

**Name: PROF. MEENAKSHI NANDAL**

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**Father Name: Maj. H. K. Sahu**

**Date of Birth: 9<sup>th</sup> September 1975**



**Department:** Environmental Sciences, M.D. University, Rohtak- 124001 (Haryana)

**Teaching Experience:** 20 years (approx.)

**Educational Qualifications-** Ph.D

**Existing Area of Research in Lab**

- Solid Waste Management
- Waste Water Analysis
- Air Pollution Analysis

**Research Guidance**

S. No.	Name of the Scholar	Title of the Thesis	Awarded / Thesis submitted	University
1	Rajni	Studies on the effect of salt tolerant microbes on germination, growth and yield of Indian mustard under salt stress	Degree awarded	MDU Rohtak
2	Mansi Rastogi	The efficacy of microbial inoculation on MSW composting process	Degree awarded	MDU Rohtak
3	Sheetal Barapatre	Potency of fungal consortia on Rice straw degradation	Degree awarded	MDU Rohtak
4	Savita	Performance evaluation of UASB for treatment of municipal waste water	Pursuing	MDU Rohtak
5	Pradeep Khayalia	Chemometric quantification of groundwater and soil quality and health risk assessment in some districts of Rajasthan	Degree awarded	MDU Rohtak

6	Moni Jakhar	Plant tolerance to air pollution under different temperature regimes	Pursuing	MDU Rohtak
7	Jyoti Dangi	To explore the potential use of agricultural residues in paper manufacturing	Pursuing	MDU Rohtak
8	Jyoti chowdhry	Enhanced adsorption of nutrients from treated sewage water using biochar metal composite	Pursuing	MDU Rohtak
9	Khush kataria	Feasibility study for adsorption of dyes using pyrogenic carbonaceous sorbents	Pursuing	MDU Rohtak
10	Anoop	Evaluating the Performance of Wheat Crop Grown in Saline Soil Ammended with Biochar and Compost	Pursuing	MDU Rohtak
	Dissertation guided (approx 40 students)	Salinity stress, Physiochemical analysis Soil & Solid waste, Groundwater analysis, Agrowaste composting, Biochar application etc.		

### Research project

S. No.	Title & type of projects (sponsored/consultancies) (Major/Minor)	Carried out/ongoing	Funding agency	Period	Grant/ Amount Mobilized (Rs in Lakh)
1.	Resistance of environmental stress in tropical drosophilids : analysis of multi trade associated across seasons and geographical regions	Completed	UGC	1.5.09 to 1.05.12	11,77300.00
2.	Major project on "Spatial Distribution of Uranium in Ground & Drinking water in Bikaner and Nagaur Districts of Rajasthan".	completed	Board of Research in Nuclear Sciences (BRNS)	2 years	27,51,800/-
3	Minor Research Project Composting and Physico Chemical-Analysis of Rice Straw	completed	RK Fund	1year	50,000/

#### a) Research papers published in refereed journals

- Khyalia, P., Jugiyani, H., Dangi, J., Laura, J. S., & Nandal, M. (2023). A Comprehensive Review on the Techniques and Indexes Used for the Analysis of Fluorosis in Humans and Cattle. *Oriental Journal of Chemistry*, 39(5).(I.F.0.5)
- Rastogi, M., Nandal, M., & Nain, L. (2023). Tailoring the compost matrix with hybrid *Bacillus commune* to improve the biodegradation of municipal solid waste. *International Journal of Environmental Science and Technology*, 1-20. (I.F-3.0)
- Nandal, M., Khyalia, P., Ghalawat, A., Jugiyani, H., Kaur, M., & Laura, J. S. (2022). Review on the use of Microalgae Biomass for Bioplastics Synthesis: A Sustainable and Green approach to control Plastic Pollution. *Pollution*, 8(3), 844-859. (I.F.1.1)
- Khyalia, P., Dangi, J., Barapatre, S., Dhania, G., Laura, J. S., & Nandal, M. (2022). Comparative Analysis of Compost Quality Produced from Fungal Consortia and Rice Straw by Varying C/N Ratio and its Effect on Germination of *Vigna radiata*. *Nature Environment and Pollution Technology*.
- Barapatre, S., & Nandal, M. (2022). Impact of composted Rice Straw on *Solenum lycopersicum* growth stimulation. *Indian Journal of Environmental Protection*,42(1),33-38.
- Khyalia, P., Laura, J. S.,Khosla,B.,Sahoo,S.K.,Tiwari,S.N., & Nandal, M.(2022).Analysis of effective equivalent dose to the organs and cancer risk assessment due to natural outdoor gamma radiation in Eastern Thar Desert,India.*International Journal Of Environmental Analytical Chemistry*. (I.F.2.3)
- Barapatre, S., Rastogi, M., Khosla, B., & Nandal, M. (2020). Synergistic Effect of Fungal Consortia and C/N Ratio Variation on Rice Straw Degradation. *Nature Environment & Pollution Technology*, 19.
- Rastogi, M., Nandal, M., & Khosla, B. (2020). Microbes as vital additives for solid waste composting. *Heliyon*, 6(2), e03343.(I.F.3.4)
- Rastogi, M., Nandal, M., & Nain, L. (2019). Additive effect of cow dung slurry and cellulolytic bacterial inoculation on humic fractions during composting of municipal solid waste. *International Journal of Recycling of Organic Waste in Agriculture*, 8(3), 325-332. (I.F.1.2)
- Mansi Rastogi, Meenakshi Nandal, Lata Nain (2019). Seasonal variation induced stability of municipal solid waste compost: an enzyme kinetics study. *SN Applied Science*. 1:849.(I.F.2.8)
- Mansi Rastogi, Meenakshi Nandal, Sheetal Barapatre, Savita (2018). Spectroscopic evaluation of Temperature affecting humification and maturity of MSW composting. *International Journal of Research in Advent Technology*, Vol.6, No.5.
- Meenakshi Nandal ,J.P Yadav and Mansi Rastogi (2017). Effect of Industrial Effluents on Mineral Uptake of Two Rabi crops (*Triticum aestivum* and *Raphanus sativus*), *Nature Environment and Pollution Technology*. Vol. 16(2).
- Mansi Rastogi, Rajesh Kumar Lohchab and Meenakshi Nandal (2016). Efficacy of leachate recirculation on municipal solid waste stabilization in a bioreactor. *Annals of Agri-Bio Research*, 21 (2): 124-129.
- Meenakshi Nandal, Pragya Mahajan, Rajni Hooda (2016). Effect of PGPR on catalase activity of Indian mustard under saline stress *Int. J. of Pharmacy and Analytical Research* Vol-5(1) 01-09.

- Nandal Meenakshi, Solanki Pooja, Rastogi Mansi and Hooda Rajni (2015). Bioremediation: A sustainable tool for environmental management of oily sludge. Nature environment and pollution technology Vol.14 (1)
- Nandal Meenakshi, Hooda Rajni and Geeta Dhania (2014). Tea Wastes as a Sorbent for Removal of Heavy Metals from wastewater. International Journal of Current Engineering and Technology. Vol.4 (1) 243-247.
- Rastogi Mansi, Hooda Rajni and Nandal Meenakshi (2014). Review on anaerobic treatment of municipal solid waste with leachate recirculation. International journal of plant animal and environmental sciences. Vol.4 (4), 110-117.
- Nandal Meenakshi and Hooda Rajni (2013). Salt tolerance and physiological response of plants to salinity: A Review. International Journal of scientific engg and research,(10) 44-67.
- Nandal Meenakshi and Hooda Rajni (2013). Plant Growth Promoting Rhizobacteria. A Review Article. International Journal of Current Research.5 (12) 3863-3871.
- Yadav JP, Meenakshi (2007) Impact of Om Surgical Effluent on germination seedling growth and yield of selected crops. J Ecotoxicol Environ Monit 17(2) : 151-8.

### Book Chapter

- Chowdhry, J., Kumari, S., & Nandal, M. (2024). Innovations in Nutrient Removal and Resource Recovery Through Artificial Intelligence Techniques: AI and Water: A Sustainable Approach to Environmental Restoration. In *The AI Cleanse: Transforming Wastewater Treatment Through Artificial Intelligence: Harnessing Data-Driven Solutions* (pp. 201-221). Cham: Springer Nature Switzerland.
- Khyalia, P., Duhan, S. S., Laura, J. S., & Nandal, M. (2024). A comprehensive analysis of fluoride contamination in groundwater of rural area with special focus on India. In *Water Resources Management for Rural Development* (pp. 201-212). Elsevier.
- Jakhar, M., Laura, J. S., & Nandal, M. (2023). Nanofiltration Membrane Techniques for Heavy Metal Separation. In *Modern Nanotechnology: Volume 1: Environmental Sustainability and Remediation* (pp. 301-327). Cham: Springer International Publishing.
- Rastogi, M., & Nandal, M. (2020). Toxic metals in industrial wastewaters and phytoremediation using aquatic macrophytes for environmental pollution control: an eco-remedial approach. In *Bioremediation of Industrial Waste for Environmental Safety* (pp. 257-282). Springer, Singapore.
- Saini, S., Nandal, M., & Bahamnia, G. D. (2020). Effective and sustainable solid waste management in India: A challenge. In *Microbial Technology for Health and Environment* (pp. 267-287). Springer, Singapore.
- Rastogi, Mansi and Meenakshi Nandal (2018). Composting an Emerging Technology for Solid Waste Management in India, Handbook of Research on Microbial Tools for Environmental Waste Management, chapter 6,105-126, IGI Global. doi:10.4018/978-1-5225-3540-9.ch006.
- Rastogi, Mansi and Meenakshi Nandal (2018). Bioremediation of Industrial Waste for Environmental Safety - Volume II: Biological Agents and Methods for Industrial Waste Management,780, Springer Singapore, ISSN 978-981-13-3426-9.
- Mansi Rastogi and Meenakshi Nandal (ed. 1) (2017). Uranium Radionuclides Contamination in Environment, their Ecotoxicological Effects, Health Hazards and Bioremediation, Environmental Pollutants and their Bioremediation Approaches, Chapter 4,103-126, CRC Press, ISBN: 978-1-351-70059-7.

- Meenakshi Nandal and Mansi Rastogi(2017-18).Composting:A Sustainable Approach for Agriculture,Climate Change and Environmental Degradation Chapter 3,9-13,ISBN:978-93-86932-03-7

### **Participation and Papers presented in Conferences/Seminars/Workshop/Symposia etc.**

- Participated and presented a paper on “Sustainable solutions for dye derived biochar” in the 2nd International conference of the Indian Science Congress Association-Rohtak Chapter “Science & Technology for Sustainable Future” held at the University Institute of Engg. & Technology, M.D University, Rohtak on February 7-8, 2024.
- Participated and presented a paper on “Assessing the Phytotoxicity of Mung Beans Seed Germination with Compost Amended Biochar” in 1 st International Agriculture Conference held in hybrid mode (zoom) at Bagadpur Krishi Bhawan, NH- 24, Delhi Road, Moradabad (UP) 244001, organized by Gujarat Natural Farming and Science University, Anand Hindustan Agricultural Research Welfare Society and IIMTU Meerut from 24 to 26 December 2023.
- Participated and presented a paper on “Agricultural Residue Management for Environment Health” in the International Conference on “Solid Waste Management: Developmental Strategies for Sustainable Environment” (ICSWM 2024) held on April 19, 2024 at DAV Centenary college, Faridabad, Haryana, INDIA.
- Participated and presented a paper on “ Potential Use of Agricultural Waste to attain Sustainable Development Goals (SDGs)” in National Conference on Environment and Sustainability (NACONES – 2025), Organized by the Institute of Environment Studies, Kurukshetra University, Kurukshetra, held on 24 January 2025.
- Participated in National Seminar on “Future Universities” organized by Internal Quality Assurance Cell & Dean Students’ Welfare on 26 th September 2023.
- Participated as a delegate and presented a research paper entitled Biochar: Integrated Rice Straw Management for Sustainable Agriculture: A Review in the 2 days International Conference on Environment and Society. (ICES 2022) 23 & 24 December 2022.
- Participated and presented Online Poster entitled “A Review of Potential Use of Agro-residues for Paper Manufacturing” in the two days(16<sup>th</sup>-17<sup>th</sup> September,2022) National Conference on “Ozone Layer, its Depletion and Impact on Living Beings(ODIL,2022).
- Attended 2<sup>nd</sup> Capacity building National Webinar cum Workshop on “Ethics in Biomedical Research and GCP Guidelines”organized by Human Ethics Committee and Department of Zoology,Maharshi Dayanand University,Rohtak as participant on 15<sup>th</sup>March 2021 and presented a paper entitled “Bio-composting of paddy straw supplemented with effective microorganism and its influence”.
- Participated and presented poster on “Enhancing the compost maturation augmented with micro-organism consortium” in “Virtual International Conference on Emerging Trends in Applied Sciences” jointly organized by Veer Narmad South Gujarat University,Surat,India and Vyatka State University ,Kirov,Russia from 28<sup>th</sup> to 29<sup>th</sup>October 2021.
- Participated and oral presentation in Online International Conference on “Recent developments and challenges in earth & environmental sciences,natural resource management,&climate change with special focus on Eastern Himalayas” organized by Department of Geology,Sikkim University from 8<sup>th</sup> to 9<sup>th</sup> October,2020.

- Presented poster entitled Management of Agricultural waste in India in a International Seminar “Sustainable Environment & Agriculture Under Global Climate Change” organized by Deptt. Of Environmental Sciences in collaboration with SSARM, M.D.U Rohtak on 21<sup>st</sup> Feb, 2019.
- Presented e-poster Agriculture waste utilization and management through composting” in International conference on Prospectus of IPR in Innovative Practices organized by IPR cell and Dept. of Pharmaceutical Sciences on 29<sup>th</sup> Aug, 2019.
- Presented poster Consequence of Agro-waste compost amendments on the mineral contents of *S.Lycopersicum* in National Seminar “Frontiers in Life Sciences-An Interdisciplinary Perspective” organized by department of Zoology M.D.U, Rohtak on March 15<sup>th</sup>, 2019
- Presented poster “Potential Effect Of Amended Compost On The Growth Of Tomato Plants” in 12<sup>th</sup> National Symposium o Environment organized by Discipline of Earth Sciences, IIT Gandhinagar and BARC Mumbai on 13-15<sup>th</sup> Dec, 2018.
- Presented poster “Effect of Agrowaste Compost on the Growth of *Solanum Lycopersicum* Plants” in International conference on Microbes for Biotechnological Innovations organized by Dept. of Microbiology and AMI-Rohtak on 7<sup>th</sup> Dec, 2018
- Attended one day workshop sponsored by NAAC (IQAC) at MDU, Rohtak on 30<sup>th</sup> Nov, 2018.
- Attended one day National Workshop on “Skill development of Youth in Rural Aera For Agriculture & Allied Sector” organized by Surender Kaur Memorial Agriculture College Padampur, Sri Ganganagar, Rajasthan on Feb 11, 2018.
- Attended three days workshop on “Generation of National Database on Uranium in Drinking Water” held at BARC, Mumbai during August 29-31, 2018.
- Attended International Workshop on “Intellectual Property Rights” organized by the centre for Medical Biotechnology in collaboration with IPR Cell, M.D. University, Rohtak held on February 11, 2019.
- Attended and presented on Biodegradation of pesticides; A sustainable approach towards environment in International conference on Sustainable agriculture, energy, environment and technology in organized by ESM cell in collaboration with SSARM, M.D.U Rohtak on 24-25<sup>th</sup> Feb, 2018.
- Attended and presented poster on “Effects of various amendments of compost on biochemical activity of Wheat” in International conference on Microbes for Health and Wealth at Dept. of Microbiology, MDU on 14<sup>th</sup> November, 2017.
- Attended and presented paper on “Effect of Municipal Solid Waste Compost Amendment and Enzymatic Activities of Soil” in international seminar at Mahatma Gandhi House, Goettingen, Germany on 7-9 July, 2017.
- Attended and presented poster in National Seminar on “Climate change and Agriculture: Impact and Adaptation Strategies in Haryana” organized by Department of Economics, M.D.U, Rohtak on 6-7 February, 2017.
- Attended and presented poster on Excavating cumulative effect of salinity and temperature on enzymatic activity of germinating mung bean (*Vigna radiata*)” in International Conference on Biodiversity: Current Scenario and Future Strategies , St. Bede’s College on October 6-8, 2016
- Attended and presented poster in National Conference on “Therapeutic Potential of Natural Product: Current Innovations & Future Trends” organized by Department of Genetics, M.D.U, Rohtak on 17 September, 2016.

- Attended and presented poster on “ Evaluation of steel industry on growth parameters of two crop plants *Triticum aestivum* and *Sorghum vulgare*” in 2<sup>nd</sup> International conference NCBMBCC at St. John’s College, Agra (U.P) on 27-29 Feb, 2016
- Attended and presented poster in a National seminar on “Green roofs” in Deptt. Of Environmental Sciences, M.D.U, Rohtak on 16 September, 2015.
- Act as a Chairperson in National Conference on “Therapeutic Potential of Natural Product: Current Innovations & Future Trends” Organized by Department of Genetics, M.D.U, Rohtak on 19th March, 2015.
- Attended Workshop on “Youth Red Cross ” monitoring by department of environmental sciences M.D.U, Rohtak on 25-26<sup>th</sup> sep 2013
- Attended a National seminar on “Molecular Pathology of Human Genetics Diseases” by department of Zoology M.D.U, Rohtak on 23<sup>rd</sup> August, 2014
- Attended and presented paper in a National seminar cum workshop on “New dimensions in eco management” in MCM, DAV college, Chandigarh on 25<sup>th</sup> feb 2014
- Presented poster in a National seminar on “Next generation sciences vision 2020” by department of Zoology M.D.U Rohtak on 8<sup>th</sup> march 2014.
- Attended and presented poster in a National work shop on “Genomics in crop improvement” by CBT M.D.U, Rohtak ON 27-28<sup>th</sup> feb 2014
- National Workshop on “Techniques in monitoring environmental pollution” by department of environmental sciences M.D.U, Rohtak on 25-26<sup>th</sup> sep 2013.
- Presented poster in International conference by AMI on 17<sup>th</sup> Nov-20<sup>th</sup> Nov 2013 by department of Microbiology M.D.U, Rohtak.
- Participated and presented paper on “Biofuels: An Alternate to natural resource Management” in one day International conference on the topic “Geoinformatics for biodiversity and climate change” by Deptt. of Geography, M.D.U, Rohtak on 14-16 March, 2013.
- Participated and presented paper on” Influence of surgical effluent on growth and germination of *Triticum aestivum*” in one day National conference on the topic “Challenges in combating diseases cause to cure” by Deptt. of Zoology M.D.U, Rohtak on 23 March, 2012.
- Participated and presented paper on “Toxicity of Industrial effluent on *sorghum vulgare* crop” in National conference on Multidisciplinary Approach in Frontier areas of Environmental Sciences and Engineering” in G.J.U.S & T, Hisar on 4-5 March, 2011.
- Participated and presented paper on “Heavy metal toxicity: industrial effluent effect on germination, seedling growth and yield of *Triticum aestivum*” in Two day National conference on “Biodiversity: Challenges and opportunities” organized by deptt. of Botany M.D.U, Rohtak on 18-19 Feb, 2011
- Meenakshi, Yadav JP (2010) Effect of R.R.Metal on seeds germination, seedling growth of Raddish and Jowar. in National Conference on Environmental Degradation: Effects, Challenges and Remedies held in Jan Nayak Ch. Lal Memorial College of Engineering, Sirsa from 25-27 February, 2010.
- Meenakshi, Yadav JP (2010) Effect of R.R.Metal on seeds germination, seedling growth and yield of Bhindi in National Seminar Computing life: Raw to Refined 197-201:2010. Department of Zoology M D U Rohtak.
- Meenakshi, Yadav JP (2010) Effect of R.R. Metal on seeds germination, seedling growth and yield of Wheat in National Seminar Environmental Challenges: Sustainable 339-344:2010. Department of Environmental Sc., M D U Rohtak

- Participated and presented paper on “Toxicity effect of Mannu Steel Factory effluent on seed germination and seedling growth of wheat” in National conference on Environmental & Health Issue : In a changing climatic scenario organized by Deptt. of Environmental Sciences, M.D.U., Rohtak held on Oct 14-15, 2010.

### **Resource Persons in the Conference/Workshop**

- Invited resource person in a National seminar on “Environmental Changes and Sustainable Development: Issues and Challenges organized by S.M College , Sambhal, U.P -244412.
- Invited speaker in a Online Workshop on “Environment and Social Safeguard” March 26th –27th ,2021 organised by NAHEP, SKN Agriculture University, Jobner- 303329 Jaipur (Rajasthan).

### **Life membership**

- Life member of the “The Society for Science of Climate Change and sustainable Environment”(SSCE)
- Life member of Association of Microbiologists of India
- Life membership of Indian Society of Genetics, Biotechnology, Research & Development, Agra
- Life membership of Indian Science Congress, Rohtak chapter

### **Edited Books- 2**

1. Meenakshi Nandal, Geeta Dhanial and Pradeep khaliya, Environmental sustainability: Emerging concern and management,Indu Book Services Pvt.Ltd.,2023.
2. Meenakshi Nandal,Geeta Dhanial,Sushila Saini and Pradeep Khyalia ,Handbook of Industrial Wastewater Treatment:Emerging Technologies for Sustainability,Agri Biovet Press,2023.

### **Detail of Development of MOOCs / e-contents in 4 quadrants**

#### **18 Modules Developed-**

- Pathshala (P-10. Environmental pollution: Water and amp; Soil) Link: <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=0Xvq9yUM2ILDrJ07FvlArQ==>

#### **Award Received-**

- Young women scientist award in National seminar on “Biotechnology: Resource Management For Sustainable Nature In 21<sup>st</sup> Century” organized by Indian Society of Genetic, Biotechnology Research and Development, Agra held on April 22-23,2017.
- Women scientist award in International Agriculture Conference on “Natural Vs Organic Farming: In Context to Bhartiya Agriculture” organized by Gujrat Natural Farming and Science University, Anand Hindustan Agricultural Research Welfare Society and IIMTU, Meerut held on 24,25 and 26 December 2023.



### **Coordinator and Deputy Coordinator-**

- Coordinator for UG Course and Value Added Course- November, 2024.
- Deputy coordinator for Value Added Course in Waste Management: Challenges And Opportunities in Deputy Coordinator Session 2022-23.
- Coordinator in UG NEP- 2020.