

Name : Dr. N. MUTHULAKSHMI ANDAL

Designation : Associate Professor

Department : Chemistry

Qualification : MSc. Ph.D

Experience : Teaching -21 Years

Research : 29 Years

Area of Specialization(s) : Environmental/Physical Chemistry

Email (Official ID) : muthulakshmiandal@psgrkcw.ac.in



Academic Qualifications

Degree	Branch	Institution/University Name	Year of Graduation
Ph.D.	Chemistry	The Gandhigram Rural Institute, Gandhigram	2004
M. Sc.	Chemistry	The Gandhigram Rural Institute, Gandhigram	1996
B.Sc.	Chemistry	Fatima College, Madurai	1994

Additional Qualifications

Certification	Area of Specialization	Institution/University/AgencyName	Year
Certification	Coursera	“Introduction to Forensic Science”- Nanyang Technological University, Singapore	2022
Certification	Coursera	“Organic Solar Cells - Theory and Practice” Denmark Technical University, Denmark	2022
Certification	NPTEL - Swayam ARPIT (MHRD)	Refresher Course in Chemistry for Higher Education” - Sri Guru Tech Bahadur Khalsa College, University of Delhi, New Delhi	2019

Research Guidance

Programme	No. of Scholars	
	Completed	Pursuing
M.Phil.	12	-
Ph.D	12	2

Research Publications (Indexed) -22

International -22

Scopus – 13

Scopus and Web of Science - 2

Scopus and SCIE - 6

Web of Science – 2

1. “Targeted elimination of heavy metals from industrial wastewater: synergistic effect of nano metal oxides”, *Journal of Taiwan Institute of Chemical Engineers*, 166, (2),105485, **2025, Elsevier**
2. “Graph theoretical descriptors differentiate D-Mannose isomers in the principal component proposed feature space: A computational approach”, *Carbohydrate Research*, 541, 109147, **2024, Elsevier**
3. “The artificial neural network selects saccharides from natural sources a promise for potential FimH inhibitor to prevent

UTI infections”, *In Silico Pharmacology*, 12 (37), 1-13, **2024, Springer**

4. “Continuous Column Performance in Lead Removal from Aquatic Environment Using Fixed Bed of Goat Hoofs”, *Journal of Propulsion Technology*, 44 (5) 113-118, **2023, Scopus**
5. “Surface Functionalized Eco-friendly Plant Seeds in the Confiscating Process of Toxic Metal ions from Aqueous Environment”, *Research Journal of Chemistry and Environment*, Vol. 27 (12), 35-43, **2023, Scopus**
6. "Mannose: A Potential Saccharide Candidate in Disease Management, *Medicinal Chemistry Research*, 32(3), 391-408 (**2023**), **Scopus and SCIE**
7. “Organophosphorus Pesticide Chelation by Modified Pod Shells – Batch Equilibration and Isothermal Studies”, *Indian Journal of Environmental Protection*. 42(2), 243-248, **2022, Scopus**
8. “Pulp and Paper Industrial Discharges on Soil Environs in Crop Nutrients’ Management”, *Annals of R.S.C.B*, 25(6), 14644 – 14652, **2021, Scopus**
9. “Sequestration of Zinc Ion using Sugar Industry Residue: An Avenue to Envirosafe”, *Pollution Research*. 40 (3) : 766-771, **2021, Scopus**
10. “A Study on the Bioaccumulation and Screening of Toxic Metal Ions in Effluents, Fodder and Milk Samples Collected from Erode, Tirupur, Coimbatore Districts”, *Research Journal of Chemistry and Environment* 24(3), 88-93, **2020, Scopus and SCIE**

Other Publications: International/National - 58

International – 38

National – 20

Conference Proceedings – 15

1. “Efficacy of Modified Magnolia Champacca Bark Powder in Sequestration of Divalent Ions from Aqueous Matrices”, *Current World Environment*, 19(1), 57-66, **2024, UGC Care list**
2. “A Characteristic Approach on the Synthesis of Agro-based Nanomaterials and their Ability as Metal Sorbents”, *Sustainability Agri Food Environmental Research (SAFER)*. (ISSN: 0719-3726), 12(2), **UGC**
3. “Recovery of Reusable Water and Sludge from Various Wastewater Sources: A Review”, *MuktShabd Journal*, 11 (7), 1064 – 1077, **2022, UGC Care list**
4. “Sequestration of Cu(II) Ions from Aqueous Media using Natant Magnetite-Chitosan Composite”, *Journal of Materials and Environmental Science*, 12(7) 804-813, **2021, SciFinder**
5. “Investigation on Physico – Chemical Characteristics of Pulp and Paper Industrial Discharges into the Environs”, *Asian Journal of Research in Chemistry* 14(2), 115-119, **2021, Google Scholar**
6. “Utilization of a Material derived from Animal Waste in the Biosorption of Pb (II) Ions – Isothermal/ Thermodynamic, Kinetics and Statistical Studies”, *Current World Environment*, 12(2), 44-455, **2017, NAAS, Google Scholar**
7. “Removal of Reactive Dye using Activated Carbon Prepared from *Prosopis juliflora* bark: Isothermal, Thermodynamics and Kinetic Studies”, *Chemical Science Reviews and Letters*, 5(20), 182-191, **2016, NAAS, SciFinder**
8. “Experimental Optimization of an Agricultural Waste in the Uptake of Cu (II) Ions”, *Chemical Science Review and Letters* 2(8), 615-619, **2016, NAAS and SciFinder**
9. “A Comparative Study on the Sorption of Divalent Ions by Bivalves Shells; Equilibrium and Statistical Studies”, *Chemical Science Reviews and Letters*, 5(19), 214-223, **2016, NAAS, SciFinder**
10. “Assessment of Physicochemical Characteristics and the Level of Nutrient Contents as Well as Heavy Metal Ions in Waters of Three Lakes at Coimbatore, Tamil Nadu, India”, *Journal of Material and Environmental Science.*, 7(7), 2259-2266, **2016, Google Scholar and SciFinder**

Patent - 1

S.No	Name of the Faculty	Title of the Invention	Application No.	Date of Filing	Publication Date
1.	Dr. N. Muthulakshmi Andal	A method for production of flyash bricks incorporating chromium loaded acid- modified attapulgite clay	202541017104	26- 02- 2025	07-03-2025

Book Published - 1

“Employment of Functionalized Natant Bio-Materials as Potential Adsorbents for Industrial Liquid Litters - Scaleup of Plausible Solutions Through Greener Approach”, Eliva Press, Mauritius (2023)

Eliva Press catalog: <https://www.elivapress.com/en/book/book-4239093625/>

Author's Profile: <https://www.elivapress.com/en/authors/author-8979907317/>

AmazonUSA- <https://www.amazon.com/dp/9994984446/>

Amazon Germany- <https://www.amazon.de/dp/9994984446/>

Amazon France <https://www.amazon.fr/dp/9994984446/>

E- Manual Author - 1

Life Sciences Protocol Manual, DBT Star College Scheme- Biochemistry Section, “Qualitative Analysis of Sugars”, 219- 225(2018)

Book Chapter Published - 7

1. "Investigation on the Sequestration of Divalent Metal Ions Employing Animal Waste", Challenges and Advances in Chemical Sciences (Volume - 3), Page No: 1 - 13(2021)
2. "Study on Virtual Screening of Treated Pistachio vera Shell Powder as a Potential Sorbent in Sequestering Ubiquitous Divalent Metal Ions from Aqueous Matrices", Challenges and Advances in Chemical Sciences (Volume -3), Page No: 14 - 26(2021)
3. "Study on Biosorption of Divalent ion onto Treated Prosopis juliflora Bark from Aqueous Solutions: An Approach towards Isothermal and Statistical Analysis", Challenges and Advances in Chemical Sciences (Volume - 3), Page No: 27 – 39 (2021)
4. “Assessment of Agricultural Wastes in the removal of Hexavalent Chromium”, Novel Aspects on Chemistry and Biochemistry (Volume - 1), Page No: 30-39 (2023)
5. “Sequestration of Cadmium Ions from Aqueous / Electroplating Wastewaters using Chitosan: A Review” - Novel Aspects on Chemistry and Biochemistry (Volume - 1), Page No: 40-51 (2023)
6. “Terminalia Catappa as a Novel Biosorbent for the Removal of Divalent ion from Aqueous Solutions: Experimental Investigation” - Novel Aspects on Chemistry and Biochemistry (Volume - 1), Page No: 108 – 120 (2023)
7. “Utilization of Modified Elephas maximus Dung as Oxyfluorfen Sequestrant: Adsorption and Kinetic Modeling Studies”- Novel Aspects on Chemistry and Biochemistry (Volume - 1), Page No: 161 – 178 (2023)

Short Term Course - 2

1. GIAN (Global Initiative of Academic Networks - MHRD) Course on, “Environment and its Sustainability” - National Institute of Technology, Warangal
2. “Advanced Material Characterization” in association with Ministry of Textiles, Government of India, PSGTECHS COE INDUTECH, PSG College of Technology, Coimbatore

Letter of Appreciation - 28

1. Recognition for Installation of Fibre Reinforced Polymer Devices at Industrial belts towards confiscation of toxicants (heavy metals, anions, dye molecules, pesticides) from effluent discharges
2. Appreciation for disseminating knowledge and sharing expertise on Abatement of Environmental Pollution, Functionalization of Materials and Outcome Based Education (OBE)

Acted as a Resource Person -30

1. "Project/ Seminar Grant Proposals: Planning and Funding Agencies" in "Orientation and Retraining of Teachers" sponsored by UGC, at Arulmigu Palaniandavar Arts College for Women, Palani (01.02.2013)
2. "Construction of Ion Exchangers Using Rechargeable Resins in the Water Softening Process – A Working Model", in, "Recent Advances in Water and Wastewater Treatment", at Department of Chemistry, Gandhigram Rural Institute-Deemed University, Dindigul (21.03.2014 & 22.03.2014)
3. "Valorization of Agro Derived Nano Materials: Characteristics and Sustainability", AICTE sponsored Faculty Development Programme at IFET College of Engineering, Villupuram (18.11.2017)
4. "Traditional to Transformative Education – Outcome Based Education", in "Generation and Validation of Learning Outcomes" at Shree M& N Virani Science College, Rajkot, Gujarat (09.01.2018)
5. "Plausible Pursuits of Chemistry and Attenuation Approaches in Environmental Pollution" at Vivekanandha Arts and Science College for Women, Tiruchengodu (19.12. 2018)
6. "Perspective Pioneering Fields of Chemistry" in National Seminar on "Fascinating Fields of Chemistry" at Vellalar College for Women, Erode (04.02.2019)
7. "Bioaccumulation and Noxious Effects of Engineered Nanoparticles – An Overview" in "Current Trends and Advances in Chemical Sciences" at Government Arts College for Women, Salem. (19.09.2019)
8. "Methodology and Attainment of OBE in CIA and SE" in "LOCF Approach to Curriculum Planning and Development for Faculty Members" at St. Joseph's College, Tiruchirapalli (04.01.2020)
9. "OBE – Course Mapping" in "Golden Jubilee Webinar Series" at Vellalar College for Women, Erode (04.05.2020)
10. "Mitigation of Ecological Effluence in view of initiation and Restoration Stratagems" at Nazareth Margoschis College, Pillaiyanmanai, Nazareth (17.06.2020)
11. "A Characteristic Approach on the Synthesis of Agro Based Nanomaterials" in, "Innovative Science, Engineering, and Technology", Knowvel Journals, London (03.07.2020)
12. "Assessment Methodology and Evaluation Pattern in the Attainment of Outcome Based Education – A Formative Component" in, "Need and Scope of Outcome Based Education towards Transformative Education", at Bharathiar University, College Development Council and IQAC, Coimbatore (11.03.2021)
13. "Significance of Water – Quality, Pollution Abatement Projects and Carrier Opportunities" - Hands on Training Programme at Jamal Mohamed College (Autonomous), Trichy (25.03.2022)
14. "A Comprehensive implication of OBE in fostering Curriculum Enrichment" in "Curriculum Enhancement Programme", at, Providence College for Women, Coonoor, The Nilgiris (21.02.2023)
15. "Spread the Spark'24 Celebrating Teachers" at Confederation of Indian Industry (CII), Coimbatore. (20.09.2024)

Reviewer in Journal - 13

1. Asian Journal of Biotechnology and Bioresource Technology (2023)
2. Asian Journal of Chemical Science (2024)
3. Oriental Journal of Chemistry (2023)
4. International Journal of Environment and Climate Changes (2023)
5. B P International (2024)
6. Asian Journal of Geological Research [2 articles] (2024)
7. Asian Journal of Biotechnology and Genetic Engineering (2024)
8. Journal of Materials Science Research and Reviews (2024)
9. European Journal of Nutrition & Food Safety (2024)
10. Asian Journal of Biology (2024)
11. Scientific Reports (2024)
12. International Journal of Environment and Climate Change (2025)

Paper Presentations in Conferences/Seminars - 140

International -53

1. “Energy, Environment and Sustainable Economy (EESE - 2013)”, Bangkok, Thailand
2. “Materials for the new millennium MatCon 2010”, Cochin University of Science and Technology, Cochin
3. “Recent Trends in Analytical Chemistry”, University of Madras, Chennai
4. “11th World Aqua Congress”, Aqua Foundation, New Delhi
5. "Recent Advances in Water Purification and Waste Water Treatment", Harcourt Butler Technical University, Kanpur, UP.
6. “Sustainable Green Chemical Technologies: Challenges and Opportunities”, Harcourt Butler Technical University, Kanpur, UP.
7. “Next Generation Sustainable Materials for Water and Energy Solutions”, VIT-AP University, India
8. Chemical Resilience & Sustainable Practices: Advanced Materials in Water Purification Strategies for Desalination, Energy Production & Environmental Conservation”, Harcourt Butler Technical University, Kanpur, UP.

National -87

Participation in Conferences/ Seminars - 53

Participation in Workshop - 20

Participation in Faculty Development Programme - 10

Participation in Webinar - 24

Conference/Seminar/Workshop/Refresher Course Organized - 10

Grants – 6 Funding Agencies (3 Major; 3 Minor)

1. Biosorbents in the Heavy Metal Removal from Industrial Effluents and Wastes- Defence Research Development Organization, New Delhi **(22.54 Lakhs) (2012 - 2015)**
2. Bioremediation of Heavy Metal Contamination in Coimbatore Wetlands by Green Approach- University Grants Commission, New Delhi **(7.858 Lakhs) (2012 – 2015)**
3. DST FIST PG Colleges (Level A) -**(Rs. 57 Lakhs) (2022-2027)**
4. Watershed Technology – Constructing Ion Exchangers using Eco-friendly Resins– Innovation and Entrepreneurship Development Centre- National Science and Technology Entrepreneurship Development Board, Ahmedabad **(1 Lakh) (2009 - 2010)**
5. Immobilization of Heavy Metal ions from Effluent Discharges by Biosorption using Low Cost Ecofriendly Materials –UGC – SERO, Hyderabad **(1 Lakh) (2010 – 2012)**
6. Lake Restoration – Unnat Bharath Abhiyan, Ministry of Human Resource Development, New Delhi **(1 Lakh) (2019- 2020)**

Membership in Professional Bodies - 4

Name of the Professional Body	Nature of membership	Duration
1. Indian Desalination Association, Mumbai	Life Member	Since 2014
2. International Society for Development and Sustainability, Japan	Professional	Since 2014
3. American Water Works Association, India	Annual	2017- 2018
4. INSO- VDGGOOD Professional Association	Professional	Since 2023

Awards/Honors - 16

Awards/Honors	Agency/Institute	Year of Award
Young Women Scientist Award 2011	Science City, Department of Higher Education, Government of Tamil Nadu	2013
Best Researcher Award	Grabs Educational Charitable Trust, Chennai	2017
Best Scientist Award	Indian Academic Researchers Association, Tiruchirappalli	2017
Outstanding Faculty in Science	Venus International Association, Chennai	2017
Best Research Supervisor Award	Innovative Research Developers and Publishers (IRDP) Group of Journals, Chennai	2017
Dr. APJ Abdul Kalam Award for Scientific Excellence	Marina Labs Research and Development, Chennai	2018
Global Eminent Researcher Award	VIJ Trust, Thirunindravur, Tamil Nadu	2021
Distinguished Professor Award	Institute of Researchers, Wayanad, Kerala	2021
Research Excellence Award	INSO, VDGGOOD Professional Association, India	2023
Outstanding Professor Excellence Award	Prosper Foundation & Agri Amigos Private Limited	2023
Appreciation Award for Dedicated Services	Lions International, Lions Club of Coimbatore	2024
Distinguished Professor Award (Rs.25,000/-)	KPR Legacy Awards, KPR Institutions, Coimbatore	2025

Indexing and Citations

Citations - 525

Contribution

- Research Cell Coordinator (Dept. Level) (2010 - 2012)
- DBT Star Coordinator (Dept. Level) (2012 - 2014)
- ISO Internal Auditor (College Level) (2015-2023)
- NAAC (Criterion III) (Dept. level) (2018 -till date)
- Member of Task force for Internationalization and Branding towards NEP 2020 implementation
- Department Association In-charge and BOS member