

BIO- DATA

1. Name : DAVINDER PAL SINGH
2. Designation : Professor & Head
3. Department : BOTANY
4. Date of Birth : 30.5.1964
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- 6 Areas of Specialisation : Phycology (Physiology & Biochemistry of Cyanobacteria)

7. Academic Qualifications:

Sr. no.	Degree Held	Year of Completing	Board/University/	Subjects Taken
1	B.Sc.	1984	Punjabi University Patiala	Botany, Zoology, Chemistry
2	M.Sc.	1986	Punjabi University Patiala	Botany
3	Ph.D.	1993	Punjabi University Patiala	Life-Sciences

8. Membership of Professional Bodies/Organisations

- i) Indian Association of Biology Teachers (I.A.B.T.)
- ii) Biotech Research Society of India (BRSI)
- iii) Indian Botanical Society (IBS)
- iv) Association of Microbiologists of India (AMI)
- v) Member, Editorial board, Journal of Indian Botanical Society
- vi) Member, Senate, Punjabi University, Patiala (10.08.2021 to 26.09.2023)
- vii) Member, Syndicate, Punjabi University, Patiala (8.09.2021 to 26.06.2022)
- viii) Subject Expert, Board of Studies in Botany, Khalsa College (Autonomous), Amritsar (October 4, 2019 to October 3, 2022)
- ix) Chairmain, Board of undergraduate studies in Botany (13.08.2021 to October 2022)

9. Medals/Awards/Honours/Received Nil

10. Scholarships: Nil

11. Details of Experience:

S. No.	Name of the Inst./Employer	Position Held	Duration	Major Job Responsibilities and Nature of Experience
1.	Mata Gujri College, Fatehgarh Sahib	Lecturer	1 Year	Teaching
2.	Guru Nanak College, Budhlada	Lecturer	1 Year	Teaching
3.	Khalsa College For Women, Sidhwan Khurd, Ludhiana	Lecturer	6 yrs. 4 months	Teaching
4.	Department of Botany, Punjabi University Patiala	Assistant Professor	7 year	Teaching & Research
5.	Department of Botany, Punjabi University, Patiala	Associate Professor	3 Years	Teaching and Research
6.	Department of Botany, Punjabi University, Patiala	Professor	20.02.2016 to Continue	Teaching and Research

12. Published Work (Please specify numbers only): 46

- a. Research Papers i) National = 11
 ii) International = 35
 b. Conference/Seminar Presentation 34
 c. Books 01
 i) Original :
 ii) Edited : 01

Title of Book: Algal Biology and Biotechnology (2009), IK International publishing House Pvt. Ltd, New Delhi. Pages 265

13. R & D Projects 04

1. Evaluation of Cyanobacterial Strains from Paddy Fields for Pesticide Degradation (2007- 10).
2. A Search for Cyanobacterial Strains Producing Novel Exopolysachharides (2008-12)
3. Diversity Analysis and Bioprospecting of Thermophilic Cyanobacteria from North Western Himalayas for Industrial Value Addition (2013-2016)
4. Optimization and Lab Scale Production of Carotenoids from Microalgae (2016 to 2020)

14. Invited Talks/Articles 10

15. Conference/ Refresher Course organised:

- **Co-Convener:**
 1. National Conference on Plant and Microbial Research, Department of Botany, Punjabi University, Patiala February 18-19, 2019
 2. National Conference on Basic and Applied researches in Plant and Microbes, Department of Botany, Punjabi University, Patiala November 3-5, 2016.
- **Joint Secretary**, XXXX All India Botanical Conference of The Indian Botanical Society and National Symposium on Evaluation and Conservation of Plant Germplasm, Department of Botany, Punjabi University, Patiala. September 15-17, 2017
- **Coordinator**, Refresher Course in Life Science, HRDC, Punjabi University, Patiala (December 1-14, 2020)

16. Ph.D. Students under guidance (Details): 09

S. No.	Name of the Student	Title of Thesis	Year of Completion
1.	Gurdeep Kaur	Interaction of Pretilachlor Herbicide with Carbon and Nitrogen metabolism of the cyanobacterium <i>Nostoc muscorum</i>	2015
2.	Menu Gupta	Responses of the Cyanobacterium <i>Leptolyngya foveolarum</i> to Cartap Hydrochloride	2016
3.	Jeevesh Nadda	Characterization and Otimization of Chlorpyrifos Removal and Tolerance Mechanism in the Canobacterium <i>Synechocystis</i> sp. Strain PUPCCC 64	2017
4.	Shveta	Evaluation of Cyanobacteria from Diverse Habitats for Production and Stability of Phycobiliproteins	2018
5.	Alka	Optimization, Quantification and Purification of Carotenoids from Selected Microalgae	2020
6.	Manzoor Ahmed Bhatt	Characterization of Pendimethalin Tolerance Mechanism in the Diazotrophic Cyanobacterium <i>Desmonostoc muscorum</i> PUPCCC 405.10	Continue
7	Minakshi	Mechanism of Lead Tolerance mechanism in <i>Desmonostoc muscorum</i> PUPCCC 405.10	Continue
8	Yodha Singh	Mechansim of Degradation of Chlorpyrifos by <i>Sunechocystis</i> sp. PUPCCC 64	Continue
9	Kirti	Biochemical and Molecular Mechanism of Pesticide Tolerance in <i>Synechocystis</i> sp. PUPCCC 64	Continue

S. No.	Name of the Student	Title of Thesis	Year of Completion
1.	Baljinder Singh	Effect of Anilofos on Growth and Stress Enzymes of <i>Oscillatoria simplicissima</i> and <i>Anabaena torulosa</i>	2009
2.	Mandeep Kaur	Characterization of Anilofos Tolerance by Cyanobacterium <i>Synechocystis</i> sp. PUPCCC 64	2012
3	Alka	Effect of Pretilachlor on Photosynthesis, Respiration and Nitrogen Assimilation of Cyanobacterium <i>Synechocystis</i> sp. PUPCCC 64	2013
4	Shallu	Toxicological Impact of Sodium Arsenate on Some Physiological Parameters of Cyanobacterium <i>Desmonostoc muscorum</i> PUPCCC405.10	2018

18 List of Papers/Courses taught at P.G. and U.G. Level

S. No.	Paper	Class
1.	Biology and Diversity of Algae and Bryophytes, Taxonomy of Angiosperms, Plant Physiology and Plant Metabolism,	M.Sc.-I
2.	Plant Tissue Culture	M.Sc-I (FYIC) & M.Sc.-II
3.	Cyanobacteria and Algae	M.Sc Hons (Botany) FYIC-I
4.	Advances in Botany-I	M.Sc. Hons (Botany) FYIC-IV)
5.	Advanced Phycology	M.Sc. Hons (Botany) FYIC-V

19. Technical Proficiency: Techniques of Physiology and Biochemistry of Cyanobacteria

20. List of Papers Published: 46

- Rajput, A. Singh, D.P., Khattar, J.I.S., Swatch, G.K. and Singh Y. (2021). Evaluation of growth and carotenoid production by a green microalga *Scenedesmus quadricauda* PUMCC 4.1.40. under optimised culture conditions. Journal of Basic Microbiology doi 10.1002/jobm.202100285
- Y. Singh, G. Singh J.I.S. Khattar, S. Barinova, J. Kaur, S. Kumar, and D.P. Singh (2021). Assessment of water quality condition and spatiotemporal patterns in selected wetlands of Punjab, India. Environmental Science and Pollution Research doi.org/10.1007/s11356-021-15590-y
- M.A. Bhat, D.P. Singh, J.I.S Khattar, R.S. Singh (2021). Toxicological effect of pendimethalin on some physiological parameters of the diazotrophic cyanobacterium *Desmonostoc muscorum* PUPCCC 405.10. Journal of Applied Biology and Biotechnology 9(04): 10-18. doi:10.7324/JABB.2021.9402
- Komal, J.I.S. Khattar, D.P. Singh and Y. Singh (2021). New records of desmids from Ropar wetland (a Ramsar Site) of Punjab, India. Plant Science Today 8(4):885–896.
- M. Kapoor, G. Kaur, N. Kaur, C. Sharma, K. Batra and D.P. Singh (2021). The traditional uses, phytochemistry and pharmacology of genus *Hibiscus*: A Review. European Journal of Medicinal Plants 32(4): 1-37, 2021; Article no.EJMP.68419
- G.K. Swatch, D.P. Singh, J.I.S. Khattar and P.K. Mohapatra (2020). Interaction of pretilachlor with PS-II activity of the cyanobacterium *Desmonostoc muscorum* PUPCCC 405.10. Journal of Basic Microbiology. 60(6): 532-42. doi.org/10.1002/jobm.201900706
- D.P. Singh, J.I.S. Khattar, Alka Rajput, Rajni Chaudhary and R.S. Singh (2019). High production of carotenoids by the green microalga *Asterarcys quadricellulare* PUMCC 5.1.1 under optimized culture conditions. PLoS ONE 14(9): e0221930. https://doi.org/10.1371/journal.pone.0221930
- Sandeep Kaur, J.I.S. Khattar, Y. Singh, D.P. Singh and A.S. Ahluwalia (2019). Extraction, purification and characterisation of phycocyanin from *Anabaena fertilissima* PUPCCC 410.5: as a natural and food grade stable pigment. Journal of Applied Phycology 31 (3):1685–1696. http://doi.org/10.1007/s10811-018-1722-9.
- Jeevan Jyoti, J.I.S. Khattar, A. Gulati and D.P. Singh (2018). Optimization of conditions and partial characterization of cyanophycin synthetase from a thermophilic cyanobacterium *Chlorogloeopsis fritschii*. Biocatalysis and Agriculture Biotechnology 17:339-346.

10. R.S. Singh, A.K. Walia, J. Kaur, **D.P. Singh** and A. Rajput (2018). New cell surface bound lectins with complex carbohydrate specificity from members of green algae. *Indian J. Exp. Biol.* 56: 484-492.
11. Y. Singh, A. Gulati, **D.P. Singh** and J.I.S. Khattar (2018). Cyanobacterial community structure in hot water springs of Indian North-Western Himalayas: A morphological, molecular and ecological approach. *Algal Res.* 29: 179-192.
12. J.I.S. Khattar, Y. Singh, S. Parveen and D.P. Singh (2017). Microalgal biofuels: flexible bioenergies for sustainable development. In: *Biofuels: Production and Future Perspectives*. Eds. R.S. Singh, A.K. Pandey and E. Gnansounou. Taylor & Francis Group, Boca Raton, London New York.
13. R. Chaudhary, J.I.S. Khattar and **D.P. Singh** (2017). Growth and lipid production by *Desmodesmus subspicatus* and potential of lipids for biodiesel production. *J. Energy. Environ. Sustain.* 4: 58-63.
14. R.S. Singh, A.K. Walia, J.I.S. Khattar, **D.P. Singh**, J.F. Kennedy (2017). Cyanobacterial lectins characteristics and their role as antiviral agents. *Intr. J. Biol. Macromol.* 102: 475–496.
15. R.S. Singh, A.K. Walia, J.I.S. Khattar, **D.P. Singh** (2017). New cell surface lectins with complex carbohydrate specificity. *Indian J. Expt. Biol.* 55: 514-522.
16. S. Kaushal, Y. Singh, J.I.S. Khattar and **D.P. Singh** (2017). Phycobiliprotein production by a novel cold desert cyanobacterium *Nodularia sphaerocarpa* PUPCCC 420.1. *Appl. Phycol.* 29(4):1819–1827. DOI 10.1007/s10811-017-1093-7.
17. J.I.S. Khattar, Manpreet Kaur and **D.P. Singh** (2016). Sulphide ameliorates thermal induced oxidative stress in a mesophilic cyanobacterium *Westiellopsis prolifica*. *J. Adv. Biol. Biotechnol.* 9(4): 1-12.
18. **D.P. Singh** and J.I.S. Khattar (2016). Impact of insecticides on cyanobacteria. *Seaweed Res. Utiln.* 38: 165-180.
19. **D.P. Singh**, J.I.S. Khattar, Gurdeep Kaur and Yadvinder Singh (2016). Toxicological impact of herbicides on Cyanobacteria. *Annual Review and Research in Biology* 9: 1-39, Article no. ARRB. 22614.
20. **D.P. Singh**, J.I.S. Khattar, Alka, Gurdeep Kaur and Yadvinder Singh (2016). Toxicological effect of pretilachlor on some physiological processes of cyanobacterium *Synechocystis* sp. strain PUPCCC 64. *Journal of Applied Biology and Biotechnology* 4(1): 12-19. DOI: 10.7324/JABB.2016.40103.
21. J.I.S. Khattar, S. Kaur, S. Kaushal, Y. Singh, **D.P. Singh**, S. Rana and A. Gulati (2015). Hyperproduction of phycobiliproteins by the cyanobacterium *Anabaena fertilissima* PUPCCC 410.5 under optimized culture conditions. *Algal Research* 12: 463–469.
22. S. Praveen, **D.P. Singh** and J.I.S. Khattar (2015). The cyanobacterium *Synechocystis* sp. PUPCCC 62: a potential candidate for biotransformation of Cr(VI) to Cr(III) in the presence of sulphate. *Environment Science and Pollution Research* 22:10661–10668.
23. J.I.S. Khattar, Shahnaz, Yadvinder Singh, **D.P. Singh** and Arvind Gulati (2015). Intracellular uptake and reduction of hexavalent chromium by the cyanobacterium *Synechocystis* sp. PUPCCC 62. *Journal of Applied Phycology* 27: 827–837.
24. **D.P. Singh**, J.I.S. Khattar, Gurdeep Kaur, Meenu Gupta, Yadvinder Singh and Arvind Gulati (2015). Effect of pretilachlor on nitrogen uptake and assimilation by the cyanobacterium *Desmonostoc muscorum* PUPCCC 405.10. *Acta Physiologie Plantarum.* 37: 177 (DOI 10.1007/s11738-015-1923-7).
25. Rajni Chaudhary, J.I.S. Khattar and **D. P. Singh** (2014). Microalgae as feedstock for biofuel: Biomass yield, lipid content and fatty acid composition as selection criteria. *International Journal of Power and Renewable Energy System* 1: 62-71.
26. Yadvinder Singh, J.I.S. Khattar, **D.P. Singh** and Arvind Gulati (2014). Limnology and cyanobacterial diversity of high altitude lakes of Lahaul-Spiti in Himachal Pradesh, India *Journal of Biosciences* 39: 1-15.
27. **D.P. Singh**, J.I.S. Khattar, Meenu Gupta and Gurdeep Kaur (2014). Evaluation of toxicological impact of cartap hydrochloride on some physiological activities of a non-heterocystous cyanobacterium *Leptolyngbya foveolarum*. *Pesticide Biochemistry and physiology* 110: 63-70.
28. N. Jindal., **D.P. Singh** and J.I.S. Khattar (2013). Optimization, characterization and flow properties of exopolysachharides produced by *Lyngbya stagnina*. *J. Basic Microbiol.* 53: 902-912.
29. **D.P. Singh**, J.I.S. Khattar, M. Kaur, G. Kaur, M. Gupta and Y. Singh (2013). Anilofos tolerance and its mineralization by the cyanobacterium *Synechocystis* sp. Strain PUPCCC 64. *Plos One* 8(1): e53445. doi:10.1371/journal.pone.0053445
30. **D.P. Singh**, J.I.S. Khattar, Amita, Gurdeep Kaur and P. Cheema (2012). Toxicity of herbicides to diazotrophic cyanobacterium *Nostoc muscorum*. *J. Punjab Acad. Sci.* 9-10: 67-71.

31. **D.P. Singh**, J.I.S. Khattar, Kanwaldeep Kaur, B.S. Sandhu and Y. Singh (2012). Toxicological impact of anilofos on some physiological processes of a rice field cyanobacterium *Anabaena torulosa*. *Toxicol Environ Chem.* 94(7): 1304-18.
32. N. Jindal, **D.P. Singh** and J.I.S. Khattar (2011). Kinetics and physico-chemical characterization of exopolysaccharides produced by the cyanobacterium *Oscillatoria formosa*. *World J. Microbiol. Biotechnol.* 27:2139–2146.
33. **D.P. Singh**, J.I.S. Khattar, J. Nadda, Y. Singh, A. Garg, N. Kaur and A. Gulati (2011). Chlorpyrifos degradation by the cyanobacterium *Synechocystis* sp. strain PUPCCC 64. *Environ. Sci. Pollut. Res.* 18:1351–1359.
34. N. Jindal, **D.P. Singh** and J.I.S. Khattar (2010). Isolation and screening of exopolysaccharides producing strains of cyanobacteria. *J. Indian Bot. Soc.* 6-7: 52-58.
35. **D.P. Singh** and B.S. Sandhu (2010). Effect of anilofos on growth, photosynthetic pigments and stress enzymes of cyanobacterium *Oscillatoria simplicissima*. *Research J. Biotechnol.* 7(1): 27-32.
36. J.I.S. Khattar, **D.P. Singh**, N. Jindal, N. Kaur, Y. Singh, P. Rahi and A. Gulati (2010). Isolation and characterization of exopolysaccharides produced by the cyanobacterium *Limnothrix redekei* PUPCCC 116. *J. Applied Biochem. Biotechnol.* 162: 1327-1338, DOI10. 1007/s12010-010-8922-3.
37. G. Kaur, J.I.S. Khattar, **D.P. Singh**, and Y. Singh and J. Nadda (2009). Microalgae: A source of natural colours. In: J.I.S. Khattar, **D.P. Singh** and G. Kaur (Eds). *Algal Biology and Biotechnology*. I. K. International Publishing House Pvt. Ltd. New Delhi. pp 129-150.
38. **D.P. Singh**, J.I.S. Khattar, and Y. Singh (2009). Effect of pesticides on the distribution pattern of cyanobacteria in a rice field ecosystem. *J. Indian Bot. Soc.* 88 (1&2):163-169
39. **D.P. Singh**, J.I.S. Khattar, G. Kaur and Y. Singh (2007). Cyanobacterial diversity in rice fields of Malwa region of Punjab and their tolerance to chlorpyrifos. *J. Punjab Acad. Sci.* 4 (1&2): 106-113.
40. J.I.S. Khattar, **D.P. Singh**, T.A. Sarma and Anuradha Sharma (2002). Bioaccumulation of chromium ions by immobilized cells of a filamentous cyanobacterium *Anabaena variabilis*. *J. Microbiol. Biotechnol.* 12(1): 137-41.
41. J.I.S. Khattar, **D.P. Singh** and T.A. Sarma (2002). Characterization and optimization of chromium uptake by alginate immobilized cells of *Anacystis nidulans* in a continuous flow bioreactor. In: *Biotechnology in Agriculture and Environment*. Eds. J.K. Arora, S.S. Marwaha & R. Grover. Asiatic Publishers Inc., New Delhi. pp 182-189.
42. J.I.S. Khattar, T.A. Sarma and **D.P. Singh** (1999). Removal of chromium ions by agar immobilized cells of the cyanobacterium *Anacystis nidulans* in a continuous flow bioreactor. *Enzyme Microbial Technol.* 25: 564-568.
43. T.A. Sarma and **D.P. Singh** (1996). Microaerophilic growth and nitrogen fixation by temperature sensitive mutants of the *Anabaena variabilis* at the restrictive temperature. In "Proceeding of the National Symposium On Current Research In Plant Sciences Vol.II." Eds. T.A. Sarma (2002), S.S. Saini, M.L. Trivedi & M. Sharma. pp 35-41.
44. T.A. Sarma and **D.P. Singh** (1996). Temperature-sensitive photosynthesis deficient mutants of the *Anabaena variabilis* showed enhanced ultra-violet sensitivity and loss of repair mechanism. *Folia Microbiol.* 41(2): 181-186.
45. T.A. Sarma and **D.P. Singh** (1995). Temperature- sensitive photosynthesis deficient mutants of the cyanobacterium *Anabaena variabilis* impaired in nitrogen assimilation. *Folia Microbiol.* 40(5):511-515.
46. T.A. Sarma and **D.P. Singh** (1994). Isolation and characterization of temperature-sensitive mutants of *Anabaena variabilis* impaired in nitrogen fixation. *Folia Microbial.* 39(4): 296-300.