

## **Dr. Mihir Dilip Herlekar**

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**Date of Birth:** 7<sup>th</sup> January 1982

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### **Highlights of CV**

- Ph. D. Botany: Green nanotechnology for domestic wastewater treatment.
  - More than nine years of collective research, academic and professional work experience.
  - Areas of work: Environmental monitoring & analysis, Pollution control, Environmental nanotechnology, Green chemistry.
  - Ability to initiate and execute independent research and work well in a team.
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### **Educational Qualifications**

#### **1. Ph. D. Botany: KET's V. G. Vaze College, University of Mumbai, 2018**

**Thesis Title:** “In situ Nanoremediation of Lakes using Biologically Synthesized Metal Nanoparticles” under guidance of Dr. S. S. Barve

#### **2. M. Sc. Environmental Science, The Institute of Science, University of Mumbai, I<sup>st</sup> Class, 2006**

**Dissertation Title:** Toxic Trace Metal Analysis Methods

#### **3. PG Diploma in Environmental Pollution Control Technology, Garware Institute of Career Education and Development, University of Mumbai, I<sup>st</sup> Class, 2004**

**Dissertation Title:** Phytoremediation: The Green Cure

#### **4. B. Sc. Microbiology, MVLU College, University of Mumbai, II<sup>nd</sup> Class, 1999-2002**

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### **Professional Experience – 1. Academics – a. Contractual staff -**

#### **1. Assistant Professor, Department of Environmental Science at The Institute of Science, Dr. Homi Bhabha State University, Mumbai: July 2018 – Till date**

**Courses taught:** Environmental pollution – Causes, Monitoring and Control; Green chemistry; Green and environmental nanotechnology; Sustainable agricultural practices; Instrumentation

techniques for environmental applications; Research methodology, Scientific communication, Green building certification process, Statistics etc.

**Other responsibilities:** Mentoring students for dissertations (Broad topics - Environmental monitoring, Pollution control, Green chemistry, Sustainable waste management, Sustainable agriculture etc.), Developing curriculum, Member of BoS committee for the subject of Environmental Science. Organizing and managing departmental programmes and events.

***b. Visiting Faculty –***

1. B. Sc. (Hons.) Sustainable Development at School of Sustainability at **XIM University, Bhubaneswar, August 2021 – November 2021**

***Courses taught:*** Practicals related to Environmental monitoring (Air, Water, Soil) – Online mode.

2. Master of Public Health (MPH) at **ICMR- Regional Medical Research Centre, Bhubaneswar, June 2021 – August 2021**

***Courses taught:*** Introduction to Environmental Pollution, Prevention strategies, Solid and liquid waste management in India – Online mode.

3. PG Diploma Course in Environmental Pollution Control Technology, Semester II at **SIES-Indian Institute of Environment Management (SIES-IEM), Nerul, Navi Mumbai, February 2017 – May 2017**

***Courses taught:*** Industrial Gaseous and Particulate Air Pollution Control, Vehicular Exhaust Pollution Control, Noise and Odour Pollution Control.

**2. Research**

**a. Junior Research Fellow at National Institute of Industrial Engineering (NITIE), Mumbai: June 2017 – February 2018**

***Work profile*** – a. Writing research articles on Sewage management in Mumbai city, Evaluation of Decentralized Wastewater Treatment Systems at different locations in Maharashtra from the data collected for the project “Supporting Consolidation, Replication and Up-scaling of Sustainable Wastewater Treatment and Reuse Technologies for India (SARASWATI)”, Funded by DST and European Commission.

b. Writing funding proposals – 1. Application of cleaner technologies for industrial pollution control - Submitted to CPCB and DST-SERB Core Research Grant; 2. Application of nanoparticles for the removal of water pollutants and LCA of nanoparticles - Submitted to IUSSTF.

**b. Project Assistant (Level - II) at National Environmental Engineering Research Institute (NEERI), Mumbai Zonal Laboratory, October 2006 – November 2010.** Worked on various projects sponsored by Central Pollution Control Board (CPCB), Ministry of Environment & Forests (MoEF), Municipal Corporation of Greater Mumbai (MCGM), Mumbai Metropolitan Region Development Authority (MMRDA) and Shahad MIDC.

**Work profile:** Environmental monitoring (water, air and soil), analysis of various parameters, statistical analysis and data interpretation. I was key member in writing reports of various sponsored projects. I was also involved in secondary data analysis of existing water quality surveillance programme and was part of the team which developed training manual for MCGM's Field staff and Lab analysts.

**List of projects** – 1. Technical Guidance for Review of Current Water Quality Surveillance Programme at Municipal Corporation of Greater Mumbai (MCGM) and Recommend Modifications for Improvement Including Assistance in Laboratory Strengthening; 2. Assessment of Water Quality of MIDC Water Treatment Plant for undertaking Remedial Measures – Shahad Water Works; 3. Comprehensive Environmental Impact Assessment for Mumbai Sewage Disposal Project (MSDP): Stage-II, Priority Works; 4. Study of West Coast Water Quality Assessment Delineating the Status of Beaches, Seafronts and Coastal Water; 5. Air Quality Assessment, Emission Inventory, and Source Apportionment Study of Mumbai City; 6. National Ambient Air Quality Monitoring of Mumbai City (NAAQM); 7. Assessment of Soil Contamination and Technological Solution near Roha MIDC Effluent Discharge Location

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## **Statistical Software & Instruments**

- **Statistical software:** Minitab, SPSS.
  - **Instruments:** UV-Visible Spectrophotometer, Flame Photometer, High Volume sampler, Microbalance, EC-OC Analyzer.
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## Achievements

- Qualified State Eligibility Test (SET) held on 28 January 2018 for Assistant Professor in the subject of Environmental Science. Accredited by U.G.C. & Conducted by Savitribai Phule Pune University (State Agency)

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### Publications – i/ International Journals

1. Anju Singh, Megha Sawant, Sheetal Jaisingh Kamble, **Mihir Herlekar**, Markus Starkl, Enrique Aymerich, Absar Kazmi (2019). Performance Evaluation of a Decentralized Wastewater Treatment System in India. *Environmental Science and Pollution Research*, Vol. 26, No. 21, 21172-21188.
2. A. Singh, A. Kazmi, M. Starkl, S. Sayanekar, **M. Herlekar** (2018). Sewage Management Challenges in Mega Cities in India: A Case Study of Mumbai. *Desalination and Water Treatment*, Vol. 116, 329-341.
3. **Mihir Herlekar**, Siddhivinayak Barve, Rakesh Kumar (2014). Plant-Mediated Green Synthesis of Iron Nanoparticles. *Journal of Nanoparticles*, Article ID 140614, 9 pages.
4. **Mihir Herlekar**, Abba Elizabeth Joseph, Rakesh Kumar and Indrani Gupta (2012). Chemical Speciation and Source Assignment of Particulate (PM<sub>10</sub>) Phase Molecular Markers in Mumbai. *Aerosol and Air Quality Research*, Vol. 12, 1247-1260 (In **Special Issue on “Aerosol and Air Quality Research in Asia”**)

### ii/ National journals –

1. G. Ayush, A. J. Elizabeth, V. V. Patil and **M. Herlekar** (2022). Noise levels in urban and rural settlements of Bhubaneswar: A Case study. *Nature Environment and Pollution Technology*, Vol 21, No. 1, 231-239.
2. Amrita Kakka, **Mihir Herlekar**, Shivani Awale (2021). Comparative Toxicity Study of Chemical Pesticide and Biopesticide by Daphnia Bioassay. *Nature Environment and Pollution Technology*, Vol. 20, No. 2, 695-701.
3. **Mihir Herlekar**, Siddhivinayak Barve (2015). Calcination and Microwave Assisted Biological Synthesis of Iron Oxide Nanoparticles and Comparative Efficiency Studies for Domestic Wastewater Treatment. *International Research Journal of Environmental Sciences*, Vol. 4, No. 6, 28-36.
4. **Mihir Herlekar**, Siddhivinayak Barve (2015). Optimization of Microwave Assisted Green Synthesis Protocol for Iron Oxide Nanoparticles and its Application for Simultaneous Removal

of Multiple Pollutants from Domestic Sewage. *International Journal of Advanced Research*, Vol. 3, No. 4, 331-345.

**Some Conference Presentations** - 1. “Biological Synthesis of Iron Oxide Nanoparticles Using Agro-Wastes and Feasibility for Municipal Wastewater Treatment.” **Mihir Herlekar**, Siddhivinayak Barve, Rakesh Kumar. Oral presentation at “47<sup>th</sup> Annual Convention of Indian Water Works Association (IWWA)” held in Kolkata (30<sup>th</sup> January - 2<sup>nd</sup> February 2015) - Full Paper in Proceedings of “47<sup>th</sup> Annual Convention of IWWA.”

2. “Comparative Study of Municipal Wastewater Treatment Efficiency of Biologically Synthesized Iron Nanoparticles.” **Mihir Herlekar**, Siddhivinayak Barve, Rakesh Kumar. Poster presented at 102<sup>nd</sup> Indian Science Congress held at University of Mumbai (2<sup>nd</sup> January 2015- 7<sup>th</sup> January 2015)

3. “Plant Mediated Green Synthesis of Iron Oxide Nanoparticles and its Efficacy Against Microbes.” **Mihir Herlekar**, S.S. Barve, Rakesh Kumar in “International Conference on Water Sanitation & Recycling”, Organized by MACCIA (22<sup>nd</sup> March 2014) held at Mumbai

4. “Chemical characterization and source apportionment of coarse (PM<sub>10</sub>) aerosols in Mumbai.” **Mihir Herlekar**, Elizabeth Abba, Rakesh Kumar, Indrani Gupta in National Seminar on “Environmental Pollution and Monitoring”, Organized by Department of Chemistry CKT College, Panvel (17<sup>th</sup> - 18<sup>th</sup> September 2010) (2<sup>nd</sup> Prize in oral presentation)

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**Professional affiliations** - 1. Member of Centre for Science and Environment’s (CSE) Green Educators Network; 2. Life member of Indian Science Congress Association.

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### **Online Induction and Faculty Development Programmes**

a. **Induction Training Programme for Faculty in Universities/Colleges/Institutes of Higher Learning**, 26<sup>th</sup> June – 24<sup>th</sup> July 2020.

b. FDP on “**Managing Online Classes and Co-creating MOOCS 2.0**”, 18<sup>th</sup> May-1<sup>st</sup> June 2020.

These programmes were Organized by Teaching Learning Centre & Research Development and Services Cell, Ramanujan College, University of Delhi under Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT), MHRD

### **Training Programs and Online Courses Completed**

1. **Water, Wastewater, Sanitation** : a. Online Training Programme on “**Principles & Methods on the Laboratory Analysis of Septage & Wastewater**”, conducted by Environment

Monitoring Laboratory, Anil Agarwal Environment Training Institute (AAETI), Centre for Science and Environment (CSE), India, 24<sup>th</sup> June – 26<sup>th</sup> June 2020.

b. Online Training Programme on “**Basics of Decentralized Wastewater Treatment and Local Reuse**”, conducted by School of Water & Waste, AAETI, CSE, India, 1<sup>st</sup> June – 26<sup>th</sup> June 2020.

c. Training programme on “**Nutrient Recovery and Reuse of Human Waste for food production**”, organized by CDD Society in collaboration with BORDA and RGRHCL at Centre for Advanced Sanitation Solutions (CASS) in Kengeri, Bangalore, 15<sup>th</sup> – 18<sup>th</sup> November 2016.

d. Online course on “**Planning & Design of Sanitation Systems and Technologies**”, created by EAWAG- Aquatic Research & École Polytechnique Fédérale de Lausanne (EPFL), 17<sup>th</sup> October 2016 – 27<sup>th</sup> November 2016.

e. Online course on “**Faecal Sludge Management**”, jointly delivered by CSE, India and UNESCO-IHE, 4<sup>th</sup> April 2016 – 22<sup>nd</sup> July 2016.

**2. Green Building, Climate Change, Sustainability and Other topics** : a. Online National Training on “**Sustainability Commitment in Educational Campuses**”, organized by School of Sustainable Urbanization and Air Pollution, CSE, 16<sup>th</sup> July – 17<sup>th</sup> July 2020.

b. Certificate Program for Industry Professionals on “**Climate Change and Environmental Sustainability**” organized by Confederation of Indian Industry – Sohrabji Godrej Green Business Centre (CII-GBC), 7<sup>th</sup> July – 11<sup>th</sup> July 2020.

c. Online training on “**Organic and Hydroponic Farming**”, organized by MSME-Technology Development Centre, Firozabad, 26<sup>th</sup> June – 28<sup>th</sup> June 2020.

d. “**IGBC Online Advanced Training Programme on Green Homes**” organized by CII-GBC, 6<sup>th</sup> May – 8<sup>th</sup> May 2020.

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**Other activities** : *a. Resource person* – 1. Certificate Course in Air and Water Pollution Monitoring, organized by ENVIS, Environment Department, Government of Maharashtra – Delivered lectures on basics of air and water pollution, pollution sources, impacts of pollution, monitoring of pollution.

2. “Air Pollution Monitoring” Course under Green Skill Development Programme (GSDP) at Indian Institute of Tropical Meteorology (IITM), Pune, 11<sup>th</sup> to 13<sup>th</sup> 2019 – Delivered lectures on

stack monitoring, different mechanical devices for particulate matter control from industries and odour control.

**b. Academics** – 1. Empaneled as **Academic counselor** for M.Sc. Environmental Science at The Indira Gandhi National Open University's (IGNOU) study center at K. J. Somaiya College of Education, Mumbai (14<sup>th</sup> February 2022 – 31<sup>st</sup> December 2022)

2. **External examiner** for M. Sc. Environmental Science, Practical Examination - For University of Mumbai and Somaiya Vidyavihar University. **Paper setter** for – i) Dr. Homi Bhabha State University (for the subject of Environmental Science); ii) University Examination of B. Sc. (Honours): Semester V for the subject of Environmental Chemistry at P. P. Savani University, Surat for the Academic year 2019-2020. iii) BoS member for revising syllabus for F.Y.B. Com and F.Y.BFM course in Environmental Studies at Ramanand Arya D.A.V. College (Autonomous), University of Mumbai.

**c. Reviewer** – 1. Funding proposals for Biotechnology Ignition Grant (BIG) Scheme by Department of Biotechnology (DBT) and Biotechnology Industry Research Assistance Council in 2018, 2020 and 2021.

2. Journals - Journal of Saudi Chemical Society (Elsevier), Emergent Materials (Springerlink), Egyptian Journal of Chemistry (Scopus indexed).

3. Reviewer of papers submitted to International Water Association's (IWA) World Water Congress & Exhibition for the year 2018 (Held in Tokyo) and 18<sup>th</sup> to 23<sup>rd</sup> October 2020 at Copenhagen, Denmark.

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## Community engagement

1. Initiated collection drive for electronic waste at The Institute of Science in collaboration with Environact Consultancy, Mumbai.

2. Initiated collection drive for Multi-layered plastic in collaboration with WWF India in association with Mumbai Sustainability Centre, Safai Bank of India (SBI).

3. I have written 2 articles in a column named Kutuhel in a daily Marathi newspaper, Loksatta about SO<sub>2</sub> and NO<sub>x</sub> monitoring.

**Hobbies:** Reading, Listening to music, Gardening.

**Languages Known:** English , Marathi, Hindi.

I hereby declare that information provided is true to the best of my knowledge.

**Place: Mumbai**

**Mihir Herlekar**

**References**

<b>Dr. Siddhivinayak Barve</b> Deputy Director, KET's Scientific Research Centre, Mulund (East), Mumbai- 400081 Mobile Number: 9821096008 Email id: <a href="mailto:drssbarve@gmail.com">drssbarve@gmail.com</a>	<b>Dr. Elizabeth Abba</b> Associate Professor, Xavier School of Sustainability, Xavier University, Plot No 12(A), Nijigada Kurki, Harirajpur-752050. Dist: Puri, Odisha. Mobile Number: 9969601630 Email id: <a href="mailto:elizabeth@xim.edu.in">elizabeth@xim.edu.in</a>	<b>Dr. Anju Singh</b> Professor, Environmental Engineering & Management, National Institute of Industrial Engineering (NITIE), Near Vihar Lake, Mumbai - 400087 Contact Number: 9867537419 Email id: <a href="mailto:dranjusingh@gmail.com">dranjusingh@gmail.com</a>
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