



Dr. Sandeep Kumar (*Assistant Professor*)

Department of Botany & Microbiology
Gurukula Kangri (Deemed to be University)
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Educational profile:

Ph.D. (Botany) Awarded : 2008

Gurukula Kangri University, Haridwar, Uttarakhand, India

Title of thesis : “Effect of Bio-fertilizer and Integrated Nutrient Management Protocol (N, P & K) on quality improvement of *Sesamum indicum* L.”

Post Graduate Diploma in *Biodiversity Conservation*: 2002

Forest Research Institute (ICFRE), Dehradun, UK, India.

Percentage/Class : First Division.

M.Sc. (Botany) : 2001

Institute of Advanced Studies, Ch. C. S. University CAMPUS, Meerut, UP, India

Percentage/Class : First Division.

B.Sc. (Botany) : 1999

M. S. Degree College, Saharanpur, Ch. C. S. University, Meerut, UP, India.

Percentage/Class : First Division.

Awards and Fellowships:

1. **CISR-Diamond Jubilee Research Intern Award-2004**
2. **National Eligibility Test (CSIR-NET), Exam Pass-LIFE-SCIENCE- 2003.**
3. **GATE- IIT Madras, Chennai, India, Exam Pass- LIFE-SCIENCE -2003.**
4. **CSIR, Research Intern Fellowship** (From 4/06/2004- 3/06/2006).
5. Received “**Shodh Ratna**” Award on **26 January, 2022** from Gurukula Kangri (Deemed to be University), Haridwar, Uttarakhand, India, on research projects granted from various institutions and outstanding hard work, commitment and remarkable contribution in the field of research.

ORCID ID : 0000-0002-0280-8164.

Scopus ID: 59624347200

Google Scholar : <https://scholar.google.co.in/citations?user=4EcN-X4AAAAJ&hl=en>

ResearchGate : <https://www.researchgate.net/profile/Sandeep-Kumar-182>

Research highlights:

- ✚ **Microbiology:** Study of beneficial and pathogenic microbes, with a focus on their interactions with plants. Study of antimicrobial resistance mechanisms.
- ✚ **Botany:** Exploration of plant biology, phytochemistry, and plant-based therapeutics.
The role of medicinal plants in traditional and modern medicine, especially for antimicrobial and antifungal applications.
- ✚ **Plant-Microbe Interactions:** Symbiotic relationships between plants and microbes, including PGPR (Plant Growth-Promoting Rhizobacteria). Biological control of plant diseases through microbial inoculants. Enhancing plant growth and soil health via microbial consortia.
- ✚ **Biodiversity:** Conservation and exploration of plant biodiversity, especially of medicinal and agriculturally important plants. The ecological roles of diverse microbial communities in plant health and sustainability.
- ✚ **Agrobiology:** Sustainable agriculture, including microbial and plant-based approaches to improve crop yield and reduce dependency on chemical inputs. Use of biofertilizers, biopesticides, and plant growth regulators for enhancing agricultural productivity.

Teaching Experience:

- **Assistant Professor** (10th Nov. 2018 to till date)

*Department of Botany and Microbiology,
Gurukula Kangri (Deemed to be University), Haridwar, Uttarakhand, India.*

- **Assistant Professor** (11th Nov. 2017 to 9th Nov. 2018)

*Department of Botany,
Multanilal Modi PG College, Modinagar, Ghaziabad, UP, India.*

- **Scientist-A/Officer-in-Charge, Botany/Plant Breeding** (27th June 2011 to 6th Oct. 2017)

*Regional Experiment Station, Nagrakata, Jalapiguri, West Bengal,
Rubber Research Institute of India,
Rubber Board, Ministry of Commerce & Industry, Government of India, Kottayam.*

- **Assistant Professor (Adhoc)** (24th Aug. 2007 to 15th May 2011)

*Department of Botany and Microbiology,
Gurukula Kangri University, Haridwar, Uttarakhand, India.*

- **Lecturer-on-Sanvida** (12th Dec. 2006 to 23th-Aug 2007)

*Department of Botany, Government, Post Graduate Degree College,
Berinag, Pithoragarh, Uttarakhand, India.*

Research Papers: Published in journal with ISSN No & Impact factor:

1. Pandey, S., Bithel, N., Kumar, S., Mishra, P., and Kumar, S. (2026) Valorizing green technology for sustainable CuO nanoparticles synthesis from Punica granatum L. peel waste mitigating dye degradation and listerial virulence. *Next Materials*, 13: 103050, 1-18. <https://doi.org/10.1016/j.nxmte.2026.103050>.
ISSN 2949-8228, **Impact factor: 4.7**
2. Kumar, S., and Kumar, S., Bithel, N., Sharma, A., and Pandey, A. (2026) Plant-derived compounds and artificial intelligence: Outsmarting microbial pathogens and antimicrobial resistance. *Phytomedicine*. 159. 1-28. 158512
ISSN: 0944-7113 **Impact factor: 11.3**
3. Saini. S., Rawat, D.S., Malik, R., Kumar, S. **Kumar. S.**, and Meena, J. (2026). Synthesis of novel acryloyloxy tamarind kernel-TiO₂ nanocomposite film for photocatalytic removal of dye and UV radiation. *Journal of Chemical Sciences*, 138:18. 1-23.
ISSN: 0974-3626 **Impact factor: 2**
4. Kumar, S., **Kumar, S.**, Vishnoi, V. K., and Rawat, M. S. (2025). Parametric optimization, Polyphenol profiling and Bioefficacy of *Bacopa monnieri* (L.) Pennell phytoextract against multi-drug resistant (MDR) foodborne bacterial pathogens. *Microbial Pathogenesis*, 200: 1-14, 107320.
ISSN: 1096-1208, **Impact factor: 3.9.**
5. Pandey, A., Bithel, N., **Kumar, S.**, and Kumar, S. (2025). A sustainable method of crystal violet dye removal using novel strain *Klebsiella pneumoniae* ED2. *Sustainable Chemistry for the Environment*, 9, 1-12, 100210.
ISSN: 2949-8392, **Cite Score: 0.7.**
6. Pandey, A., Kumar, S., Bithel, N., **Kumar, S.**, and Mir, M. A. (2025). Sustainable biodegradation of malachite green dye by novel non-pathogenic *Pseudomonas aeruginosa* ED24. *World Journal of Microbiology and Biotechnology*, 41, 1-22.
ISSN: 1573-0972, **Impact factor: 4.7.**
7. Kumar, S., Kumar, S., Vishnoi, V. K., Kumar, P., and Maheshwari, D. K. (2024). *Sida cordifolia* L.: Ethnobotany, Phytochemistry, Phytonanotechnology, and Commercial Application. *Current Pharmaceutical Biotechnology*, 25(7), 838-859.
ISSN: 1873-4316 **Impact factor: 2.9**
8. Kumar, P., Vashistha, H., and **Kumar, S.** (2024). PGPR attributes and molecular identification of non-rhizobial Endophytes for growth enhancement of *Sesbania sesban* (L) Merr. *Journal of Indian Botanical Society*. 104(3), 123-135.
ISSN: 2455-7218 **UGC-CARE Listed**
9. Vashistha, H., Kumar, P., and **Kumar, S.** (2024). PGP attributes of non-rhizobial bacterial endophytes from root nodules of wild leguminous plant *Tephrosia purpurea* (L) Pers. *Environment Conservation Journal*, 25(4), 942-955.
ISSN: 0972-3099 **Scopus- indexed**
10. Kumar, P., Vashistha, H., and **Kumar, S.** (2024). Phytochemistry, Pharmacological, Soil Amelioration, PGPR Attributes, Traditional, Modern and Future Prospects of *Sesbania sesban* (L) Merr. *Journal of Indian Botanical Society*, 104(01), 1-12.
ISSN: 2455-7218 **UGC-CARE Listed**

11. Suhas, Chaudhary, M., Chaudhary, S., Singh, M., Dehghani, M. H., Tyagi, I., **Kumar, S** and Kumar, S. (2024). An ingenious investigation on the adsorptive and antibacterial properties of a novel silver-doped hydrochar. *International Journal of Environmental Science and Technology*, 21, 8595–8606.

ISSN: 1735-2630

Impact factor: 3.4

12. Rana, V., Bithel, N., Kumar, S and Kumar, S (2023) Bioprospecting of Yagya Samagri and their Bioactive Constituents. *Vaidika Våg Jyotiy*, 11(21), 73-90..

ISSN: 2277-4351

UGC-CARE Listed

13. Kumar, S., **Kumar, S.**, Mir, M. A., Vishnoi, V. K., Pandey, A., and Pandey, A. (2023). Bioefficacy of *Sida cordifolia* L. phytoextract against foodborne bacteria: optimization and bioactive compound analysis. *Future Microbiology*, 18(17), 1235-1249.

ISSN: 1746-0913

Impact factor: 2.5

14. **Kumar, S.**, Banerjee, C., and Vishnoi, V. K. (2023). Biological control of Fusarium-wilt and quality improvement of *Sesamum indicum* cv. ST-1 using fluorescent *Pseudomonas*. *Environment Conservation Journal*, 24(2), 364-372.

ISSN: 0972-3099

Scopus-indexed

15. **Kumar, S.**, Navneet and Kumar, S. (2023). Phytodiversity and Ethnopharmacologically Important Plants of Gurukul Kangri (Deemed to be University) Haridwar, Uttarakhand, India. *Vaidika Våg Jyotiy*, 11(20), 168-186.

ISSN: 2277-4351

UGC-CARE Listed

16. Sarkar, J., Kumar, S., and Das, G. (2023) Evaluation of *Hevea brasiliensis* clones under acidic and alkaline soils of the Sub-Himalayan region of North Bengal. *Rubber Science*, 36(2): 29-35.

UGC Care List Ref. No. 371 NAAS Score: 3.98

ISSN: 2454-4841

Online ISSN 2454-485X

17. Baliyan, N, Dhiman, S., Dheeman, S., Kumar, S., Arora. N.K. and Maheshwari, D.K. (2022) Optimization of Gibberellic Acid Production in Endophytic *Bacillus cereus* using response surface methodology and its use as plant growth regulator in Chick pea. *Journal of Plant Growth Regulation*. 41 (7): 3019-3029, [Doi.org/10.1007/s00344-021-10492-2](https://doi.org/10.1007/s00344-021-10492-2).

ISSN: 0721-7595

Impact factor: 4.169

18. Baliyan, N., Dhiman, S., Dheeman, S., Vishnoi, V.K., Kumar, S., and Maheshwari, D. K. (2022). Bacteriophage cocktails as antibacterial agents in crop protection. *Environmental Sustainability*. 5(3), pp.305-311

Online ISSN 2523-8922 Impact factor: 4.6; <https://doi.org/10.1007/s42398-022-00237-6>

19. Kumar, P., Kumar, S. and R.C. Dubey (2021) Biocontrol of *Macrophomina phaseolina* (tassi) goid causing charcoal rot disease in *Lycopersicon esculentum* L. by using multi species bacterial consortia. *Environment Conservation Journal*. **10** (3): 77-79.

ISSN:0972-3099.

Indexed in Web of Science

20. Baliyan, N, Dhiman, S., Dheeman, S., Kumar, S., and Maheshwar, D.K. (2021) Optimization of indole-3-acetic acid using response surface methodology and its effect on vegetative growth of chickpea. *Rhizosphere*, 17:1-12.

ISSN: 2452-2198

Impact factor: 3.9

21. K. Annamalainathan, J. Jacob, S. Ravichandran¹ and **Kumar, S.** (2020) Water use by natural rubber trees in three different agro-climatic regions of India. *Rubber Science*, **33**(2): 140-151.

UGC Care List Ref. No. 371 NAAS Score: 3.98;

ISSN: 2454-4841 Online ISSN 2454-485X

22. Das, G., Kumar S, Sarkar, J. and Jacob, J. (2020) Performance of polyclonal seedlings of diverse origin in northern West Bengal. *Rubber Science*, **33**(2): 204-209. **UGC Care List Ref. No. 371 ISSN: 2454-4841**

Online ISSN 2454-485X

23. Das, G., **Kumar, S.**, Mydin, K.K. and J. Jacob (2020) Long term performance of some primary and hybrid clones under the Agro-climate of Sub-Himalayan West Bengal, India. *Rubber Science*, **33**(1): 21-29.

UGC Care List Ref. No. 371 ISSN: 2454-4841

Online ISSN 2454-485X

24. Dheeman, S., Baliyan, N., Dubey, R.C., Maheswari, D.K. and **Kumar, S.**, and Chen. L. (2019) Combined effect of rhizo-competitive rhizosphere and non-rhizosphere *Bacillus* in plant growth promotion and yield improvement of *Eleusine coracana* (Ragi) *Canadian Journal of Microbiology*. 66(2):111-124. doi: <https://doi.org/10.1139/cjm-2019-0103>

Impact factor: 2.419; ISSN (print): 0008-4166:

ISSN (electronic): 1480-3275

25. Das, G., T. Meenakumari, **Kumar, S.**, and Mydin, K.K. (2019) Long term performance of new generation *Hevea* clones introduced to Sub-Himalayan West Bengal. *Rubber Science*, **32**(3): 283-293.

ISSN: 2454-4841

Online ISSN 2454-485X

26. Dhiman, S., Dubey, R.C., Baliyan, N., **Kumar, S.** and Maheshwari, D.K. (2019) Application of potassium-solubilising *Proteus mirabilis* MG738216 inhabiting cattle dung in improving nutrient use efficiency of *Foeniculum vulgare* Mill. *Environmental Sustainability* 2, no. 4 (2019): 401-409. <https://doi.org/10.1007/s42398-019-00088-8>

Online ISSN: 2523-8922

Impact factor: 4.6

27. Das, G., **Kumar, S.** and Mydin, K.K. (2019) Identification of prepotent female parent clones from half-sib progeny analysis of *Hevea brasiliensis* at early stage-An alternate approach to hybridization under sub-Himalayan West Bengal. *Rubber Science*, **32**(1):53-62.

UGC Care List Ref. No. 371 ISSN: 2454-4841

Online ISSN 2454-485X

28. Diman, S., Dubey, R.C., Maeshwari, D.K. and **Kumar, S.** (2019) Sulfur-oxidizing buffalo dung bacteria enhance growth and yield of *Foeniculum vulgare* Mill. *Canadian Journal of Microbiology*. **65** (5): 377-386.

Impact factor: 2.419 **ISSN (print):** 0008-4166: **ISSN (electronic):** 1480-3275

29. Reju, M.J., Mydin, K.K., Singh, M. and **Kumar, S.** (2017) Evaluation of poly-cross progeny populations of *Hevea brasiliensis* in three agro-climatic zones of India. *Rubber Science*, **30**(3): 226-243.

UGC Care List Ref. No. 371 ISSN: 2454-4841 Online ISSN 2454-485X

30. Das, G., **Kumar, S.**, Krishnakumar, R. and James, J. (2016) Early establishment and photochemical efficiency of Ortets from diverse agro-climate in a cold-prone environment. *Rubber Science*, **29**(3):286-297.

UGC Care List Ref. No. 371 ISSN: 2454-4841 Online ISSN 2454-485X

31. Das, G., Kumar, S., Raj, S., Krishnakumar, R. and James, J. (2016) Performance of *Hevea* seedlings from diverse regions in the agro-climate of Sub-Himalayan West Bengal. *Rubber Science*, **29**(2):185-193.

ISSN: 2454-4841 Online ISSN 2454-485X

32. **Kumar, S.**, Das, G. and Mondal, G.C. (2015) Lightning damage on rubber plants in West Bengal. *Rubber Board Bulletin*. **33**(4):23-24. **ISSN No. 0970-4123**

33. **Kumar, S.**, Das, G. and Mydin, K.K. (2015) Performance of some *Hevea* clones under the cold prone climate of sub-Himalayan West Bengal. *Rubber Science*, **28**(3):247-254.

ISSN: 2454-4841 Online ISSN 2454-485X

34. Das, G., **Kumar, S.**, Choudhury, M., Krishnakumar, R. and Jacob, J. (2015) Rubber cultivation in alkaline soils of Dooars area of West Bengal: A report on growth of young plants. *Rubber Science*, **28**(3):266-274. **NASS Score: 5.54**

UGC Care List Ref. No. 371 ISSN: 2454-4841 Online ISSN 2454-485X

35. Das, G., Meenakumari, T., Meti, S., **Kumar, S.** and Mydin, K.K. (2015) Growth and yield of new generation clones of *Hevea* under the agro-climate of sub-Himalayan West Bengal. *Journal of Plantation Crops*. **42**(2): 126-130.

ISSN No 0304-5242; NASS Score: 5.54

36. **Kumar, S.** and Jacob, J. (2015) Common weeds in Rubber Plantations in West Bengal. *Rubber Board Bulletin*. **33**(2):21-25. **ISSN No. 0970-4123**

37. Maheshwari, D. K., Dubey, R. C., Aeron, A., Kumar, B., **Kumar, S.**, Tewari, S. & Arora, N. K. (2012) Integrated approach for disease management and growth enhancement of *Sesamum indicum* L. utilizing *Azotobacter chroococcum* TRA2 and chemical fertilizer. *World Journal of Microbiology & Biotechnology*. **28** (10):3015-3024.

Impact factor: 4.7

ISSN No. 1573-0972

38. Maheshwari, D.K., **Kumar, S.**, Kumar, B., Pandey, P. (2010) Co-inoculation of Urea and DAP tolerant *Sinorhizobium meliloti* and *Pseudomonas aeruginosa* as integrated approach for growth enhancement of *Brassica juncea*. *Indian Journal of Microbiology*. Oct-Dec, 2010, **50**(4): 425-431.

Impact Factor: 2.2,

ISSN No. 0046-8991

39. Singh, N., **Kumar, S.**, Bajpai, V.K., Dubey, R.C., Maheshwari, D.K. and Kang, S.C. (2010). Biological control of *Macrophomina phaseolina* by chemo-tactic fluorescent *Pseudomonas aeruginosa* PN1 and its plant growth promontory activity in Chir-pine. *Crop Protection*. **29**(10): 1142-1147.

Impact Factor: 3.3,

ISSN No. 0261-2194.

40. **Kumar, S.**, Pandey, P. and Maheshwari, D.K. (2009). Reduction in dose of chemical fertilizers and growth enhancement of sesame (*Sesamum indicum* L.) with application of rhizospheric competent *Pseudomonas aeruginosa* LES4. *European Journal of Soil Biology*. **45**(4): 334-340.

Impact Factor: 3.9,

ISSN No. 1164-5563.

41. **Kumar, S.** and Srinivasan, K. (2009) Effect of Chromium sulphate on soil Mycobiota. *Environment Conservation Journal*. **10** (3): 77-79.

ISSN No. 0972-3099.

42. Singh, H.B. and **Kumar, S.** (2005) Crude drug identification an essential need. *Bulletin of Medico-Ethno-Botanical Research*. Vol. XXVI No. **3-4**: pp.54-64.

ISSN No. 0253-6889.

43. **Kumar, S.** Srinivasan, K., Saxena, S. and Upreti, M. (2005) Dormancy breaking treatments to improve seed germination in *Delonix regia*. *Indian Journal of Plant Genetic Resources*. **18** (3): 279-281.

ISSN No. 0971-8184.

44. Kumar, S. and Singh H. B. (2006) *Acokanthera oppsitifolia*- An Ornamental Poisonous Plant. *Natural Product Radiance*. **5** (2), pp. 124.

ISSN No. 0972-592X

Reviews Article/Chapter/popular articles:

1. Thakur, S.N., Vishnoi, V.K. and Kumar, S. (2026) Skill Development and Workforce training for Industry 4.0 IN: “INDUSTRY 4.0 Emerging Technologies in Digital Era” by Kumar, R. and Kumar, K. (Editors), Crown Publishing, Head Office: 3rd Floor, B. Incube, Bilaspur, Chhattisgarh 495006.
ISBN: 978-93-7424-807-2.
2. Kumar, S., Thakur, S. N., **Kumar, S.**, Vishnoi, V. K., and Kumar, P. (2025). Exploring plant-based resources: A frontier in combating against common bacterial and fungal pathogens. In C. Manoharachary, H. B. Singh, S. Singh, and Y. P. Sharma (Eds.), *Biodiversity, Bioengineering, and Biotechnology of Fungi* (pp. 303-326). Academic Press.
ISBN 978-0-443-13856-0.
3. Thakur, S.N., Vishnoi, V.K. and Kumar, S. (2025) The Significance of Probiotics and Ayurveda on Human Health. In: Ayurvedic Approach to Holistic Wellness. ABS Books Publisher and Exporter, B-21, Ved and Shiv Colony, Budh Vihar Phase 2 Delhi-110086.
ISBN: 978-81-19708-04-8.
4. Katiyar, P., Singh, S. K., Verma, S., & Kumar, S. (2024). Phosphate-solubilizing bacteria: a role toward sustainability in the agricultural systems. In *Soil Bacteria: Biofertilization and Soil Health* (pp. 155-177). Singapore: Springer Nature Singapore.
ISBN 978-981-97-3472-6.
5. Kumar, S., Pandey, A., Singh, M., Mishra, S., **Kumar, S.**, Bithel, N., and Rajput, M. (2023). Role of Phyto-melatonin in Plant Tolerance Under Environmental Stress. In *Stress-responsive Factors and Molecular Farming in Medicinal Plants* (pp. 275-302). Singapore: Springer Nature Singapore.
ISBN No.: 978-981-99-4479-8.
6. Vashistha, H., Kumar, P., and **Kumar, S.** (2023). Plant Growth Promoting Rhizobacteria (PGPR) as Alternative to Chemical Fertilizer. In *Environment and Human Health: Global Issues* (pp. 166-199). ABS Books, Delhi.
ISBN No.: 978-93-94424-88-3.
7. Kumar, P., Vashistha, H. and **Kumar, S** (2023) Resilience of Plant Growth Promoting Rhizobacteria in Climate Change for Sustainable Agriculture: Current Scenario and Future Prospects. In *Ramifications of Environmental Change on Human Health* (eds Kumar, M. and Kumar, V.) ABS Books, Delhi. Pp 11-34. **ISBN No.: 978-93-94424-90-6.**
8. Maheshwari, D. K., **Kumar, S.**, Kumar, P., Kumar, S., and Dheeman, S. (2023). Effect of microbial consortium vs. perfected chemical fertilizers for sustainable crop growth.

In *Sustainable Agrobiological Design and Development of Microbial Consortia* (pp. 319-337). Singapore: Springer Nature Singapore.

ISBN No.: 978-981-19-9569-9.

9. Pandey, A., Kumar, S., **Kumar, S.**, Rajput, M., Singh, M., Pandey, C., and Bhardwaj, N. (2023). Role of microbial enzymes in bioremediation: Emerging opportunities and limitations. In *Microbial Inoculants* (pp. 277-300). Academic Press.

ISBN No.: 978-0-323-99043-1.

10. **Kumar, S.**, Vishnoi, V. K., Kumar, P., and Dubey, R. C. (2023). Survival of *Macrophomina phaseolina* in plant tissues and soil. In *Macrophomina phaseolina* (pp. 205-224). Academic Press.

ISBN No.: 978-0-443-15443-0.

11. Katiyar, P., **Kumar, S.** and Arora, N. (2022) Interaction of nitrogen-fixing bacteria and cereal crops: An important Dimension. In: *Nitrogen Fixing Bacteria: Sustainable growth of Non-legumes* (eds. Maheshwari, D. K., Dobhal, R. and Dheeman, S.) Springer, Heidelberg, Germany, Pp. 169-194.

ISBN No.: 978-981-19-4905-0.

12. Dhiman, S., **Kumar, S.**, Baliyan, N., Dheeman, S., and Maheshwari, D. K. (2021). Cattle dung manure microbiota as a substitute for mineral nutrients and growth management practices in plants. In: *Endophytes: Mineral Nutrient Management, Volume 3* (eds. Maheshwari, D. K. and Dheeman, S.), Springer, Heidelberg, Germany, Pp. 77-103.

ISBN- 978-3-030-65446-7.

13. Garg, G., **Kumar, S.**, and Bhati, S., (2021). Siderophore in Plant Nutrient Management: Role of Endophytic Bacteria. In: *Endophytes: Mineral Nutrient Management, Volume 3* (ed. Maheshwari, D. K. and Dheeman, S.), Springer, Heidelberg, Germany, Pp. 315-329.

ISBN- 978-3-030-65446-7.

14. Dheeman, S., Maheshwari, D. K., Dubey, R. C., Kumar, S., Baliyan, N., & Dhiman, S. (2019). Harnessing beneficial *Bacillus* in Productivity improvement of food security crops of Himalayan agro-climatic zones. In *Field Crops: Sustainable Management by PGPR* (pp. 105-143). Cham: Springer International Publishing.

ISBN: 978-3-030-30925-1;

eBook ISBN: 978-3-030-30926-8

15. **Kumar, S.**, Agarwal, M., Shrivardhan, D. and Maheshwari, D. K. (2015) Exploitation of Phytohormones-Producing PGPR in development of multispecies Bio-inoculant Formulation. In: *Bacterial Metabolites in Sustainable Agro-ecosystem, Sustainable Development and Biodiversity*: (ed. Maheshwari, D. K.), Springer, Heidelberg, Germany, Pp. 297-317.

ISBN No- 978-3-319-24652-9.

16. **Kumar, S.**, Kumar, P., Dubey, R.C. and Maheshwari, D.K. (2012) Ecofriendly and Economically Viable Integrated Nutrient Management for Sustainable Agriculture. In:

Bioremediation of Pollutants (Eds. Maheshwari, D.K. and Dubey, R.C.), I.K. International Publisher House Pvt. Ltd. New Delhi. Pp279-298.

ISBN No.: 9789381141052 9381141053.

17. Maheshwari, D.K., **Kumar, S.**, Narendra, K. Patel, D and Saraf, M. (2012) Nutrient availability and management in rhizosphere by microorganisms. *In: Bacteria in Agrobiology: Stress Management*, (ed. Maheshwari, D. K.), Springer, Heidelberg, Germany. pp 301-326

ISBN No. -9783642234644 364223464X.

18. ***Kumar, S.**, Dubey, R. C. and Maheshwari, D. K. (2011) Role of PGPR in Integrated Nutrient Management of Oil Seed Crops. *In: Bacteria in Agrobiology: Plant Nutrient Management* (ed. Maheshwari, D. K.), Springer, Heidelberg, Germany, pp. 1-16. * Corrigendum

**ISBN No-
9783642210600.**

19. **Kumar, S.**, Aeron A., Pandey, P. and Maheshwari, D.K. (2011) Ecofriendly Management of Charcoal Rot and *Fusarium* Wilt Diseases in Sesame (*Sesamum indicum* L.). *In: Bacteria in Agrobiology: Crop Ecosystems*, (ed. Maheshwari, D. K.), Springer-Verlag Berlin Heidelberg, Germany. Pp. 387-405.

**ISBN No. –
9783642183560.**

20. Aeron, A., Kumar, S., Pandey, P., & Maheshwari, D. K. (2011). Emerging role of plant growth promoting rhizobacteria in agrobiolgy. In *Bacteria in agrobiolgy: crop ecosystems* (pp. 1-36). Springer, Berlin, Heidelberg.

ISBN No. – 9783642183560.

Popular Science Quiz Publication:

- **Science Reporter-** August-2005.
- **Vigyan Pragati-** July-2005.
- **Member Executive Council of the Indian Botanical Society for three years.**
- **Life member of Indian Botanical Society**
- **Life member of Indian Science Congress**

Orientation Program/ Refresher Course/ Faculty development Program:

1. Participated in Refresher Course- Contemporary trends in Bio-Sciences from 25 February, 2025 to 10th March 2025 Sponsored by UGC, MMTTC, Kumaun University, Nainital, UK.
2. Participated in “Refresher Course - Advance Research Methodology” from June 17- 1st July 2021” sponsored by MHRD, PMMM, National Mission on Teachers and Teaching, organized by Teacher Learning Centre, Ramanujan College, University of Delhi.

3. Participated in online faculty Development Program “**Outcome Based Education and Accreditation**” from May 25th - 29th May, 2020, organized by IILM College of Engineering & Technology, 18, knowledge Park-II, Greater Noida-201306.
4. Participated in “Orientation Program from June 04 - July 01, 2020” sponsored by MHRD, PMMM, National Mission on Teachers and Teaching, “**Faculty in University/College/Institute of Higher Education**” organized by Teacher Learning Centre, Ramanujan College, University of Delhi.

Invited lecture:

1. Invited Lecture delivered “Recent Trends in Plant Taxonomy and Herbarium Techniques” 15th October, 2025, Department of Botany and Microbiology, Kanya Gurukul Campus, G.K. (DU) Haridwar, UK.
2. Delivered an invited lecture “Global Environmental and Biodiversity Conservation” as resource person for Pre-Ph.D. course work in Botany, on 1st June, 2024, Maa Shakumbhari University, Saharanpur, Uttar Pradesh, India.
3. Deliver invited talk on “Vedic Plants and Microbiology” in Department of Botany, Hindu College, Moradabad, UP on 28.01.2020, Moradabad, India.
4. Deliver invited talk on “Plant Growth Promoting Rhizobacteria” on 16.12.2019 at Department of Botany, D.A.V. College, Muzaffarnagar under star college scheme funded by DBT, New Delhi, India.
5. Delivered invited lecture and abstract published “Effect of Plant Growth Promoting Bacteria and Integrated Nutrient Management on growth and yield of some oilseed crops” on 10-12 December, 2006 in National seminar held at Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, India.

Popular articles:

1. **Kumar, S.** and James Jacob. (2021) Popular article in published CSIR, National Magazine on “स्वयं हवा भरने वाले टायर्स” (*Self-Inflating Tires*). ***Vigyan Pragati***. February, 29-31.
ISSN No- 0042-6075
2. **Kumar, S.** and Maheshwari, D.K. (2011) Popular article in National Magazine on “*Sadabhar Harit Kranti*” (Ever Green Revolution) published as special article. ***Vigyan Pragati***. August, 29-34.
ISSN No- 0042-6075
3. **Kumar, S.** and Maheshwari, D.K. (2010) Popular article in National Magazine on “*Javik Krishi-Paryavaran Ki Pukar*” special issue on Agriculture, ***Vigyan Pragati*** March, 34-40.
ISSN No- 0042-6075

Training programs /Conference/ Seminars/ Workshop Summer School Attended/ participated/ Abstract Published:

1. Participated and Paper presented in entitled “Revolutionizing digital forensics with AI-Smarter, Faster & More Accurate” International Conference on “AI-Driven Next-Generation Digital Forensics: Trends, Research and Advances in Criminal Evidence” **12-April, 2026**, Department of Pharmaceutical Science, Gurukula Kangri (Deemed to be University), Haridwar, Uttarakhand.
2. Participated and Paper presented entitled “Leveraging potential of *Bacopa monnieri* (L.) Pennell against foodborne bacteria and antibiotic resistance” National Conference on “Microbiome & the Biotic Family: R & D Leading to clinical & Commercial Implications” **19-20th December, 2025** Swami Rama Himalayan University, Dehradun, UK, India.
3. Participated as Chair Person/Co Chair Person in “National Seminar” on “Exploration of Immunity Booster Medicinal Plants for Prevention and control of Diseases: Opportunity and Challenges” held on **25-26th April, 2025** at Department of Pharmaceutical Science, Gurukula Kangri (Deemed to be University), Haridwar, Uttarakhand.
4. Paper presented in entitled “Exploring *Sida cordifolia* L. antibacterial potential against MDR foodborne bacteria” in National Conference on “Health and Hygiene Issue in Current Scenario” held on **13-14th Feb. 2025** at Department of Botany and Microbiology, Gurukula Kangri (Deemed to be University), Haridwar, Uttarakhand.
5. Paper presented in entitled “Vedic Botany: Ancient Literature for Future Generation” in International Conference on “Yoga, Human Consciousness and Artificial Intelligence: In Special Reference to Global Peace and Well-being” held on **21-22nd October, 2024**, organized by IUCYS and Department of Yoga, Gurukula Kangri (Deemed to be University), Haridwar, Uttarakhand.
6. Paper presented and Participated as Judge entitled “Bioefficacy of *Bacopa monnieri* (L.) Pennell phytoextract against multi-drug resistant (MDR) foodborne bacterial pathogens” XLVII All Botanical Conference on Biotic Curiosities and Functional Diversity across Plant kingdom in Climate Change Regime” held on **16-18th October, 2024** at C.C.S. University, Campus, Meerut, UP.
7. Participated and as Judge the participant in “World Pharmacist Day” held on **25th September, 2024** at Department of Pharmaceutical Science, Gurukula Kangri (Deemed to be University), Haridwar, Uttarakhand.
8. Chaired the session entitled “Yuvamanthan Model United Nations” held on **February 2nd, 2024** organized by Gurukula Kangri Deemed to be University, Haridwar, Uttarakhand.
9. Paper presented and participated in paper presented on title “Antistaphylococcal efficacy of bioactive-enriched phytoextract from *Bacopa monnieri* (L.) Pennell: Insights into the Ayurvedic 'Brahmi' plant” held on **23-25 December, 2023**. in International Conference on “**Veda vijanana & Sanskriti Mahakumbha**” at Gurukula Kangri Deemed to be University, Haridwar, Uttarakhand.
10. Paper presented and participated on “Growth enhancement of traditional green manure *Sesbania sesban* (L.) Merr. By using *Pseudomonas plecoglossicida*” in International Conference on “Veda vijanana & Sanskriti Mahakumbha” held on **23-25 December, 2023**, at Gurukula Kangri Deemed to be University, Haridwar, Uttarakhand
11. Paper presented, chairs the session and participated in held on, paper presented on “Unraveling the antibacterial potential of Ayurvedic plant *Sida cordifolia* L. against *Listeria monocytogenes*: A bioactive-rich phytoextract study” International Conference of “**XLVI All India Botanical Conference of the Indian Botanical Society**” on Synergy in Plant Science and Sustainable Future-

2023, held on **November 4th-6th, 2023**, at Department of Botany, Sant Gadge Baba Amravati University, Amravati, Maharashtra.

12. Paper presented and participated title “Phytochemical analysis of *S. cordifolia* and its antibacterial activities” in National Conference on Vedic Microbiology vs Modern Biotechnology held on March 27-29, 2023 at Faculty of Life Science, Gurukula Kangri (DU), Haridwar, Uttarakhand sponsored by Uttarakhand Council of Biotechnology, Pantnagar, Uttarakhand.
13. Paper presented and participated in International Conference on “**Environment and Human Health: Global Issues**” held on December 7-8, 2022. paper presented on “Bioefficacy of phytoextract against foodborne pathogen *Staphylococcus aureus*” Department of Botany and Microbiology, Gurukula Kangri Deemed to be University, Haridwar, Uttarakhand
14. Participated in Training Program on Self-Reliant Students **19-21th November, 2022**, held at Department of Botany and Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar, Uttarakhand.
15. Paper presented, chairs the session and participated in “**XLV All India Botanical Conference of the Indian Botanical Society**” on Climate Change: Biodiversity, Adaptation and Mitigation held on October 14th - 16th, 2022, paper presented on Evaluation of Antibacterial activity of *Bacopa monnieri* (L.) Pennell against *Staphylococcus aureus* organized by Department of Botany, University of Lucknow, Lucknow, Uttar Pradesh.
16. Paper presented and participated in 16th Uttarakhand state science and Technology Congress 2020-22, paper presented on “Phytochemical analysis and antimicrobial activity of *Bacopa monnieri* (L.) Pennelle extract against *Listeria monocytogens*” 22nd to 24th June, 2022 organized by UCOST, Dehradun, held at Graphic Era University, Dehradun.
17. Chairs the session and participated in International Conference on “Indian Traditional Yoga System Theory and Practice” held on 24th to 26th May, 2022, sponsored by Ministry of AYUSH, Govt. of India, New Delhi, organized by Department of Yogic Science, Gurukul Kangri Deemed to be University, Haridwar.
18. Organizing secretary and participated in training program on “**Herbal Product Formulations**” **17-21th December, 2021**, held at Department of Botany and Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar, Uttarakhand
19. Participated and member of organizing committee in training program on “Nutritious and beneficial Herbal Products formulations & Preparations” from 6th to 10th May, 2022 organized by Department of Botany and Microbiology, Gurukula Kangri Deemed to be University, Haridwar.
20. Chairs the session and participated in National Seminar on “COVID-19: Pre and Post Covid Impact on Physical and Mental Health” held on 14th to 15th March, 2022, sponsored by UCOST, Dehradun organized by IQAC Cell, Gurukul Kangri (Deemed to be University), Haridwar.
21. Chairs the session and participated in National Conference and Exposition on “E-waste management: Challenges & Opportunities” 24th & 25th March, 2022 organized by Department of Computer Science, Gurukul Kangri Deemed to be university, Haridwar.
22. Paper presented, chairs the session and participated in “**XLIV all India Botanical Conference of the Indian Botanical Society**” on Plant Science Research in Present Scenario: Opportunities and Challenges held on 18^h- 21st October, 2021, paper presented on Suppression of *Macrophomina phaseolina* causing charcoal rot of sesame (*Sesamum indicum* L.) by fluorescent *Pseudomonas aeruginosa* organized by Jai Narain Vyas University, Jodhpur, Rajasthan.
23. Paper presented and participated in “International Conference on Emerging role of pharmacist in innovation, Discovery and Development of Biological Products and Biopharmaceutical” paper presented on “**Isolation and Screening of Plant Growth promoting Rhizobacteria from *Tefrosia purpurea* (L.) Pers.**” held on 25-27 September, 2021 and organized by Department of

Pharmaceutical Science, Gurukul Kangri Deemed to be university, Haridwar.

24. Coordinator and participated as delegate in “Medicinal Plants Mega Conference and Exhibition-2021” organized by department of Pharmaceutical Science, Gurukul Kangri Deemed to be university, Haridwar.
25. Participated in National Webinar on “National Education Policy-NEP 2020: Opportunities, Challenges & Its Effective Implementation” held on 29th April, 2021, organized by FET, Gurukula Kangri Deemed to be University, Haridwar.
26. Participated in International Webinar on “Technology Advancement in Chemical Sciences to Solve the Modern Problems” held on 3rd April, 2021, organized by Department of Chemistry, Eklavya University Damoh (MP) & Ojaswini College Pas Excellence Damoh, MP, India.
27. Paper presented and participated in “**XLIII all India Botanical Conference of the Indian Botanical Society**” on Sustainable development of Plant Resources and Conservation of Threatened Plant in Botanic Gardens held on 19th- 21st March, 2021 and organized by CSIR-NBRI, Lucknow. Title: Intra-clonal Variability for Yield in *Hevea* under the Cold Prone Climate of Sub-Himalayan West Bengal
28. Participated in National spear head training program for professors of Ganga basin on “**Wetland Conservation and Biodiversity Monitoring of Ganga and its tributaries**” from 9th to 11th March. 2021 held at Wild Life Institute of India-National Mission for Clean Ganga (NMCG), Dehradun, Uttarakhand.
29. Participated in National online workshop on “**Biodiversity and Ecosystem Health Assessment of Upper Ganga Basin**” from **22nd to 26th Feb. 2021** organized under the National Mission of Sustainable Himalayn Ecosystem (NMSHE) project by Department of Zoology & Environmental Science, Gurukula Kangri Deemed to be University, Haridwar, and National Institute of Hydrology, Roorkee, Haridwar, Uttarakhand.
30. Organizing secretary of World Rabies Day” 28thSeptember, 2020, held at Department of Botany and Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar, Uttarakhand
31. Participated in International Virtual Colloquium on “**Novel Insightful in Molecular Medicine in the unexpected Pandemic Period**” held on **25thJuly, 2020**, organized by Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal and MPCOST, Bhopal.
32. Participated in National Webinar on “**Insightful Introduction to MATLAB**” 11thJuly, 2020, organized by IITM, Chennai and Sri Venkateshwar College of Engineering, Pennalur, Sriperumbudur.
33. Participated in National Webinar on “**Regulated Deficit Irrigation (RDI): A Water Conservation Strategy**” 21thMay, 2020, organized by Vivek College of Education, Bijnor, Uttar Pradesh.
34. Participated in National Webinar on “**Molecular Taxonomy and DNA Barcoding: Concept, Method and Applications**” 20thMay, 2020, organized by Department of Botany, R.D. & S.H. National College and S.W.A. Science College, Off Linking Road, Bandra (W), Mumbai.
35. Organizing secretary and participated National seminar on “Tackling Covid-19 Through Traditional Ways, 19th-20thMarch, 2020 held at Department of Botany and Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar, Uttarakhand.
36. Participated in training course on “**Biodiversity Conservation**” from February 4-8th, 2019 held at “Wildlife Institute of India” Dehradun, India, sponsored by Department of Science and Technology, New Delhi.
37. Organizing secretary of World Rabies Day” September 28, 2019, held at Department of Botany and Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar, Uttarakhand.

38. Organizing secretary and paper presented in national seminar on “**Innovative Approaches in Microbial Technology (IAMT-2019)**” March 8-9, 2019, held at Department of Botany and Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar, Uttarakhand.
39. Participated and paper presented in National Conference on “**Microbial Inoculants for Agriculture and Environmental Sustainability**” September 28-30, 2018, held at Department of Botany and Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar, Uttarakhand.
40. Participated in National workshop on “**Hands on Training in Plant Taxonomy: Tools and Techniques**” from February 15-21, 2018 held at Department of Botany, Ch. Charan Singh University, Meerut in collaboration with Botanical Survey of India.
41. Paper presented and participated in “**103rd Indian Science Congress**”: Kumar, S., Das, G. and Mydin, K.K. (2016) Intra-clonal variability for yield in *Hevea* under the clod prone climate of Sub-Himalayan West Bengal, held at University of Mysuru 3-7 January, 2016, organized by Indian Science Congress, India.
42. Participated in International Rubber Research Development Board- Rubber Research Institute (IRRDB-RRII) workshop on “**Multilateral Clone Exchange**” from 4-7th June, 2014 at RRII, Rubber Board, Kottayam, Kerala, India.
43. Participated in **Eddy Covariance Training Course** organized by Campbell Scientific, Canada held at CRIDA, Hyderabad 25-27 November, 2013.
44. Participated, poster presentation and Abstract published: Gitali, D., MeenaKumari, T., Singh, R.S., Khoroar, S., Meti, S., Gohain, T., **Kumar S.**, Mydin, K.K., and Chaudhary, D. (2012) Growth and yield of new generation clones of *Hevea* in Sub-Himalayan West Bengal. In: **International Rubber Conference 2012**, organized by Rubber Board India under the auspices of International Rubber Research and Development Board 28-31 October, 2012 held at Kovalam, Kerala, India.
45. Participated in **training program** on “**Project Planning, Research Methodology, and Data Analysis**” from 2-4 Nov, 2011 at Rubber Training Institute, Rubber Board, Kottayam, Kerala.
46. Participated in state level workshop on “**Watershed Management & Rain water Harvesting Training Workshop**” held on 3-4 February 2011, organized by UCOST and Central Ground Water Board, Dehradun, Uttarakhand.
47. Participated in **Training Program** on “**Current Trends in Microbial Biotechnology**” held on 14-25th November, 2010 organized department of Botany & Microbiology, Gurukula Kangri Vishwavidyalaya, Haridwar.
48. Participated in National Seminar on “**Challenge and Opportunities in Evolutionary and Reproductive Biology of Plants**” 10-11 Dec, 2009. On the occasion of Prof. V. Puri Birth centenary, organized by department of Botany, Ch. C.S. University, CAMPUS, Meerut, UP, India.
49. Kumar, S., Dubey, R.C. and Maheshwari, D.K. (2009) Paper present and Abstract published in “4th Uttarakhand State Science & Technology Congress Entitled “Low dose input of chemical fertilizers and Plant Growth enhancement of oil seed crop with fluorescent *Pseudomonas*”. Held on 10-12 Nov. 2009. G.B. Pant University of Agriculture & Technology, Pant Nagar, UK.
50. Participated in state level workshop on “Science & Technology Intervention in Traditional and Rural Crafts” held on 27-28 August, 2009 funded by UCOST, Dehradun and DST, New Delhi.
51. Participated in 5 days workshop on “**Microbial Fermentation and Microbial Inoculants Preparation**” for Organic Farming” on 6-10th February, 2009 held at the Department of Botany and Microbiology, Gurukula Kangri University, Hardwar.
52. Kumar, S., Dubey, R.C. and Maheshwari, D.K. (2008) Paper present and participated in “3rd Uttarakhand State Science & Technology Congress, 10-11 Nov. 2008 Entitled “Plant Growth enhancement and suppression of *Fusarium oxysporum* f. sp. *sesami* causing wilt disease of sesame

- by Fluorescent *Pseudomonas*” held at Indian Institute of Technology, Roorkee.
53. Participated in 10 days **Summer School** on “**Recent Trends in Biotechnology**” on 16-30 September, 2008 held at Department of Botany and Microbiology, Gurukula Kangri University, Haridwar.
 54. Participated in 10 days’ workshop on “**Molecular and Applied Microbiology**” on 10th February to 19th February, 2008 held at Department of Botany and Microbiology, Gurukula Kangri University, Haridwar.
 55. Participated in 10 days’ workshop on “**Microbial Fermentation and Inoculants Preparation**” on 10th February to 19th February, 2008 held at Department of Botany and Microbiology, Gurukula Kangri University, Haridwar.
 56. Participated in “*State water conservation and management workshop*” held on 23 Oct. 2007 held at Dev Sanskriti Vishwavidyalaya, Santikunj, Haridwar, UK.
 57. Delivered invited lecture and abstract published “*Effect of Plant Growth Promoting Bacteria and Integrated Nutrient Management on growth and yield of some oilseed crops*” in National seminar held at Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh. Dec. 2006.
 58. Participated in 23rd “*All India Botanical Conference & National Symposium on Microbes & Human Welfare*” in Ch. Charan Singh University, Meerut-2000 UP.

List of Ph. D. Students.

Sr. No.	Name of student registered under guidance	Registered for Ph.D.	Year of award Degree	Status
1.	Prashant Kumar	Ph.D.	2024	Awarded
2.	Sachin Kumar	Ph.D.	2025	Awarded
3.	Harshita Vashistha	Ph.D.	2026	Awarded

LIST OF PROJECTS: 02

S. No.	Title of Project	Funding Agency	Duration From/to	No. of Scientists/ Associates working under the projects	Total approved cost of the project (in Rs.)
1.	Bioefficacy of certain bioactive components of <i>Sida cordifolia</i> L. and <i>Bacopa monnieri</i> (L.) Pennell against foodborne bacteria	UCOST, Dehradun	2 nd August, 2021 to 1 st August, 2023 Completed on 31.01.2024	1 JRF	5,97,800/-
2.	Thematic, Therapeutic and Distinguish Designed Herbal Garden of National/State	National Medicinal Plant Board (NMPB), Ministry of AYUSH,	28 th Sept, 2021 to 27 th Sept, 2026	NA	21,60,000/-

	Importance	Government of India, New Delhi			
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Patents Published/Awarded/File: 04

S.No	Reg. No	Certificate of registration of design	Title of invention/design	Date of Issue	Country
1	Patent number: 2021107081	2021107081	7- HYDROXY-4 METHYL COUMARIN ANALOGS BUILT INTO TRANSDERMAL FORMULATION FOR ANTI-INFLAMMATORY ACTIVITY	15th day of December 2021	Australia
2	133382	367058-001	INCINERATOR FOR VOLATILE COMPONENTS COLLECTION	19/04/2023	India
3	110317	356025	Ultraviolet Disinfecting device for medical instrument	03.01.2022	India
4	Application No.202611008275 A	202611008275 A	SHEWANELLA BALTICA ED13 BACTERIAL STRAIN AND METHOD FOR BIODEGRADATION OF AZO DYES THEREOF	13/03/2026	India

(Sandeep Kumar)