiency and starvation in the cyanobacterium *Anabaena* sp. PCC 7120. *Environmental and Experimental Botany*
 44. Niveshika, Savita Singh, Ekta Verma and **Arun Kumar Mishra**, (2020). In silico molecular docking analysis of cancer biomarkers with GC/MS identified compounds of *Scytonema* sp. *Networking Modeling Analysis in Health Informatics and Bioinformatics*, 9, 30
 45. Balkrishna Tiwari, Vandana Sindhu, **Arun Kumar Mishra**, Satya Shila Singh (2020). Carbon Catabolite Repression of Methyl Parathion Degradation in a Bacterial Isolate Characterized as a *Cupriavidus* sp. LMGR1. *Water, Air and Soil Pollution*, 231(357)
 46. Azmi Khan, Adity Gupta, Pratika Singh, Rajesh Kumar Ranjan, Amrita Srivastava and **Arun Kumar Mishra**, (2019). Siderophore-assisted cadmium hyper accumulation in *Bacillus subtilis*. *International Microbiology*, 23(2):277-286
 47. Niveshika, Shashank Kumar Maurya, Balkrishna Tiwari, Sindhunath Chakraborty, Ekta Verma, Rajnikant Mishra and **Arun Kumar Mishra**, (2019). Cyanobacterial bioactive compound EMTAHDCA recovers splenomegaly, affects protein profile of *E. coli* and spleen of lymphoma bearing mice. *Molecular Biology Reports*. 46(3):2617-2629
 48. Sindhunath Chakraborty, Aditi Mishra, Ekta Verma, **Arun Kumar Mishra** and Satya Shila Singh, (2019). Physiological mechanisms of aluminium (Al) toxicity tolerance in nitrogen-fixing aquatic macrophyte *Azolla microphylla* Kaulf: Phytoremediation, metabolic rearrangements, and antioxidative enzyme responses. *Environmental Science and Pollution Research*, 26(9), 9041-905
 49. Savita Singh, Ekta Verma and **Arun Kumar Mishra**, (2019). Inactivation of *ntcA* gene revealed differential proteome expression and induction of some hypothetical proteins in the cyanobacterium *Anabaena* sp. PCC 7120 and its derivative *ntcA* mutant under different levels of calcium. *Plant Biosystems*, 153 (6), 785-795.
 50. Manish Singh Kaushik and **Arun Kumar Mishra**, (2018). Iron deficiency influences *NtcA* dependent regulation of fatty acid desaturation and heterocyte envelop formation in *Anabaena* sp. PCC 7120. *Physiologia Plantarum*, 166(2), 570-584.
 51. Ekta Verma, Savita Singh, Niveshika, **Arun Kumar Mishra**, (2018). Salinity- induced oxidative stress-mediated change in fatty acids composition of cyanobacterium

- Synechococcus* sp. PCC7942. *International Journal of Environmental Science and Technology*, 16(2), 875-886.
52. Meenakshi Srivastava, and **Arun Kumar Mishra**, (2018). Nitrogen removal and metabolic profiling of a cold adaptive and biofilm producing paddy soil bacterium *Cupriavidus* sp. PDN31. *Archives of Agronomy and Soil Science*, 64(11), 1608- 1621
 53. Ekta Verma, Sindhunath Chakraborty, Balkrishna Tiwari, Savita Singh, **Arun Kumar Mishra**, (2018). Alleviation of NaCl toxicity in the cyanobacterium *Synechococcus* sp. PCC 7942 by exogenous calcium supplementation. *Journal of Applied Phycology*, 30, 1465-1482
 54. Ekta Verma, Sindhunath Chakraborty, Balkrishna Tiwari, **Arun Kumar Mishra**, (2018). Transcriptional regulation of acetyl CoA and lipid synthesis by PII protein in *Synechococcus* PCC 7942. *Journal of Basic Microbiology*, 58(2), 187-197.
 55. **Arun Kumar Mishra**, Manish Singh Kaushik and Devendra Nath.Tiwari, 2018. Nitrogenase and hydrogenase: Enzymes for nitrogen fixation and Hydrogen Production in Cyanobacteria. In: Cyanobacteria: From Basic Science to Applications (eds. Mishra, A.K., Tiwari, D.N. and Rai, A.N.). pp. 173-191, Elsevier, ISBN: 978-0-12-814667-5.
 56. Manish Singh Kaushik, Meenakshi Srivastava and **Arun Kumar Mishra**, 2018. Iron Homeostasis in Cyanobacteria. In: Cyanobacteria: From Basic Science to Applications (eds. Mishra, A.K., Tiwari, D.N. and Rai, A.N.). pp. 245-259, Elsevier, ISBN: 978-0-12-814667-5.
 57. Ekta Verma, Sindhunath Chakraborty, Balkrishna Tiwari, **Arun Kumar Mishra** ,2018. Antimicrobial compounds from actinobacteria. In: *Actinobacteria: Diversity and Biotechnological Applications* (eds. Singh, B., Gupta, V., Passari, A.). pp. 277- 295, Elsevier, ISBN: 978-0444639943
 58. Balkrishna Tiwari, Sindhunath Chakraborty, Ekta Verma, **Arun Kumar Mishra** ,2018. Photosynthetic microorganisms and bioenergy prospects. In: *Microbes for climate resilient agriculture* (eds. Kashyap, P.L., Srivastava, A.K., Tiwari, S.P., Kumar, S.). John Wiley & Sons, Inc., ISBN: 978-1119275923, pp. 75-104
 59. Balkrishna Tiwari, Ekta Verma, Sindhunath Chakraborty, Alok Srivastava **Arun Kumar Mishra**, (2017). Tolerance strategies in cyanobacterium *Fischerella* sp. under pesticide stress and possible role of a carbohydrate-binding protein in the metabolism of methyl parathion (MP). *International Biodeterioration & Biodegradation*, 127, 217–226.
 60. Niveshika, Ekta Verma, Shashank Kumar Maurya, Rajnikant Mishra and **Arun Kumar Mishra**, (2017). The Combined Use of in Silico, in Vitro, and in Vivo Analyses to Assess Anti-cancerous Potential of a Bioactive Compound from cyanobacterium *Nostoc* sp. MGL001. *Frontiers in Pharmacology*, 8, 873
 61. Manish Singh Kaushik, Meenakshi Srivastava, Anumeha Singh, and **Arun Kumar Mishra**, (2017). Impairment of ntc A gene revealed its role in regulating iron homeostasis, ROS production and cellular phenotype under iron deficiency in cyanobacterium *Anabaena* sp. PCC 7120. *World Journal of Microbiology and Biotechnology*, 33, 158
 62. Meenakshi Srivastava, and **Arun Kumar Mishra**, (2017). Comparative responses of diazotrophic abundance and community structure to the chemical composition of paddy soil. *Environmental Science and Pollution Research*, 25, 399-412.

63. Balkrishna Tiwari, Sindhunath Chakraborty, Alok Srivastava and **Arun Kumar Mishra**, (2017). Biodegradation and rapid removal of methyl parathion by the paddy field cyanobacterium *Fischerella* sp. *Algal Research*, 25, 285-296
64. Sindhunath Chakraborty, Balkrishna Tiwari, Satya Shila Singh, Alok Kumar Srivastava and **Arun Kumar Mishra**, (2017). Differential physiological, oxidative and antioxidative responses of cyanobacterium *Anabaena sphaerica* to attenuate malathion pesticide toxicity. *Biocatalysis and Agricultural Biotechnology*, 11, 5663
65. Balkrishna Tiwari, Savita Singh, Sindhunath Chakraborty, Ekta Verma and **Arun Kumar Mishra**, (2017). Sequential role of biosorption and biodegradation in rapid removal, degradation and utilization of methyl parathion as a phosphate source by a new cyanobacterial isolate *Scytonema* sp. BHUS-5. *International Journal of Phytoremediation*, 19, 884-893
66. Prashant Singh, Robin Anigo Minj, Kikku Kunui, Zaid M Shaikh., Archana Suradkar, Yogesh S. Shouche, **Arun Kumar Mishra**, and Satya Shila Singh, (2017). A new species of *Scytonema* isolated from Bilaspur, Chhattisgarh, India using the polyphasic approach. *Journal of Plant Systematics and Evolution*, 303, 249-258
67. Amrita Srivastava, Anumeha Singh, Satya Shila Singh, and **Arun Kumar Mishra**, (2017). Salt stress- induced changes in antioxidative defense system and proteome profiles of salt- tolerant and sensitive *Frankia* strains. *Journal of Environmental Science and Health, Part A*, 52, 420-428.
68. Ekta Verma, Savita Singh, Sindhunath Chakraborty, Niveshika, **Arun Kumar Mishra**, 2017. Plant-Bacterial Interactions and Sustainable Crop Production: Physiological and Molecular Mechanisms. In: *Plants and Microbes in an ever-changing environment* (eds. Singh, S. S.). Nova Publisher, USA, ISBN: 978-1-53610-918-4, pp. 429-461
69. Sindhunath Chakraborty, Satya Shila Singh, Ekta Verma, Balkrishna Tiwari, **Arun Kumar Mishra** (2017) Aluminium toxicity and defence mechanisms in plants. In: *Plants and Microbes in an ever- changing environment* (eds. Singh, S. S.). Nova Publisher, USA, ISBN: 978-1-53610-918-4, pp. 183-210.
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