

**Name** : Dr. R. Menaka  
**Designation** : Assistant Professor  
**Department** : Chemistry  
**Qualification** : M.Sc., M.Phil., Ph.D.  
**Experience** : Teaching - 6.8 Years | Research - 10 Years  
**Area of Specialization** : Corrosion Science and Polymer Science  
**Email** : menaka.r@drngpasc.ac.in



### Academic Qualifications

Degree	Branch	Institution / University Name	Year
Ph. D.	Chemistry	Avinashilingam University for Women, Coimbatore	2018
M. Phil.	Chemistry	Avinashilingam University for Women, Coimbatore	2012
M.Sc.	Chemistry	Avinashilingam University for Women, Coimbatore	2010
B.Sc.	Chemistry and Physics	Avinashilingam University for Women, Coimbatore	2008

### Additional Qualifications

Cert.	Area of Specialization	Institution/ Agency Name	Year
Certificate	Drug Discovery	Coursera	2022
NPTEL	Outcome based pedagogic principles for effective teaching	IIT, Kharagpur	2017
NPTEL	Metal mediated Synthesis – I	IIT, Bombay	2018

### Projects - Ongoing

Project Title	Agency	Amount	Duration
An Exploratory Study into Public Awareness of the Environmental Impact of Menstrual Products Waste Disposal in the Coimbatore District	Indian Council of Social Science Research	₹ 3,67,500	12 months

## Projects - Completed

Project Title	Agency	Amount	Duration
A facile synthesis of Chitosan based self-healing hydrogels and their swelling behavior	In house – DrNGPASC-Seed Money Scheme	₹ 5000	6 months

## Research Publications (Indexed)

### *International*

- **R Menaka**, V Nijarubini, K Sakthivel, P Kavitha, M Jannathul Firdhouse, (2024), Electrochemical investigation and surface interaction of thiophene based Chitosan Schiff base on mild steel surface in 1 M HCl, Materials Today Proceedings, Elsevier, <https://doi.org/10.1016/j.matpr.2024.03.007>
- M Jannathul Firdhouse, **R Menaka**, (2023), Experimental and theoretical investigation of spiro heterocyclic compound as potential inhibitor for mild steel in acid media, Materials Today Proceedings, Elsevier, <https://doi.org/10.1016/j.matpr.2023.12.016>
- **Menaka, R.**, Geethanjali, R., Subhashini, S. (2022), “Eco-friendly Chitosan vanillin Schiff base as anti-corrosive agent for mild steel in 1 M HCl and as scale inhibitor for CaCO<sub>3</sub>”, Journal of Adhesion Science and Technology, Taylor and Francis, <https://doi.org/10.1080/01694243.2022.2066401>
- **Menaka, R.**, Geethanjali, R., Subhashini, S. (2018), “Electrochemical Investigation of Eco-friendly Chitosan Schiff base for Corrosion Inhibition of Mild Steel in Acid Medium”, Materials today Proceedings, Elsevier, 5(8), 16617-16625
- Geethanjali, R., **Menaka, R.** and Subhashini, S (2018), “Gravimetric and Electrochemical Study of Temperature Effect of PVA Grafted Terpolymer on Corrosion Inhibition of Mild Steel in Hydrochloric Acid”, Materials today Proceedings, Elsevier, 5(8), 16246 -16257

- **Menaka, R.**, and Subhashini, S. (2017), “Chitosan Schiff base as effective corrosion inhibitor for mild steel in acid medium”, *Polymer International*, Wiley Publications, 66(3), 349-358.
- **Menaka, R.**, and Subhashini, S. (2016), “Chitosan Schiff base as eco-friendly inhibitor for mild steel corrosion in 1 M HCl”, *Journal of Adhesion Science and Technology*, Taylor and Francis, 30(15), 1622-1640.

#### Other Publications: International / National Journals

- Hemanth, Narendrakumar, Santhosh, Gopalakrishnan, **Menaka** and Kavitha, Identification of Food Adulterants present in turmeric, coriander, chilli powder using low-cost laboratory methods, J. Research and Development, ISSN: 2230-9578,15,111-113.
- Geethanjali, R., **Menaka, R.** and Subhashini, S., “PEG based Stimuli sensitive hydrogels: Synthesis, characterization and swelling behavior in various media”, *International Journal of Advance Research in Engineering and Applied Sciences*, 2(1), 106-117,2015.
- **Menaka, R.**, Geethanjali, R. and Subhashini, S., Optimization of factors influencing corrosion inhibition performance of N-Maleyl chitosan/Polyvinyl alcohol blend for mild steel in acid medium – Taguchi method, *Journal of scientific Research and advances*, 2(1), 73-79, 2015.
- **Menaka, R.**, Nandhini, M. and Subhashini, S., Histidine as Synergistic additive on Poly (N-Methyl Aniline) for mild Steel Corrosion in 0.5 M H<sub>2</sub>SO<sub>4</sub>, *Research Journal of Recent Sciences*, 3, 177-181, 2014.

## Book Publications

- Handbook of Allied Chemistry, Dr. N.G.P. Arts and Science College, ISBN: 978-81-955112-5-9.
- Essential Chemistry, Dr. N.G.P. Arts and Science College, ISBN: 978-81-956823-2-4.
- Extraction and characterization of lignin from biomass, Scholars' Press, ISBN: 978-620-6-76875-3.
- Synthesis and Antimicrobial Evaluation of Benzimidazolium Salicylate, Lambert Academic Publishing, ISBN: 978-620-6-14421-2.
- R.Menaka,(2023) Swelling Behaviour of Chitosan Based Hydrogels: Effect of crosslinkers, Publisher: Lambert Academic Publishing, ISBN: 978-6-206-143901.
- Proceedings of National Conference on Emerging Trends in Physical Sciences and Mathematics, Dr. N.G.P. Arts and Science College, ISBN:978-81-962322-8-3.
- Inorganic Analysis: Lab Manual for UG students, Dr. N.G.P. Arts and Science College, ISBN:978-81-960554-9-3.
- Allied Chemistry: Lab Manual for UG Students, Dr. N.G.P. Arts and Science College, ISBN:978-81-960554-9-3.

## Book Chapters

- Ali Fathima Sabirneeza Abdul Rahiman and Menaka Ramanathan, (2022), Natural Polymers and their Derivatives as Corrosion Inhibitors for the Oil and Gas Industry, Title of the book: Polymeric Corrosion Inhibitors for Greening the Chemical and Petrochemical Industry. Publisher: **Wiley-VCH GmbH, Weinheim, Germany, ISBN: 978-3-527-34992-0.**

- Preparation and Characterisation of PVA Based Composite Film and Evaluation of Its Anti-Microbial Activity, Futuristic Trends in Chemical, Material Sciences & Nano Technology, IIP Series.
- A Facile synthesis of Naphthyl chitosan based composite hydrogels and their swelling applications, Futuristic Trends in Chemical, Material Sciences & Nano Technology, IIP Series.

### **Presentations in Conference**

- Anticorrosion Investigation of doped polymer as a safe corrosion inhibitor for mild steel in 0.5M H<sub>2</sub>SO<sub>4</sub>, An international conference on Recent Advancement and Multidisciplinary Research in Science and Humanities (ICMRSH)- 2004, SNS College of Technology, Coimbatore, 23rd Feb 2024.
- Preparation and Characterisation of PVA Based Composite Film and Evaluation of Its Anti-Microbial Activity, XVI Louis Pasteur National seminar on Novel diagnostic and drug development strategies for infection diseases, Dr. N.G.P. Arts and Science College, Coimbatore, 22<sup>nd</sup> Feb 2024.
- “Chitosan Schiff base as Potential anti-corrosion agent for Mild steel in 1M HCl medium”, Advanced Nanomaterials for Energy, Environment and Healthcare Applications, Bishop Heber College, Tiruchirappalli, 04-06 February 2019.
- “Enhanced Corrosion Protection and Surface Interaction of Chitosan Schiff Base on Mild Steel Surface in 1M HCl”, INCOSURF-2018, International conference on surface engineering, IISc Bangalore, 09-Aug-18 to 11-Aug-18.
- “Modified Chitosans as potential green inhibitor for mild steel corrosion in 1M HCl”, Recent Innovations in Science and Technology, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, 23-Feb-18.

- “Electrochemical, Theoretical and Surface Morphological Investigation of Chitosan Schiff base as Potential Corrosion Inhibitor for Mild steel in Hydrochloric Acid Solution”, ICONEST 2017, Second International conference on Electrochemical Science and Technology, IISc Bangalore, 10-Aug-17 to 10 Aug -17.
- “Synthesis of Chitosan based Schiff bases and Evaluation of their scale inhibition performance”, BRNS & CSIR Sponsored International Conference on Energy, Environment and Advanced Materials for a Sustainable Future (ICEEAMSF-2017), Kongu Engineering College, Erode, 23-May-17 and 24-May-17.
- “Electrochemical Investigation of mild steel corrosion inhibition in 1M HCl medium by Chitosan Schiff base”, SCICON’16-International Conference on Advanced Materials, Amirta Vishwa Vidyapeetham, Coimbatore, 19 – Dec-16 to 21- Dec-16.
- “Evaluation of Chitosan Schiff base as an environment friendly corrosion and scale inhibitor”, 11<sup>th</sup> Asia Pacific Chitin and Chitosan Symposium & 5<sup>th</sup> Indian Chitin and Chitosan Society Symposium 2016, Kochi, Kerala, 28-30<sup>th</sup> Sep-16.
- “Electrochemical and thermodynamical investigation of Chitosan Schiff base On Corrosion inhibition of Mild steel in 1M hydrochloric acid medium”, National Convention of Electrochemists (NCE-19), Tiruchirapalli, 28-Mar-16 to 29, Mar-16.
- “Chitosan Schiff base as effective corrosion inhibitor for mild steel in acid medium”, NANO-15 International conference on Nano materials and Nano technology, KSR group of Institutions, 07-Dec-15 to 07-Dec-15.
- “Mild steel corrosion inhibition by biopolymeric Schiff base: An experimental and theoretical investigation”, International Corrosion Prevention Symposium for Research Scholars (CORSYM- 2015) organized by The NACE International Gateway India Section (NIGIS) - South Zone Student Section, 31-Jul-15 to 1-Aug-15.

- “Synergistic Influence of Cystine on corrosion inhibition of Poly (N-Methyl Aniline) for mild steel in sulfuric acid and a comparative study with the polymer composite”, National Corrosion Council of India (NCCI) in collaboration with CSIR-Central Electrochemical Research Institute (CECRI) and The Gandhigram Rural Institute-Deemed University, Gandigram, 17<sup>th</sup> April -15.
- “Optimization of factors influencing corrosion inhibition performance of N- Maleyl chitosan/ poly vinyl alcohol blend for mild steel in acid media –Taguchi method”, 17<sup>th</sup> National Congress on Corrosion Control organized by National Corrosion council of India and Central Electrochemical Research Institute, Karaikudi, 21-Aug-14 to 23-Aug-14.
- “Synergistic Inhibition between Poly (N-Methyl Aniline) and Threonine on Mild Steel Corrosion in H<sub>2</sub>SO<sub>4</sub> and A Comparative study with the Polymer Composite”, International Conference on “Chemistry – Frontiers and Challenges”, PSGR Krishnammal College for Women, Coimbatore, 5 –Feb -14 to 7- Feb-14.
- “Histidine as Synergistic Additive on Poly (N-Methyl Aniline) for Mild Steel Corrosion in 0.5 M H<sub>2</sub>SO<sub>4</sub>”, International Science Congress Association at Karunya University, 8 –Dec-13 to 9-Dec-13.

### **Participation in Seminars**

- “Recent trends in Spectroscopy Research”, sponsored by Society of Advancement of Chemical sciences and Education and IGCAR, Avinashilingam University for women, Coimbatore, 4 –March-16.

### **Participation in Workshop**

- In Silico Molecular Design and Engineering, Sri Ramakrishna Mission Vidyalaya College of Arts and Science, Coimbatore, 25-27 March, 2022.

- Virtual National workshop on “UV Biospec and 3D Optical Profilometer”, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, 2.8.2021.
- Two day “Workshop on Corrosion and its control” sponsored by National corrosion council of India, PSGR Krishnammal College for Women, Coimbatore, 30-Jun-16 to 1-July-16.
- One day Workshop on “Frontier Materials” sponsored by Royal society of Chemistry, in Avinashilingam University for women, Coimbatore, 15-Feb-16.
- One day Faculty workshop on “3D printing”, sponsored by M/s CADD centre, Chennai, Avinashilingam University for women- Faculty of Engineering, 10- Feb- 15.
- Two-day Academies Workshop on “Frontiers in Corrosion Engineering and Technology”, sponsored by Science Academies of India, Banari Amman Institute of Engineering and Technology, 12-Feb- 16 to 13-Feb-16.
- UGC sponsored- students’ workshop on “National Higher Education Qualification Framework”, sponsored by UGC organized in Avinashilingam University for women, Coimbatore, 17- Dec-14.
- One day Faculty workshop on “Quality Education for All” sponsored by UGC organized in Avinashilingam University for women on 17-Nov-14.
- DST curie sponsored National Workshop on “Conducting Innovative Corrosion Control Research”, Avinashilingam University for women, Coimbatore, 27-Jan-14 to 31-Jan-14.



### **Participation in Orientation Programme / Short Term Courses**

- UGC Stride Sponsored Training Programme on Environmental Sustainability and Research Ethics, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, 14<sup>th</sup> to 18<sup>th</sup> March 2022
- “One-day Training Programme on FE SEM” (sponsored by DST- CURIE), Avinashilingam University for women, Coimbatore, 22- Sep-18.
- Short Term Course on Current Scenario in NANO & FUNCTIONAL MATERIALS (Nano-FM 2017) (sponsored by AICTE Quality Improvement Programme), Coimbatore Institute of Technology, 1-Mar-17 to 7 Mar-17.
- One week Training course on “Instrumentation and Analytical Techniques” in Salim Ali centre for ornithology and Natural History, Anaikatty, 16 to 20-Mar-15.

### **Participation in Faculty Development Programme**

- Seven-day Online Faculty Development Programme on Research Methodology and Pedagogy for Tertiary Education, Dr. N.G.P. Arts and Science College, Coimbatore, June 15-21, 2021
- One Day Faculty Development Programme on “Molecular Docking and Cheminformatics in Research-Recent Chemistry Perspective”, 13 July, 2020
- Online Five-day Faculty Development Programme on “Post Covid 19 Challenges in Science and Technology”, Jain Deemed to be University, 15-19 June, 2020
- National Level Live Faculty Development Programme (webinar) on “Future of Examinations: Bloom's Taxonomy and Multiple Assessment Tools”, G. T. N. Arts College (Autonomous), Dindigul, 8 June 2020
- Three Days Faculty Development Programme on, “Advanced Molecular Chemistry”, Arulmigu Palaniandavar College of Arts and Culture, Palani, 1-3, June, 2020

- IIC Online Sessions conducted by Institution's Innovation Council (IIC) of MHRD's Innovation Cell, New Delhi, 28<sup>th</sup> April to 22nd May 2020
- One day International Faculty Development Programme on “Recent Innovations in Herbal Cosmetics” Nallamuthu Gounder Mahalingam College, 12 May 2020
- One week FDP Programme on JMol Application, Dr. N.G.P. Arts and Science College, Coimbatore, May 04-10, 2020
- GChemPaint training organized at D.K.M. College for Women, Spoken Tutorial Project, IIT Bombay, January 2020
- LibreOffice Suite Writer training organized at D.K.M. College for Women, Spoken Tutorial Project, IIT Bombay, January 2020
- Quality Initiatives in Higher Education, Dr. N.G.P. Arts and Science College, Coimbatore, 3-Dec-18 to 9-Dec-18.

#### **Conference / Seminar / Workshop Organized**

- Organizing Secretary, International Conference on Translational Research Towards Attaining Good health and Wellbeing for Sustainable Development Dr. N.G.P. Arts and Science College, Coimbatore, 09-Mar-2024.
- Organizing Secretary, National Seminar on Novel Materials for Sustainable Energy Resources and Radiation (NSERM'24), Dr. N.G.P. Arts and Science College, Coimbatore, 29-Feb-2024.
- Organizing Secretary, National Science day Celebrations-2020 in association with EBG foundation and Dr.Kalam Educational Trust for Tribal, Dr. N.G.P. Arts and Science College, Coimbatore on 28 February, 2020.

- Organizing Secretary, National Science day Celebrations-2019, in association and Dr.Kalam Educational Trust for Tribal, Dr. N.G.P. Arts and Science College, Coimbatore on 28 February, 2019.

#### **Invited Speaker / Session Chair / Member Organizing Committee**

- Guest Speaker, Impacts of Chemistry - Recent trends, KGiSL Institute of Technology, September 21, 2023.
- Member Organizing committee – National Conference on Emerging Trends in Physical Sciences and Mathematics, Dr. N.G.P. Arts and Science College, Coimbatore, 12-April, 2023
- Guest Speaker – Self Driven Activity – KGiSL Institute of Technology – November 28, 2022
- Speaker –State level Two days Faculty development programme – Environment Sustainability – September 24, 2022
- Evaluator for projects – State level 29th National Children’s Science Congress – 2021 on December 28, 2021
- Guest Lecture – Polymers in day-to-day life – Sri Ranganathar Institute of Polytechnic College, June 12,2020
- Session Chair – Conference, First National Conference in Recent trends in Basic and Applied Sciences, Dr. N.G.P. Arts and Science College, Coimbatore, 02-March-20.

#### **Member in BoS**

- Board of Chemistry, Dr. N. G. P. Arts and Science College, Coimbatore, 2018.

#### **Editor/Reviewer**

- Book series Editor, Futuristic Trends in Chemical, Material Sciences & Nano Technology, IIP Series.
- Reviewer, *RSC Advances*

## Awards / Honors

Awards / Honors	Agency / Institute	Year
Best Teacher	Dr. N.G.P. Arts and Science College, Coimbatore	2019
Best Mentor	Dr. N.G.P. Arts and Science College, Coimbatore	2019
Second Prize in Paper presentation	Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore	2018
Best paper presentation	IIT Madras, Chennai and NACE International Gateway India Section (NIGIS)	2015