Lekshmipuram College of Arts & Science

Neyyoor- 629802

TEACHER PROFILE

Department: CHEMISTRY

1	Name	:	**Dr. P. MUTHIRULAN**			
2	Date of Birth	:	15.06.1982			
3	Educational Qualification	:	M.Sc., M.Phil., Ph.D.			
4	Date of Appointment	:	04.09.2014			
5	Designation	:	Assistant Professor			
6	Experience (01-06-2015)	:	UG	10 Months	PG	---
7	Communication Address with e-mail ID and contact number	:	Assistant Professor Department of Chemistry LekshmipuramCollege of Arts and Science Neyyoor – 629802 Kanniyakumari District, Tamil Nadu Email: pmuthirulan@gmail.com Cell: +91-8940303090			
8	Permanent Address	:	77, NazarPuliyankulam MustakuruchiPost - 626106 KariyapattiTaluk, Virudhunagar District Tamil Nadu			
9	Area of specialization (Research)	:	Physical Chemistry			
10	Participation in Academic Bodies	:	Nil			
11	Number/List of Conferences/seminar/workshop attended	:	Number : 29 List in Annexure -1			
12	Number/List of paper published in proceedings	:	Number : 5 List in Annexure - 2			
13	Number /List of paper published in Journals(National/International)	:	Number : 20 List in Annexure - 3			
14	Number /List of Books Published	:	Nil			
15	Number/ List of chapters in Books	:	Number : 2 List in Annexure - 4			
16	List of invited Talks	:	Nil			
17	Contributions as Resource Person	:	Number : 1 List in Annexure - 5			
18	List of M.Phil guided/awarded	:	Nil			
19	List of Ph.D guided /awarded	:	Nil			
20	UGC -Minor/Major, CICT, other Funding Agencies project completed /ongoing	:	Nil			
21	Participation in Orientation/Refresher Course	:	Nil			
22	Any other relevant information (Co-curricular Activities)	:	Reviewer : List in Annexure – 6			
23	Membership in professional bodies	:	Nil			
24	Editorial positions	:	Nil			
25	Any Other	:	Awards: List in Annexure – 7			

Annexure – 1

Papers Presented in International/National Conferences and Workshops/ Seminars Attended

1. **P. Muthirulan,** M. Sangareswari, C. Nirmala Devi and M. Meenakshi Sundaram**,** ZnO photocatalyst supported with porous activated carbon for the mineralization of alizarin cyanine green dye in aqueous solution- UGC sponsored National Level Seminar on Recent Trends in Chemistry – III (LUMICHEM -2013) –held at SFR College for Women (Autonomous), Sivakasi on March 11 & 12, 2013.
2. C. Nirmala Devi, **P. Muthirulan** and M. Meenakshi Sundaram, Investigation of the Photo degradation Efficiency of TiO_2/Graphene Nanocomposites in the presence of Solar Radiation **–** Diamond Jubilee National Seminar on Recent Trends in Nanoscience and Technology – held at Scott Christian College (*Autonomous)*, Nagercoil on January 31, 2013.
3. C. Nirmala Devi, **P. Muthirulan** and M. Meenakshi Sundaram, TiO_2 Catalyzed Photo degradation of Acidic Dye Promoted by a Graphene Co-Catalyst in the presence of Solar Radiation - CSIR Sponsored National Conference on Recent Trends in Advanced Materials - held at Jayaraj Annapackiam College (*Autonomous)*, Periyakulam, on 5th and 6th February 2013.
4. C. Nirmala Devi, **P. Muthirulan**, P. Thanga Meena and M. Meenakshi Sundaram, Effect of TiO_2 @Graphene Nanocomposite on Photo degradation of Acid Orange dye under UV light Irradiation - UGC sponsored National Seminar on "Futuristic Trends in Chemistry" held at Sri Meenakshi Government College for Women, Madurai on 6th February 2013.
5. **P. Muthirulan,** C. Nirmala Devi and M. Meenakshi Sundaram, Fabrication and Studies of Titania-Decorated Graphene Nanocomposites and their Highly Efficient Photocatalytic Activities under Solar-Light Irradiation **– National Conference on Recent Advances in Surface Science**- held at Gandhigram Rual Institute-(Deemed University) Dindigul on 14th and 15th February, 2013.
6. C. Nirmala Devi**, P. Muthirulan,** M. Sangareswari and M. Meenakshi Sundaram, Comparative on the photo degradation performance of Acid Orange dye on TiO_2 and ZnO photo catalyst under sunlight **-** UGC sponsored National Conference on "FRONTIERS IN CHEMISTRY" held at Saiva Bhanu Kshatriya (SBK) College, Aruppukottai on 14th and 15th March 2013.
7. **P. Muthirulan,** N. Kannan and M. Meenakshi Sundaram, Comparative studies on the mineralization of alizarin cyanine green dye on CAC-TiO_2/UV and CAC-ZnO/UV systems in aqueous solution, **National Seminar on Frontiers in Chemistry (NSFC – 2012)**, Department of Chemistry, University of Kerala, Trivandrum, 25-27, April, 2012.
8. **P. Muthirulan,** N. Kannan and M. Meenakshisundaram, Poly(*o*-phenylenediamine) nanofibers: A facile and green synthetic route for the removal of lead ions from wastewater, **National Seminar on New Vistal in Catalysis and Surface Science (NVCSS-2012)**, Department of Chemistry, Annamalai University, Annamalai Nagar, March 16-17, 2012.
9. **P. Muthirulan,** N. Kannan and M. Meenakshisundaram, Modification of electrode with nanostructures conducting poly(3,4-ethelenedioxythiophene) polymer film for proton

exchange membrane fuel cells applications, **International Conference on Nanoscience and Technology (ICONSAT-2012)**, International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad, January 20-23,2012.

10. **P. Muthirulan,** N. Kannan and M. Meenakshisundaram, In-situ electrochemical fabrication of porous organic-inorganic hybrid nanocomposites on stainless steel for proton exchange membrane fuel cell application, **56th DAE Solid State Physics Symposium (DAE 2011)**, Solid state Physics Division, Bhabha Atomic Research Center, Mumbai, December 19-23, 2011.
11. **P. Muthirulan,** N. Kannan and M. Meenakshisundaram, Nanofibrous conducting polyaniline: Electrosynthesis, characterization and its application towards bipolar plate proton exchange membrane fuel cells, **2nd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2011)**, Department of Physics and Centre for Nanotechnology, Indian Institute of Technology, Guwahati, December 8-10, 2011
12. **P. Muthirulan,** N. Kannan and M. Meenakshisundaram, Electro polymerization of nanostructured conducting poly(ethylenedioxy thiophene) film on steel: A novel material for proton exchange membrane fuel cell, **National seminar on Role of Chemists in Advanced Chemistry** (RCAC-2011), ANJA College, Sivakasi, India, 25&26th July, 2011.
13. **P. Muthirulan**, N. Kannan and M. Meenakshisundaram, Recent progress of electrochemically synthesized polyaniline and its derivative for smart corrosion resistant coatings, **National seminar on Role of Chemists in Advanced Chemistry** (RCAC-2011), ANJA College, Sivakasi, India, 25&26th July, 2011.
14. **P. Muthirulan** and N. Kannan, Electrogenerated conducting polymer poly(luminol)/ZnO hybrid nanocomposite film for smart anticorrosive coatings applications, **National Conference on Nanostructured Materials and Nanocomposites (NCNM-2010)**, NSS College, Ottapalam, **Kerala**, March 23&24, 2011.
15. **P. Muthirulan**, S. Balachandran, S. Nanjundan and N. Rajendran, Synthesis, characterization and corrosion protection properties of poly(aniline-co-anthranilic acid) coatings on mild steel, International Conference & Expo on Corrosion **(World CORCON-2010)**, NACE, **Goa,** India, 23-26, September, 2010.
16. N. Rajendran, **P. Muthirulan,** Conducting polymer- silica nanoparticles based hybrid nanocomposites: A facile and green synthetic approach for active anti corrosive coatings, **8th Spring Meeting of the International Society of Electrochemistry Advances in Corrosion Science for Lifetime Prediction and Sustainability**, Columbus, Ohio, **USA**, 2-5, May 2010.
17. N. Rajendran, **P. Muthirulan,** Development of conducting polymer-Al_2O_3 hybrid nanocomposites for corrosion protection of mild steel, **Materials Science and Technology (MS&T 2010) Conference and Expo-Advanced Coatings and Surface Treatments for Corrosion Protection**, Houston, **USA,** 17-21 October, 2010.
18. **P. Muthirulan** and N. Rajendran, Effect of acid treatment and electrochemical behavior of Cp-Ti in simulated body fluid solution for orthopedic applications, International conference on Biomaterials, Artificial Organs & Tissue Engineering (**ICBAT 2010**), SCMS Campus, Cochin, **Kerala**, 28th to February – 1st March, 2010.
19. **P. Muthirulan** and N. Rajendran, In situ template synthesis of PoPD-TiO_2 nano composites for active anti-corrosive coatings on 316L SS, **International Conference on Nanoscience**

and Nanotechnology (**ICONSAT-2010**), Indian Institute of Technology Bombay, **Mumbai**, 17-20, February, 2010.

20. **P. Muthirulan,** N. Elangovan and N. Rajendran, Shape controlled synthesis and characterization of conducting polymer poly(orthophenylenediamine) nanofibers for smart corrosion resistant coatings, **National conference on corrosion assessment and its control** (**NCAC-2009**), TCE-CECRI, **Madurai**, India, 21&22 December, 2009.
21. **P. Muthirulan**, A. Madhan Kumar and N. Rajendran, Electro polymerization and corrosion properties of poly (ortho-phenylenediamine) coatings on mild steel, **International Conference & Expo on Corrosion (World CORCON-2009)**, NACE, **Mumbai**, India, 29th September to 1st October, 2009.
22. **P. Muthirulan**, Workshop on Experimental techniques for corrosion research, IIT Bombay, **Mumbai**, India, 28th September, 2009.
23. **P. Muthirulan** and N. Rajendran, Effect of acid treatment and electrochemical behavior of Ti–6Al–7Nb alloy in simulated body fluid, National symposium on Electrochemical science and technology **(NSEST)**, Indian Institute of Science, **Bangalore**, 17&18 July, 2009.
24. **P. Muthirulan**, A Short Course on Advanced Techniques for Materials Characterization: Microscopy and Diffraction (**ATMC-07**), MRSI, **CGCRI, Kolkata**, India, 29th October to 2nd November, 2007.
25. **P. Muthirulan** and N. Kannan, Photocatalyticdegradation of alizarin cyanine dye in aqueous solution by UV- radiation, **The 4th Indian environment Congress-2006**, AMRITA Vishwa Vidyapeetham Deemed University, **Kerala**, 28&29, April, 2006.
26. **P. Muthirulan** and N. Kannan, Photocatalytic degradation of alizarin cayanine green dye by semiconductors, **CRSI Seminar on recent Advances in Chemistry**, Annamalai University, **Chidambaram**, 10 & 11thMarch, 2006.
27. **P. Muthirulan** and N. Kannan, Removal color due to alizarin cyanine green dye by photodegradation process catalyzed by semiconductors in presence of CAC, **SESOM-2006**, ANJA College, **Sivakasi**, 27 & 28th February, 2006.
28. **P. Muthirulan** and N. Kannan, Adsorption dynamics of the removal of dyes by CAC, **International Conference of Life through Chemistry**, PR College, **Thanjavur**, 25 to 26th February, 2006.
29. **P. Muthirulan** and N. Kannan, Studies on the removal of dyes using orange peel and CAC by adsorption, **National Seminar on Current Biotechnology Research**, ANJA College, **Sivakasi**, 19-21th, January, 2006.

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Annexure - 2

List of Publications in International / National Conference Proceedings

1. **P. Muthirulan,** C. Nirmala Devi and M. Meenakshi Sundaram, Fabrication and Studies of Titania-Decorated Graphene Nanocomposites and their Highly Efficient Photocatalytic Activities under Solar-Light Irradiation **– *Proceedings on National Conference on Recent Advances in Surface Science*** – 2012.
2. **P. Muthirulan**, N. Kannan and M. Meenakshi Sundaram, Conducting Poly(3,4-Ethylenedioxythiophene) Film on Mild Steel in Ionic Liquid for Smart Corrosion Resistant Coatings, ***Proceedings on Fifth ISEAC Triennial International Conference on Advances and Recent Trends in Electrochemistry,*** 2012.
3. **P. Muthirulan,** A. Madhan Kumar and N. Rajendran Electrochemical polymerization and corrosion properties of poly(*o*-phenylenediamine) coatings on mild steel**, *Proceedings on International Conference & Expo on Corrosion- NACE-World CORCON***, 2009.
4. **P. Muthirulan**, S. Balachandran, S. Nanjundan and N. Rajendran, Synthesis, characterization and corrosion protection properties of poly(aniline-co-anthranilic acid) coatings on mild steel, ***Proceedings on International Conference & Expo on Corrosion-NACE-World CORCON***, 2010.
5. **P. Muthirulan** and N. Kannan, Photocatalytic degradation of alizarin cyanine dye in aqueous solution by UV- radiation, **Proceeding on the 4th Indian Environment Congress, 2006**.

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Annexure – 3

Publications in International / National Repute Journals

1. S. Sivakumar, **P. Muthirulan**, M. Meenakshi Sundaram, Adsorption kinetic and isotherm studies of Azure A on various activated carbons derived from agricultural wastes, ***Arabian Journal of Chemistry***, In Press (2014). ***(Impact Factor: 2.684)***
2. **P. Muthirulan**, C. Nirmala Devi and M. Meenakshi Sundaram, A green approach to the fabrication of titania-graphene nanocomposites: Insights relevant to efficient photodegradation of Acid Orange 7 dye under solar irradiation, ***Materials Science in Semiconductor Processing*** 25 (2014) 219-230. ***(Impact Factor:1.761)***
3. **P. Muthirulan**, C. Nirmala Devi and M. Meenakshi Sundaram, Synchronous role of coupled adsorption and photocatalytic degradation on CAC-TiO_2 composite generating excellent mineralization of alizarin cyanine green dye in aqueous solution, ***Arabian Journal of Chemistry***, In Press (2014). ***(Impact Factor: 2.684)***
4. K. Shahul Hameed, **P. Muthirulan** and M. Meenakshi Sundaram, Adsorption of chromotrope dye onto activated carbons obtained from the seeds of various plants:

Equilibrium and kinetics studies, ***Arabian Journal of Chemistry,*** In Press (2014). ***(Impact Factor: 2.684)***.

5. **P. Muthirulan** and M. Meenakshi Sundaram**,** Fabrication and characterization of efficient hybrid photocatalysts based on titania and graphene for acid orange 7 dye degradation under UV irradiation, ***Advanced Materials Letters,*** 5 (2014) 163-171. ***(Impact Factor: 2.00)***
6. **P. Muthirulan,** C. Nirmala Devi and M. Meenakshi Sundaram, TiO_2 wrapped Graphene as a high performance photocatalyst for acid orange 7 dye degradation under solar/UV light irradiations, ***Ceramic International*****,** 40 (2014) 5945-5957. ***(Impact Factor:2.086)***
7. R. Ram Prasath, **P. Muthirulan** and N. Kannan, Agricultural wastes as low cost adsorbents for the removal of Acid Blue 92 dye: A Comparative study with Commercial activated carbon. Journal of Agriculture and Veterinary Science 7(2014) 19-32.
8. M. Meenakshi Sundaram, M. Sangareswari, **P.Muthirulan**, Enhanced Photocatalytic Activity of Polypyrrole/TiO2 Nanocomposites for Acid Violet Dye Degradation under UV Irradiation, International Journal of Innovative Research in Science & Engineering, 1 (2014) 1-4.
9. **P. Muthirulan**, C. Nirmala Devi and M. Meenakshi Sundaram, Facile synthesis of novel hierarchical TiO_2@Poly(*o*-phenylenediamine) core-shell structures with enhanced photocatalytic performance under solar light, ***Journal of Environmental and Chemical Engineering*** 1 (2013) 620-627.
10. **P. Muthirulan**, N. Kannan and M. Meenakshi Sundaram, Beneficial role of ZnO photocatalyst supported with porous activated carbon for the mineralization of alizarin cyanin green dye in aqueous solution, ***Journal of Advanced Research,*** 4 (2013) 479-484. ***(Impact Factor: 1.209)***
11. **P. Muthirulan**, N. Kannan and M. Meenakshi Sundaram, Synthesis, structural, physico-chemical and corrosion protection properties of poly(*o*-phenylenediamine) nanofibers, ***Journal of Advanced Research,*** 4 (2013) 385-392. ***(Impact Factor: 1.209)***
12. **P. Muthirulan,** G. Naganathan, M. Meenakshi Sundaram and N. Kannan, Beneficial role of commercial activated carbon for the decoloration of Safranine dye on TiO_2 and ZnO/UV system for the application of effluents treatment from wastewater, ***Indian Journal of Environmental Protection***, 32 (2012) 546-553.
13. **P. Muthirulan**, G. Naganathan, M. Meenakshi Sundaram and N. Kannan, Synergistically enhanced photodecoloration of amino black 10B dye by hybrid catalyst TiO_2/CAC and ZnO/CAC under UV radiation, ***Indian Journal of Environmental Protection***, 32 (2012) 186-193.
14. **P. Muthirulan,** R. Ravichandran, M. Meenakshi Sundararam and N. Kannan, Synthesis and characterization of new cationic exchanger blended with low cost sulphonated *Zea Mysea* carbon for the removal of toxic metal ions, ***Indian Journal of Environmental Protection***, 32 (2012) 186-193.
15. A. Karuppasamy, **P. Muthirulan** and M. Meenakshi Sundaram, Adsorption kinetics and dynamics of Brilliant Green dye on various low cost adsorbents – A comparative study, ***Journal of Chemical and Pharmaceutical Research***, 4 (2012) 5101-5110.
16. **P. Muthirulan**, N. Kannan and M. Meenakshi Sundaram, In-situ electrochemical fabrication of porous organic-inorganic hybrid nanocomposites on stainless steel for proton exchange

membrane fuel cell application, ***American Institute of Physics (AIP) Conference Proceedings,*** 1447 **(**2012) 407-408. (Cited by Scopus)

17. **P. Muthirulan** and N. Rajendran, Poly(*o*-phenylenediamine) coatings on mild steel: Electrosynthesis, characterization and its corrosion protection ability in acid medium, ***Surface and Coating Technology***, 206 (2012) 2072-2076. ***(Impact Factor:2.453)***
18. **P. Muthirulan** and R. Velmurugan**,** Direct electrochemistry and electrocatalysis of reduced glutathione on CNFs-PDDA/PB nanocomposite film modified ITO electrode for biosensors, ***Colloids and Surfaces B: Biointerfaces,*** 83 (2011) 347-354. ***(Impact Factor: 4.287)***
19. **P. Muthirulan** and N. Rajendran, In-situ template synthesis of PoPD-TiO_2 nano composites for active anti-corrosive coatings on 316L SS, ***International Journal of Nanoscience,*** 41 (2011) 1-6.
20. N. Rajendran and **P. Muthirulan**, Development of conducting polymer-Al_2O_3 hybrid nanocomposites for corrosion protection of mild steel, ***AIST Steel Properties and Applications Conference Proceedings–Materials Science and Technology*****,** (2010) 307-317.

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Annexure – 4

List of Chapters in Books

1. **P. Muthirulan,** (2015). *Nuclear Chemistry*, Ed. Suresh Ranganathan, 'Selected Topics in Chemistry'
   [ISBN- 978-1-329-12875-0], Published by, Laxmi Book Publication, 258/34, Raviwar Peth, Solapur, Maharashtra, India, pp 54-80.

2. **P. Muthirulan,** (2015). *Thermal Pollution*, Ed. Sundara Vadivel, 'Pollution', Published by, Laxmi Book Publication, 258/34, Raviwar Peth, Solapur, Maharashtra, India. [Accepted]

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Annexure – 5

Resource Person

- ✓ Acted as a **Judge** in the **District Level Science Exhibition**, Thuckalay Educational District held at St. Marry's Higher Secondary School, Colachel.

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Annexure – 6

Reviewer

Reviewer of research articles for International Reputed Journals including

- ✓ ***Applied Surface Science***
- ✓ ***Materials Science in Semiconductor Processing***
- ✓ ***Ceramic International***
- ✓ ***Chemical Engineering Communications***
- ✓ ***Desalination***
- ✓ ***Electrochemica Acta***
- ✓ ***Bioelectrochemistry***

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Annexure – 7

Awards

- ❖ Received **ELSEVIER REVIEWER** Recognition Award, July 2014 from the Editors of Applied Surface Science
- ❖ Received **YOUNG RESEARCHER** Award in the International Conference On Nano Science And Technology-2012 (ICONSAT – 2012), Hyderabad, India
- ❖ **Senior Research Fellow – Council of Scientific and Industrial Research (CSIR)**
- ❖ **Project Associate – University Grants Commission (UGC)**

Best Conference Presentation Award

1. Electro polymerization of nanostructured conducting poly(ethylenedioxy thiophene) film on steel: A novel material for proton exchange membrane fuel cell, **National Seminar on Role of Chemists in Advanced Chemistry** (RCAC-2011), Ayya Nadar Janaki Ammal College, Sivakaksi, India, July, 2011.
2. Synthesis, characterization and corrosion protection properties of poly(aniline-co-anthranilic acid) coatings on mild steel, **International Conference & Expo on Corrosion (World CORCON-2010)**, NACE, **Goa**, India, 23-26, September 2010.
3. Electro polymerization and corrosion properties of poly (ortho-phenylenediamine) coatings on mild steel, **International Conference & Expo on Corrosion (World CORCON-2009), NACE, Mumbai,** India, October 2009.
4. Photocatalytic degradation of alizarin cyanine dye in aqueous solution by UV- radiation. **The 4th Indian Environment Congress -2006**, **Amrita University, Kerala**, India, April 2006.

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