

Dr. Sudhir Kumar Pandey

Assistant Professor

Department of Botany, SoS in Life Science

Guru Ghasidas Vishwavidyalaya

(A Central University), Bilaspur (C.G.), 495009

Email: skpbhu@gmail.com, pandey.sudhir@ggu.ac.in

Phone: +91-7587194630

[GoogleScholar](#) [Researchgate](#) [SCOPUS](#) [ORCID](#) [Web of Science](#)



Research Profile (as of December, 2022)

SCI listed/Indexed publications	60
First/Corresponding authored publications	49
Citations (based on Google Scholar)	2720
Average citations per article	45.33
Cumulative impact factor	361
Average impact factor	6.01
Papers with the impact of more than 10	11
H-index	25
i-10 index	41
Research interest (RI) Score	1525*

*RI score: 1481 (higher than 95% of the researchers on research gate)

Current Research Interests: Study of emerging hazardous pollutants; Plant-atmosphere interactions; Eco-management of environmental contaminants; Biochar and its applications

Grants (Total Rs. 58, 79,000)

Title of the project	Funding agency	Value (Rs.)	Role
Foliar transfer of airborne toxic heavy metals: Implication for heavy metal pollution management in air	UGC	14,70,000	PI
Plant specific emission patterns of VOCs with respect to global carbon budget	DST	25,00,000	PI
Control of airborne PM using suitable plant species	UGC	6,00,000	PI
Aquatic and terrestrial Ecological studies of NPTC, Sipat Area	NTPC	13,09,000	Co-PI

Research Guidance

Ph.D. Guidance: 7 (03 Awarded & 03 ongoing), **M.Sc. Dissertation:** 50

Teaching Experience

- Assistant Professor in Department of Botany, Guru Ghasidas. Vishwavidyalaya (A central University), Bilaspur (C.G.) since May 2011 ('A' grade in UG/PG teaching by the University student feedback system)
- Delivered lectures to graduate students (Dept. of Environment & Energy, Sejong University, Seoul, Korea) (During postdoctoral employment: 2006-2011)

- **Taught courses of M.Sc. Environmental Sciences (Banaras Hindu University, Varanasi, India) for 4 consecutive sessions (2002-2005)**

Research Experience

(A) Post-doctoral

Postdoctoral Research Scientist in Atmospheric Environment Laboratory, **Sejong University, 98 Goon Ja Dong, Gwang Jin Goo, Seoul** from December 2006- May 2011 **(4.5 years)**

(B) Doctoral

- **Senior Research Fellow (SRF)** in the **Centre of Advanced study in Botany, Banaras Hindu University, Varanasi, 221005** from 2003.9- 2006.9 **(3 years)**
- **Junior Research Fellow (JRF)** in the **Centre of Advanced study in Botany, Banaras Hindu University, Varanasi -221005** from 2001.9- 2003.8 **(2 years)**

Awards and distinctions

- **Best research Paper award of the year 2019, SoS in Life Sciences, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)**
- **Associate Editor of Frontiers in Environmental Science (Impact factor: 5.411)**
- **Associate Guest Editor** of Special issue “SDGs towards 2030: sustainable management of environmental toxicants” in **Frontiers in Toxicology**
- **Guest editor** of Special issue “Air pollution management and environmental research” in Journal **Sustainability (Impact factor: 3.889)**
- **International grant** for training course on Environmental immuno-toxicology and reproductive toxicology at **CRI, Thailand, September 2016**
- **Young scientist award from DS&T (SERB), New Delhi** in the year 2014
- Elected as **associate of National Academy of Agricultural Sciences (NAAS), New Delhi** in 2013
- **Juan de le Carva Postdoctoral award from Spain** in year 2010.
- **Postdoctoral research Fellowship** from **NRF, Korea** in the year 2006
- **Senior research Fellowship (SRF)** in September 2003.
- **Qualified National Eligibility Test (NET) for the award of Junior Research fellowship (JRF) UGC-CSIR, New Delhi, December 2000.**
- **Reviewer of International Journals**

Environmental Science and Technology, Environmental Pollution, Environmental Research, Environmental Monitoring and Assessment, Environmental Engineering Science, Applied Soil Ecology, TAO, Archives of Environmental Contamination and Toxicology, Sensors, Atmospheric environment, Food chemistry, Critical reviews in environmental science & technology, Science of the Total Environment, Ecological indicators, Atmospheric Pollution Research, Processes, Sustainability, Agriculture

- **Best paper award in oral presentation category**

For the paper entitled “A test of NDIR-based Sensors for the Near Real-time Analysis of CO₂” in **international conference of the Korea Society for Atmospheric Environment**. 25 October, 2007, ChungJu, Korea.

- **Invited talk in DST-STUTI training Program (TPSRI, 2022)**

at Govt. V.Y.T. P.G. Science College, Durg on the topic “HPLC-Techniques and applications” on December 16, 2022.

- **Invited talk at Max Planck Institute for Chemistry, Mainz, Germany**

on the topic “Evaluation of common measurement techniques for globally important trace gases in real environmental conditions: potentials and challenges” on August 18, 2010.

- **Invited talk at CAOS. Indian Institute of Science, Bangalore, India**

on the topic “Study of globally important trace gases in diverse environmental settings: Indian scenario” on February 10, 2011.

Educational Qualification

✚ **Ph.D. (Doctoral Research) in year 2006** (2001.9-2006.2): “Air pollution management in an open cast coal mine area” **Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi, INDIA.**

✚ **M.Sc. (Post-Graduation) in Botany** (1997.08-1999.08) from **U.P. Autonomous College, Varanasi, INDIA, First division**

✚ **B.Sc. (Graduation) in BZC** (1994.8-1997.7) with “Botany, Zoology and Chemistry” subjects from **U.P. Autonomous College, Varanasi, INDIA, First division**

✚ **Intermediate (10+2 standard) in science** (1992.8-1994.7) with “Physics, Chemistry, Biology, English, and Hindi” as subjects from **U.P Board, G.I.C., Deoria, INDIA, First division**

✚ **S.S.C. (10th standard)** (1990.07-1992.7) with “Physics, Chemistry, Biology, English, Hindi, Soc. Science” as optional subjects from **U.P Board, S.S.B.L.I.C., Deoria, INDIA, First division (Honours)**

Publications

Book: Pandey S.K.*. *Air pollution management in an opencast coalmine area.* **2010.**
Published by: VDM Verlag Dr. Müller e.K. ISBN 978-3-639-31520-2,
Germany

Book chapters:

- Bioremediation with Biochar and its Microbial Aspects. **2022.** *Mohineeta Pandey, Astha Tirkey, Ankesh Tiwari, **Sudhir Kumar Pandey***, Mohammed Latif Khan.* **Microbes and Microbial Biotechnology for Green Remediation, Elsevier Science U.K. ISBN, 9780323904520**
- Antineoplastic Effects of Curcumin Against Colorectal Cancer: Application and Mechanisms. **2022.** *Vivek Kumar Soni., Arundhati Mehta., Yashwant Kumar Ratre., Chanchal Kumar., Rajat Pratap Singh., Abhishek Kumar Srivastava., Navaneet Chaturvedi., Dhananjay Shukla., **Sudhir Kumar Pandey***, & Naveen Kumar Vishvakarma.* **Colon Cancer Diagnosis and Therapy Vol. 3 pp 383–426, Springer Nature Switzerland AG. ISBN3030727017.**
- Medicinally important constituents of Tulsi (*Ocimum* spp.). **2018.** Dubey, R. & **Pandey, S.K.*.** Published by: **Elsevier Science U.K. *Synthesis of Medicinal Agents from Plants.* ISBN 9780081022740.**
- Bioremediation of Airborne Hazardous Volatile Organic Compounds (VOCs). **2017.** **Pandey, S.K.*,** Gajbhiye, T., Tiwari, S., Malik, T.G. ***Plants and Microbes in an ever-changing environment.* 59-70, Published by: Nova Science Publishers, Inc. U.S.A. ISBN 9781536109283.**

Science Citation Index (SCI) listed publications (with latest impact factor (IF): Journal Citation Report (JCR), 2021)

Review articles

1. Pandey, M., Tirkey, A., Tiwari, A., Lee, S.S., Dubey, R., Kim, K.-H., Pandey, **S.K.** **2022.** The Environmental Significance of Contaminants of Concern in the Soil–Vegetable Interface: Sources, Accumulation, Health Risks, and Mitigation through Biochar. ***Sustainability.* 14, 14539 (IF=3.889)**
2. Tirkey, A., Pandey, M., Tiwari, A., Sahu, R.L, Kukkar, D., Dubey, R., Kim, K.-H., Pandey, **S.K.** **2022.** Global distribution of microplastic contaminants in aquatic environments and their remediation strategies. ***Water Environment Research.*** <https://doi.org/10.1002/wer.10819> **(IF=3.306)**

3. B Kavitha, PVL Reddy, B Kim, SS Lee, **S.K. Pandey**, KH Kim. **2018**. Benefits and limitations of biochar amendment in agricultural soils: a review. *Journal of environmental management* 227, 146-154 (IF =**8.91**)
4. **Pandey S.K.**, Kim K.-H., Tang K.-T. **2012**. A review of Sensor-based methods for hydrogen sulfide (H₂S) gas monitoring. *Trends in Analytical Chemistry*. 32, 87-99 (IF =**14.908**)
5. **Pandey S.K.**, Kim K.-H., Brown R. J. C. **2011**. A review of measurement techniques for PAHs in air. *Trends in Analytical Chemistry*. 30, 1716-1739. (IF =**14.908**)
6. Kim K.-H., **Pandey S. K.**, Kabir E., Susaya J., Brown R.J.C. **2011**. The modern paradox of unregulated cooking activities and indoor air quality. *Journal of Hazardous Materials* 195, 1-10. (IF = **14.224**)
7. **Pandey S.K.**, Kim K.-H., Brown R. J. C. **2011**. Measurement techniques for different Hg species in ambient air. *Trends in Analytical Chemistry*. 30, 899-917 (IF = **14.908**)
8. **Pandey S.K.**, Kim K.-H. **2011**. Human body odor components and their determination. *Trends in Analytical Chemistry*. 30, 784-796. (IF = **14.908**)
9. **Pandey S.K.**, Kim K.-H. **2010**. A review of environmental tobacco smoke (ETS) and its determination in Air. *Trends in Analytical Chemistry*. 29, 804-819. (IF = **14.908**)
10. **Pandey, S.K.**, Kim, K.-H. **2009**. A review of methods for the determination of reduced sulfur compounds in Air. *Environmental Science and Technology*. 43, 3020-3029. (IF = **11.357**).

Research articles

11. Tiwari, A., Gajbhiye, T., Pandey, M., Tirkey, A., Kim, K.H., **Pandey, SK***.**2022**. A practical option for the selection of suitable plants for the management of airborne particulate matter (PM). *International Journal of Science and Technology*, Published online: DOI: 10.1007/s13762-022-04579-w (IF=**3.519**).
12. Gajbhiye, T., **Pandey, S.K.***, Malik, T.G., Kim, K.H., Khan, M.L. **2022**. Micro-morphological analysis of foliar uptake and retention of airborne particulate matter (PM)-bound toxic metals: Implications for their Phytoremediation. *Chemistry & Ecology* 38, 636-654 (IF=**2.381**).

13. Gajbhiye, T., **Pandey, S.K.***, Kim, K.-H., **2022**. Foliar uptake of toxic metals bound to airborne particulate matter in an urban environment. *Aerosol and Air quality Research*. 22, 1-15 (IF=4.53).
14. Malik, T.G., Gajbhiye, T., **Pandey, S.K.***. **2019**. Some insights into composition and monoterpene emission rates from selected dominant tropical tree species of central India: Plant specific seasonal variations. *Ecological Research*. (IF = 2.056).
15. Gajbhiye, T., **Pandey, S.K.***, SS Lee, KH Kim. **2019**. Size fractionated phytomonitoring of airborne particulate matter (PM) and speciation of PM bound toxic metals pollution through *Calotropis procera* in an urban environment. *Ecological Indicators*. 104, 32-40 (IF= 6.263).
16. T.G. Malik, T. Gajbhiye, **S.K. Pandey***. **2018**. Plant specific emission pattern of biogenic volatile organic compounds (BVOCs) from common plant species of Central India. *Environmental Monitoring & Assessment* 190, 631. (IF = 3.307)
17. Vellingiri K., Boukhvalov D.W., **Pandey S. K.**, Deep A., Kim K.-H., Kumar P., Yao Q. **2017**. Luminiscent metal organic frameworks for the detection of nitrobenzene in aqueous media. *Sensors & Actuator B* 245, 305-313. (IF = 9.221)
18. Nguyen H.T., Kwon E.E., Kim K.-H., **Pandey S.K.**, Chambers S., Kumar P., Kang C.-H., Cho S.-J., Oh J.-M., Brown R.J.C. **2017**. Factors regulating the distribution of O₃ and NO_x at two mountainous sites in Seoul, Korea. *Atmospheric Pollution Research*. 8, 328-337. (IF = 4.831)
19. Gajbhiye, T., **Pandey, S.K.***, Kim, K.-H, Szulejko, Jan E. **2016**. Airborne foliar transfer of PM bound heavy metals in *Cassia siamea*: A less common route of heavy metal accumulation. *Science of the total environment*. 573, 123-130 (IF = 10.753).
20. **Pandey S. K.**, Kim K.-H., Kwon E. E., Kim Y.-H. **2016**. Hazardous and odorous pollutants released from sewer manholes and stormwater catch basins in urban areas. *Environmental Research* 146, 235-244 (IF = 8.431)
21. Kim K.-H., **Pandey S. K.***, Brown R.J.C., Sheu G. R., Jeon E.-C., Jung K., Kang C.-H. **2015**. Investigation of the relationship between atmospheric mercury and major greenhouse gas concentrations at a mountainous monitoring site. *Environmental Science Processes and Impacts* 17, 646-655 (IF = 5.334).
22. Kim K.-H., **Pandey S. K.***, Kim Y.-H., Sohn J. R., Oh J.-M. **2015**. Emissions of amides (N, N-dimethylformamide and formamide) and other obnoxious volatile

- organic compounds from different mattress textile products. *Ecotoxicology and Environmental Safety*. 114,350-356 (IF = 7.129)
23. Kim K.-H., Pandey S. K.*, Ahn JH, Szulejko JE, Sohn JR. 2014. Effect of sorbent material on the cryofocusing analysis of gaseous reduced sulfur compounds. *Environment Technology* 35, 1971-1978 (IF = 3.475)
24. Rahman M. M., Shon Z. H., Ma C. J., Brown R.J.C., Pandey S. K., Park C.-G., Sohn J. R., Yoon H.O., Kim K.-H. 2013. Partitioning of dioxins (PCDDs/Fs) in ambient air at urban residential locations. *International Journal of Environmental Science & Technology*. 11, 1897-1910 (IF = 3.519).
25. Pandey, S.K., Kim, K.-H, Choi, S., Sa, I., Oh, S. 2013. Major odorants released as urinary volatiles from urinary incontinence patients. *Sensors* 13, 8523-8533 (IF = 3.847)
26. Kim, K.-H., Jo, S.H., Song, H.C., Pandey, S.K., Song, H.N., Oh, J.M., Sunwoo, Y., Choi, K.C., 2013. Diagnostic Analysis of Offensive Odorants in a Large Municipal Waste Treatment Plant in an urban area. *International Journal of Environmental Science and Technology* 10, 261-274 (IF = 3.519).
27. Pandey S.K., Kim K.-H. 2012. Evaluation of the solid phase extraction (SPE) cartridge method in combination with thermal desorption-gas chromatography-mass spectrometry (TD-GC-MS) for the analysis of different VOCs in varying pH conditions. *Journal of Separation Science*. 35, 1914-1921 (IF = 3.614).
28. Kim K.-H., Pandey S.K.*, Jo H.-J., Jeon E.-C. 2012. Characteristics of chlorofluorocarbons (CFCs) emitted from a municipal waste treatment facility. *Chemosphere* 89, 1384-1389 (IF = 8.943).
29. Kim K.-H., Ho D.-X., Park C.-G., Ma C.-J., Pandey S. K., Lee S. C., Jeong H. J., Lee S. H. 2012. Volatile organic compounds in ambient air at four residential locations of Seoul, Korea. *Environmental Engineering science*. 29, 875-889 (IF = 2.172)
30. Pandey S.K., Susaya, J., Kim K.-H., Sohn J. R. 2012. An approach to test relative recovery rate between different standard phases in the analysis of VOCs using thermal desorber– gas chromatography – mass spectrometry. *Fresenius Environmental Bulletin* 21, 651-659 (IF = 0.618)
31. Phan, N.T., Kim, K.-H., Jeon, E.-C., Kim, U.-H., Sohn, J.R., Pandey, S.K. 2012. Analysis of volatile organic compounds released during food decaying processes. *Environmental Monitoring and Assessment* 184, 1683-1692 (IF = 3.307)

32. **Pandey S.K.**, Kim K.-H. **2011**. An evaluation of volatile compounds released from containers commonly used in circulation of sports beverages. *Ecotoxicology and Environmental Safety*. 74, 527-532 (IF = 7.129).
33. Kim K.-H., **Pandey S.K.**, Shon J.-R. **2011**. The sensitivity of gas chromatography - headspace solid phase microextraction in relation with relative volatility of volatile organic compounds. *Analytical Letters* 44, 2457-2465. (IF = 2.267).
34. Ahn, J.W., **Pandey, S.K.**, Kim, K.H. **2011**. Comparison of GC-MS calibration properties of volatile organic compounds and relative quantification without calibration standards. *Journal of Chromatographic Science*. 49, 19-28 (IF = 1.555)
35. Kim, K.-H., Anthwal, A., **Pandey, S.K.**, Kabir, E., Sohn, J.-R. **2010**. A combined application of thermal desorber and gas chromatography to the analysis of gaseous carbonyls with the aid of two internal standards. *Journal of Separation Science*. 33, 3354-3364 (IF = 3.614).
36. **Pandey S.K.**, Kim K.-H. **2010**. Determination of hazardous VOCs and nicotine released from mainstream smoke by the combination of SPME and GC-MS method. *The Scientific World Journal*. 10, 1318-1329 (IF = 1.731)
37. Kim K.-H., **Pandey S.K.**, Nguyen H.T., Chung S.-Y., Cho S.-J., Kim M.-Y., Oh J.-M., Sunwoo Y. **2010**. Long-term behavior of particulate matters at urban roadside and background locations in Seoul, Korea. *Transportation Research-Part D* 15, 168-174. (IF = 7.041)
38. **Pandey, S.K.**, Kim, K.-H. **2009**. Comparative analysis of some odorous VOCs between direct injection and SPME: Development and validation of GC-MS-based methodology. *Journal of Chromatography A*. 1216, 5436-5444. (IF = 4.601)
39. **Pandey S.K.**, Kim K.-H., Yim U.-H., Jung M.-C., Kang C.-H. **2009**. Airborne mercury pollution from a large oil spill accident on the west coast of Korea. *Journal of Hazardous Materials*. 164, 380-384. (IF = 14.224)
40. **Pandey, S.K.**, Kim, K.-H. **2009**. Simultaneous determination of odorous VOCs with gas chromatography and a thermal desorber: A case study on methyl ethyl ketone, methyl isobutyl ketone, butyl acetate, toluene, and xylene. *Microchemical Journal*. 91, 245252. (IF = 5.304)
41. **Pandey S.K.**, and Kim K.-H. **2009**. Comparison of different calibration approaches in the application of thermal desorption technique: a test on gaseous reduced sulfur compounds. *Microchemical Journal*. 91, 40-46. (IF = 5.304)

42. **Pandey S.K.**, Kim K.-H., Kang C.-H., Jung M.-C. Yoon H. **2009**. BBQ charcoal as an important source of mercury emission. *Journal of Hazardous Materials*. 162, 536538. (IF = 14.224)
43. Kim K.-H., **Pandey S.K.**, Pal R. **2009**. Analytical bias among different gas chromatographic approaches using standard VOC gases and exhaust samples. *Journal of Separation Science*. 32, 549-558. (IF = 3.614)
44. **Pandey, S.K.**, Kim, K-H. **2008**. The fundamental properties of the direct injection method in the analysis of gaseous reduced sulfur by gas chromatography with a pulsed flame photometric detector. *Analytica Chimica Acta*. 615, 165-173. (IF = 6.911)
45. **Pandey, S.K.**, Kim, K-H., Chung, S-Y, Cho, S. - J., Kim, M.-Y., Shon, Z.H. **2008**. Long term study of NO_x concentrations and behavior at urban roadside and background locations in Seoul, Korea. *Atmospheric Environment*. 42, 607-622. (IF = 5.775)
46. **Pandey, S.K.**, Kim, K-H. **2008**. Experimental bias involved in the collection of gaseous elemental mercury by the gold amalgam method. *Environmental Engineering science*. 25, 255-263. (IF = 2.172)
47. **Pandey, S.K.**, Tripathi, B.D., Mishra, V.K., **2008**. Dust deposition in a subtropical open cast coal mine area, Bina, India. *Journal of Environmental Management*, 86, 132138. (IF = 8.91)
48. Mishra, V.K., Upadhyaya, A.R., **Pandey, S.K.**, Tripathi, B.D. **2008**. Heavy metal pollution induced due to coal mining effluent on surrounding aquatic ecosystem and its management through naturally occurring aquatic macrophytes. *Bioresource Technology*. 99, 930-936. (IF = 11.889)
49. Mishra, V.K., Upadhyaya, A.R., **Pandey, S.K.**, Tripathi, B.D. **2008**. Concentrations of heavy metals and aquatic macrophytes of Govind Ballabh Pant Sagar an anthropogenic lake affected by coal mining effluent. *Environmental Monitoring and Assessment*. 141, 49-58. (IF = 3.307)
50. **Pandey, S.K.**, Kim K.-H. S.-H. Lee. **2007**. Use of a dynamic enclosure approach to test the accuracy of the NDIR sensor: Evaluation based on the CO₂ equilibration pattern. *Sensors*. 7, 3459-3471. (IF = 3.847)
51. **Pandey, S.K.**, Kim, K-H. **2007**. The relative performance of NDIR-based sensors in the near real-time analysis of CO₂ in air. *Sensors*. 7, 1683-1696. (IF = 3.847)

52. Upadhyaya, A.R., Mishra, V.K., **Pandey, S.K.**, Tripathi, B.D., **2007**. Biofiltration of secondary treated municipal wastewater in a tropical city. *Ecological Engineering*. 30, 9-15. (IF = 4.379)
53. **Pandey, S.K.**, Tripathi, B.D., Mishra, V.K., Prajapati, S.K., **2006**. Size fractionated speciation of nitrate and sulfate aerosols in a sub-tropical industrial environment. *Chemosphere*. 63, 49-57. (IF = 8.934)
54. Prajapati, S.K., **Pandey, S.K.**, Tripathi, B.D. **2006**. Monitoring of Vehicles derived particulates using magnetic properties of leaves. *Environmental Monitoring and Assessment*. 1201, 69-75. (IF = 3.307)
55. **Pandey S.K.** et al., **2005**. Magnetic Properties of Vehicle-derived Particulates and Amelioration by *Ficus infectoria*: A Keystone Species. *AMBIO*. 34, 645-646. (IF = 6.943).

Other Administrative/academic experiences

- Member, Subcommittee of Task Force for Implementing NEP 2020
- Member, School Board (SoS in Life Sciences)
- School Coordinator in NAAC accreditation Committee
- Member Board of studies (BOS) in Botany
- Member, Departmental Research Committee (DRC)
- Coordinator CSIR-UGC NET for SC-ST/minority students
- Assistant Center superintendent (Main and Entrance Exams)
- Member, University Media Cell, GGV, Bilaspur
- Member, Inspire Teachers Club of the University, GGV, Bilaspur
- External reviewer from India for Proposals submitted for 2018 regular competition under National Fund for Scientific and Technological Development (FONDECYT) of the Chilean National Commission for Scientific and Technological Research (CONICYT)

Dr. Sudhir Kumar Pandey