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### Research Contributions

- Guided one Scholar K. Shanthini (Reg.No: 20211242032006) to the completion of her Ph.D. on the Research Topic “Synthesis Characterization and Application of Multifunctional Nanomaterials for Environmental Remediation”. (Viva Date 06.01.2025)
- Published a Patent Titled “Sea Water Desalination Apparatus using Solar Energy”, Design No:389758-001, Dated 06.07.2023
- Published a Patent Titled “Nanotech Based Metal Oxide Identifying Gloves”, Design No: 381085-001 Dated 09.03.2023

### Papers presented in the International/National Seminars/Conferences

1. Presented a paper entitled “Plant mediated synthesis of Silver nanoparticles using aqueous extract of Phyllanthus niruri leaves and assessment of their antimicrobial and anticancer activity” in ***One Day International Seminar on Emerging Trends in Chemistry and Energy Science*** organized by Saraswathi Narayanan College, Madurai on 7<sup>th</sup> February 2020.
2. Presented a paper entitled “Biosynthesis of Silver Nanoparticles Using Adhatoda Vasica leaves extract and investigation of its antimicrobial activity” in ***One Day International Seminar on Emerging Trends in Chemistry and Energy Science*** organized by Saraswathi Narayanan College, Madurai on 7<sup>th</sup> February 2020.
3. Presented a paper entitled “Design And Investigation On Non-Linear Optical Properties, Photoluminescence And Spectral Studies Of 1-Hydroxy-2-Naphthyl(4-Chloro Styryl)Ketoneoxime And Its Metal(Ii) Complexes” in ***DST-SERB Sponsored International Conference on Recent Trends in Green Chemistry and Material Science (RTGCMS-2020)*** organized by Mohamed Sathak Engineering College, Ramnad on 23<sup>rd</sup> & 24<sup>th</sup> January 2020.
4. Presented a paper entitled “Synthesis and Biological Evaluation Of Newly Synthesized Cyclohexyl thiosemicarbazone derivatives” in ***International Conference on Emerging Trends in Chemical Sciences (ICETCS-2019)*** organized by Arulmigu Palaniandavar Arts College For Women, Palani on 6<sup>th</sup> September 2019.

## Papers Publications:

1. Published Paper entitled "Fabrication of  $\text{Gd}_2\text{O}_3$ -Loaded nitrogen-rich  $\text{C}_3\text{N}_5$ @ PANI hybrid nanocomposites: Unlocking efficient photocatalysis for long-Term organic dye degradation in wastewater treatment in *Physica B Condensed Matter*, **698**, 416758 (2025).
2. Published Paper entitled "Dynamic Trio:  $\text{CuWO}_4$ @  $\text{C}_3\text{N}_5$ /Polypyrrole nanocomposites Combat Chlorpyrifos and Rhodamine B in waste water in *Surfaces and Interfaces*, **51**, 104673, (2024).
3. Published Paper entitled "Novel hierarchical nanocomposites of g- $\text{C}_3\text{N}_4$ /MXene- $\text{Sm}_2\text{O}_3$  for enhanced cefixime degradation under visible light" in *Journal of Physics and Chemistry of Solids*, **190**, 112011 (2024).
4. Published Paper entitled "Designing  $\text{Ti}_3\text{C}_2/\text{C}_3\text{N}_4$ -embedded chitosan nanocomposites for efficient antibiotic degradation and antibacterial activity in *Optical Materials*, **147**, 114731 (2024).
5. Published Paper entitled "GO-CNT/AgI nanocomposites: A facile synthesis and environmentally friendly method to removal of organic pollutants" in *Journal of Molecular Structure*, **1286**, 135500 (2023).
6. Published Paper entitled "Metal-free and fully recoverable MWCNT/g- $\text{C}_3\text{N}_4$ /chitosan nanocomposite thin film with excellent photocatalytic activity against organic pollutant degradation in *Physica B: Condensed Matter*, **655**, 414726 (2023).
7. Published Paper entitled "Hierarchical fabrication of GO@  $\text{Dy}_2\text{MoO}_6$  heterojunction for catalytic performance and effective wastewater treatment. *Optical Materials*, **136**, 113422 (2023).
8. Published a Paper entitled "Synthesis, Spectral, Electrochemical, Antimicrobial and DNA Binding/Cleavage Studies of Metal Complexes with Schiff Base of Fluoro Substituted Aniline" in *Asian Journal of Chemistry*, Vol. 32, No. 11 2911-2916 (2020).
9. Published a paper entitled "Structural optical and fluorescence properties of azo Schiff based metal complexes" in *International Journal of Advance Research in Science and Engineering* Vol 6, Nov.201 ISSN No: 28/9-8354.
10. Synthesis, spectroscopic characterization and biological activities of metal complexes of 4-((4-chlorophenyl)diazenyl)-2-((p-tolylimino)methyl)phenol. *J. Chem.*, Article ID 724163, 8 pages (2013).
11. Studies on synthesis and spectral characterization of some transition metal complexes of Azo-azomethine derivative of diaminomaleonitrile. *Int. J. Inorg. Chem.*, Article ID 436275, 10 pages (2013).
12. Spectroscopic studies and biological evaluation of some transition metal complexes of azo Schiff-base ligand derived from (1-phenyl-2,3-dimethyl-4-aminopyrazol-5-one) and 5-((4- chlorophenyl)diazenyl)-2-hydroxybenzaldehyde. *Spectrochimica Acta Part A*, **96**, 493 (2012).

13. Synthesis and studies on Cu(II), Co(II), Ni(II) complexes of Knoevenagel  $\beta$ -diketone Ligands. *Spectrochimica Acta Part A*, **97**, 377 (2012).
14. Synthesis and characterization of VO(II), Co(II), Ni(II), Cu(II) and Zn(II) complexes of chromone based azo-linked Schiff base ligand. *Spectrochimica Acta Part A*, **98**, 25 (2012).
15. Synthesis and studies on S-Triazine-based ligand and its metal complexes. *Int. J. Inorg. Chem.*, Article ID 301086, 7 pages (2012).
16. Synthesis, Characterization, and Biological Activity of Some Transition Metal Complexes Derived from Novel Hydrazone Azo Schiff Base Ligand. *Inter. J. Inorg. Chem.*, Article ID 493942, 8 pages (2011).
17. Spectral, NLO, Fluorescence, and Biological Activity of Knoevenagel Condensate of  $\beta$ -Diketone Ligands and Their Metal(II) Complexes. *Inter. J. Inorg. Chem.*, Article ID 154326, 8 pages (2011).
18. Synthesis, spectral characterisation and antimicrobial studies of metal complexes of Schiff Base derived from [4-amino-N-guanylbenezene sulfonamide] and salicylaldehyde. *J. Coord. Chem.*, **63**, No. 5, 884 (2010).

### **Orientation/ Refresher Courses attended\_**

- Participated and obtained Grade-‘A’ in UGC-Sponsored 108<sup>th</sup> **Orientation Programme** from 12.11.2019 to 02.12.2019 organized by UGC-HRDC-Bharathidasan University, Tiruchirappalli.
- Completed **Two-Week MOOC Workshop** for College Teachers on “Management Of Environment and its Resources” Jointly conducted by Department Of Chemistry & Research, Nesamony Memorial Christian Collge, Marthandam and Department of Chemistry & Research, St. Xavier’s College, Palayamkottai from 19<sup>th</sup> May to 1<sup>st</sup> June 2020.
- Attended a **Short Term Course** on “ICT” from 14.06.2021 to 20.06.2021 organized by UGC-HRDC Gujarat University, Gujarat.
- Attended a **Short Term Course** on “E-Content Development” during 31.05.2021 to 06.06.2021 organized by UGC-HRDC Gujarat University, Gujarat.
- Completed UGC Sponsored **Online Two weeks Refresher Course in Chemistry** From 01.06.2022 to 14.06.2022 organized by UGC-HRDC Pondicherry University, Pondicherry with A Grade.
- Completed UGC Sponsored **Online Two weeks Refresher Course in Chemistry** From 30.06.2023 to 14.07.2023 organized by Teaching Learning Centre, Ramanujan College, University of Delhi

### **Extension and Extra Curricular Activities**

- Serving as a Y.R.C. Programme Officer from 2021 and co-ordinated YRC activities, including social service initiatives and medical campaigns.

## Other Activities

- Organized *One Day National Level Seminar* on Recent Trends in Green Chemistry & Polymer Nanocomposites (RTGP-2023) on 24.03.2023.
- Organized a Webinar from IIC of The M.D.T. Hindu College, on topic “Session on Identifying Intellectual Property Component at the early stage of Innovation” and talk was given by Mr. P. Jayakumar, Research Faculty, Kalasalingam Academy Of Research & Education, Deemed To Be University, Krishnankoil on 09.12.2020.
- Organized a *National Level Webinar* on “IPR Drafting and Filing” on 22.02.2022 and the lecture was given by Latika Khanduja, Founder in IPLOEA.
- Organized a Seminar on the behalf of World Intellectual Property Day on 26.04.2022 from IIC of The M.D.T. Hindu College.
- Organized a Seminar on Design Thinking, Critical Thinking and Innovation Design on 22.02.2023 by the resource person Mrs. R. Sindhuja, Examiner of Trademarks & GI, Intellectual Property Office, Chennai.
- Delivered a Guest Lecture on Applications of Nanotechnology on 05.01.2023 at St. Mother Theresa Engineering College, Thoothukudi.