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RESEARCH INTERESTS

Preparation and characterization of thin film and nanocomposite membranes for

- ✓ **MF, UF, NF, RO, VMD and FO membranes to enhance the performance**
- ✓ **Preparation nanocomposite hollow fiber membranes and characterization**
- ✓ **Membrane autopsy study, identifying the cause of foulant and predicting suitable cleaning agent, antiscalants**

EDUCATIONAL QUALIFICATIONS:

2006-2009 Doctor of Philosophy, Department of chemical engineering, AC
College of Technology, Anna University, Chennai-600 025, India

2004-2006 Master of Philosophy in Chemistry with I Class in St. Joseph's
College, Bharathidasan University, Tiruchirappalli, Tamilnadu, India

2002-2004 Master of Science in Chemistry with I Class at Loyola College,
University of Madras, Chennai. India

RESEARCH EXPERIENCE

1. **Project (M.Sc.)** : Two dimensional surface properties of thin films of triblock copolymer (PEG-PPG-PEG) in absence and presence of tripeptide and SDS, under the guidance of **Dr. A. B. Mandal**, Director, Central Leather Research Institute, Adyar, Chennai-20, India
2. **Worked as a Project Assistant**: Characterization of Sulfonated Poly(ether ether ketone) membranes using $^1\text{H-NMR}$ to determine the degree of sulfonation, surface and cross section morphology by using Scanning Electron microscopy (SEM) for eight months in Chemical Laboratory, Central Leather Research Institute, Adyar, Chennai-20, India.
3. **Project (M.Phil)**: Synthesis and Characterization of mixed ligand Ruthenium (II) Complexes and interaction of DNA under the guidance of **Dr. Balchandran Unni Nair**, Director Grade Scientist, Deputy Director, Central Leather Research Institute, Adyar, Chennai-20.

4. **Ph.D. Thesis: “STUDIES ON CELLULOSE ACETATE, POLY(PHENYLSULFONE) AND SULFONATED POLY(PHENYLSULFONE) BLEND ULTRAFILTRATION MEMBRANES”**

under the guidance of **Dr. D. Mohan**, Professor of Chemistry, Department of Chemical Engineering, C College of Technology, Anna University Chennai, Chennai-600 025.

5. I was worked as a “**Research Associate**” in downstream processing Lab, Indian Institute of Delhi, New Delhi, India, Under the guidance of **Dr. Gopal P Agarwal** from March 2009 to December 2010. The project title is “**Ultrafiltration Membrane for Arsenic, Chromium and Nitrate Rejection and Remediation of Arsenic using Sulphate Reducing Bacterial (SRB) Consortia**” Sponsored by **Department of Drinking Water Supply (DDWS), Government of India.**

AWARDS: “Senior Research Fellow (SRF)” from “**Council of Scientific and Industrial Research (CSIR)**”, **Government of India.**

6. **Currently working as assistant professor, King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia**

INSTRUMENTS HANDLED

Cyclic Voltammetry, Perkin Elmer Lambda 35 UV -Visible spectrophotometer, Hitachi 650-40 Fluorescence Spectrophotometer, Synchro-Electric Viscometer, Batch type ultrafiltration kit, Flat and frame membrane module (UF), Nanofiltration(NF) and reverse Osmosis(RO), Atomic absorption spectroscopy, ATR FT-IR, NMR, METTLER Thermo Gravimetric Analysis(TGA), PERKIN ELMER Differential Scanning Calorimetry(DSC), Gas Chromatography(GC), High Performance Liquid Chromatography(HPLC), Electronic *Universal* Tensile Testing Machine, Atomic Force Microscopy(AFM), Electro kinetic analyzer, Porometer, ANTON PARR Rheometer, GE total organic carbon analyzer, ATTENSION Contact Angle meter, Hollow fiber spinning machine, Porometer, Scanning electron microscope(SEM), OSMO Inspector and Vacuum membrane Distillation pilot plant.

LIST OF PUBLICATIONS

1. Separation of proteins and antifouling properties of polyphenylsulfone based mixed matrix hollow fiber membranes, **Lawrence Arockiasamy Dass**, Mansour Alhoshan , Javed Alam, Muthumareeswaran MR, Alberto Figoli, Arun Kumar Shukla, Separation and Purification Technology 174 (2017) 529–543
2. 1. κ -Carrageenan as a promising pore-former for the preparation of a highly porous polyphenylsulfone membrane, Javed Alam, Mansour Alhoshan, Arun Kumar Shukla, Ali Aldalbahi, Fekri Abdulraqeb Ahmed Ali, **Lawrence Arockiasamy Dass**, M.R. Muthumareeswaran, Materials Letters, 204, 2017
3. Development of a nanocomposite ultrafiltration membrane based on polyphenylsulfone blended with graphene oxide, Arun Kumar Shukla ,Javed Alam, Mansour Alhoshan , **Lawrence Arockiasamy Dass**, Muthumareeswaran MR, Scientific Report –Nature, 2017
4. Atomic layer deposition of TiO₂ film on a polyethersulfone membrane: separation applications, Javed Alam, Mansour Alhoshan, **Lawrence Arockiasamy Dass**, Arun Kumar Shukla, M. R. Muthumareeswaran, Mukhtar Hussain, Abdullah S. Aldwayyan, Journal of Polymer Research, 23:183, 2016
5. Polysulfone–poly (Orthotoluidine) nanocomposite membrane with an improved separation performance, Mansour Alhoshan, Javed Alam, Aslam Khan, Fahad Surur Al Shabouna, Senthivel Sasivarnam, **Lawrence Arockiasamy Dass** and Arun Kumar Shukla, Polymer Composites, DOI 10.1002/pc.24000, 2016

6. 3. Effects of Piper cubeba L. essential oil on methicillin-resistant Staphylococcus aureus : an AFM and TEM study: Staphylococcus Aureus : an AFM and TEM Study, Naiyf S. Alharbi, Jamal M. Khaled, Khalid E. Alzaharni, Ramzi A. Mothana, Mansour S. Alsaid, Mansour Alhoshan, **Lawrence Arockiasamy Dass**, Shine Kadaikunnan, Ahmed S. Alobaidi, Journal of molecular recognition. Volume 30, Issue 1 January 2017
7. MWCNTs-Reinforced Epoxidized Linseed Oil Plasticized Polylactic Acid Nanocomposite and Its Electroactive Shape Memory Behaviour Javed Alam, A Manawwer, R Mohan, A Zainularifeen, **D. Lawrence Arockiasamy** International Journal of Molecular Sciences 15 (11), 19924-19937
8. A facile synthesis of malic acid capped ZnSe transparent nanopellets and its optical properties, S. Sasi Florence a,n , M. Umadevi b,nn, Rita John c , **D. Lawrence Arockiasamy** , Materials Letters 144 (2015) 110–113
9. Tailoring of Morphology and Optical Properties of Bishydrazone-Capped ZnSe Nanorods S. Sasi Florence, A,E M. Umadevi, **D. Lawrence Arockiasamy**, and Rita John, Aust. J. Chem. 2015, 68, 1508–1512
10. Javed Alam, Manawwer Alam, **Lawrence Arockiasamy Dass**, A. M. Shanmugharaj, Mohan Raja, Development of Plasticized PLA/NH₂-CNTs Nanocomposite: Potential of NH₂-CNTs to Improve Electroactive Shape Memory Properties, Polymer Composites, 2014, Wiley 35(11) 2129-2136
11. S. Sasi Florence, M. Umadevi, Rita John, **D. Lawrence Arockiasamy**, Synthesis of gallic acid capped ZnSe transparent nanorods, Materials Letters, Volume 115, 15 January 2014, Pages 34-37
12. **D. Lawrence Arockiasamy**, Javed Alam, Mansour Alhoshan, Carbon nanotubes-blended poly(phenylene sulfone) membranes for ultrafiltration applications, Appl Water Sci (2013) 3:93–103
13. Mansour Alhoshan, Javed Alam, **Lawrence Arockiasamy Dass**, Nasser Al-Homaidi, Fabrication of Polysulfone/ZnO Membrane: Influence of ZnO Nanoparticles on Membrane Characteristics, Advances in polymer technology, Volume 32, Issue 4, 2013
14. S. Sasi Florence, M. Umadevi, Rita John, B. Sindhu Kumari, **D. Lawrence Arockiasamy**, Structural, morphological and optical properties of chelating ligand passivated ZnSe nanorods, Materials Letters, Volume 108, 1 October 2013, Pages 5-8.
15. Javed Alam, **Lawrence Arockiasamy Dass**, Mostafa Ghasemi, Mansour Alhoshan, Synthesis and optimization of PES-Fe₃O₄ mixed matrix nanocomposite membrane: Application studies in water purification, Polymer composites, DOI 10.1002/pc.22593.
16. S. Sasi Florence, Rita John, **D. Lawrence Arockiasamy**, M. Umadevi, Structural, morphological and optical properties of CTAB capped ZnSe nanoflakes, Materials Letters, Volume 86, 1 November 2012, Pages 129-131.

17. Javed Alam*, **Lawrence Arockiasamy Dass**, Mansour Saleh Alhoshan, Mostafa Ghasemi, Abdul Wahab Mohammad, Development of polyaniline-modified polysulfone nanocomposite membrane, *Appl Water Sci*, Volume 2, Issue 1, pp.37-46.(2011)
18. Mohamad Saleh AlSalhi, Javed Alam, **Lawrence Arockiasamy Dass** , Mohan Raja, Recent Advances in Conjugated Polymers for Light Emitting Devices, *Int. J. Mol. Sci.* **2011**, 12(3), 2036-2054.
19. Javed alam*, **Lawrence arockiasamy dass**, Mansour saleh alhoshan, Abdul wahab Mohammad, Advances in Membrane Based on Electrically Conducting, Polymers, *Advances in Polymer Technology*, Vol. 32, No. S1, E189-E197 (2012)
20. **Lawrence Arockiasamy D.**, Nagendran A. and Mohan D. (2008), ‘Studies on cellulose acetate/aminated poly (ether imide) blend ultrafiltration membranes’, *Int. J. Polym. Mater.*, Vol. 57, pp.1–22.
21. **Lawrence Arockiasamy D.**, Nagendran A., Shobana K.H. and Mohan D. (2008), ‘Preparation and characterization of cellulose acetate/aminated polysulfone blend ultrafiltration membranes and their application studies’, *Sep. Sci. Technol.*, Vol. 44, pp.1–24.
22. Nagendran A., **Lawrence Arockiasamy D.** and Mohan D. (2008), ‘Effect of poly (ethylene glycol) on Separations by Cellulose acetate/Poly (ether imide) Blend Membranes’, *Int. J. Polym. Mater.*, Vol. 57, pp. 138-153.
23. Nagendran A., **Lawrence Arockiasamy D.** and Mohan D. (2008), ‘Cellulose acetate and polyetherimide blend ultrafiltration membranes, i: preparation, characterization, and application’, *Mate. and Manufac. Proc.*, Vol. 23, pp. 311-319.
24. Vijayalakshmi A., **Lawrence Arockiasamy D.**, Nagendran A. and Mohan D. (2008), ‘Separation of proteins and toxic heavy metal ions from aqueous solution by CA/PC blend ultrafiltration membranes’, *Sep. Purif. Technol.*, Vol. 62, pp. 32-38.
25. Nagendran A., Vijayalakshmi A., **Lawrence Arockiasamy D.**, Shobana K.H. and Mohan D. (2008), ‘Toxic metal Ion separation by cellulose acetate/sulfonated poly (ether imide) blend membranes. effect of polymer composition and additive’, *J. Hazard.Mater.*,Vol.155, pp. 477-485.
26. **Lawrence D.**, Vaidyanathan V. G. and Nair B. U, “Synthesis and characterization mixed ligand Ru (II) complexes and their interaction with DNA”, *J. Inorg. Biochem.*, 100 (2006) 1244-1251.
27. Aravind, Nishad Fatima, **Lawrence D.** and Nair B. U., SPEEK polymeric membranes for fuel cell application and their characterization: A review, *Journal of scientific and industrial research*, 66 (2007) 209-219.
28. **Lawrence Arockiasamy D.**, Radhika S., Parthasarathy R., Balachandran Unni Nair, “**Ruthenium** (II) mixed-ligand **complex** containing 11H, 13H-4, 5,9,10,12,14-Hexaaza-benzo [b] triphenylene: Synthesis, **DNA**-binding and photocleavage studies”, *Euro. J. Med. Chem.* 44 (2009) 2044–2051.

List of conferences and training

1. D. Lawrence Arockiasamy, A. Nagendran, and D. Mohan (2008) Studies on cellulose acetate/aminated poly(etherimide) blend ultrafiltration membranes, International conference on Materials Science Research & Nanotechnology (ICMSRN – 2008), 27-29 February 2008, Mother Theresa Women's University, Kodaikanal, Tamilnadu, India.
2. D. Lawrence Arockiasamy, A. Nagendran, and D. Mohan (2008) Preparation and characterization of cellulose acetate/aminated poly(etherimide) blend ultrafiltration membranes, Emerging Trends in Separation Science and Technology, University of Delhi, Delhi, India.
3. D. Lawrence Arockiasamy, D. Mohan(2009), MACRO 2009 – Recent Advances in Polymeric Materials, March 9-11, 2009, IC&SR Auditorium and CLT, IIT Madras, Chennai
4. PPSU/CNT membranes, 6th IWA Specialist Conference on Membrane Technology for Water and Waste water treatment, 4-7 October 2011, Eurogress, Aachen, Germany.
5. **One month training on hollow fiber membrane preparation and characterization, ITM-CNR, University Della Calabria, Italy in Prof. Enrico Drioli Research Lab, July 2011 under the supervision of Dr. Alberta Figoli.**
6. Invited talk on “mixed matrix membranes” Second international conference on nonmaterials synthesis and characterization” January 12 -15, 2012, Kottayam, Kerela, India.
7. Oral presentation on “ **PPSU/TiO₂ blend membranes**” in 1st international conference on Desalination using membrane technology, Sitges, Spain, 7-10 April 2013.

Book Chapter

- ❖ Bioremediation of water: A sustainable approach, Sustainable development in chemical engineering, Wiley publications, 2013
- ❖ Photocatalytic activity and synthesis procedures of TiO₂ nanoparticles for potential applications in membranes, "Application of nanotechnology in membranes for water treatment" CRC, Taylor and Francis Group, 2017

Ongoing Research project

P-Investigator

- Mixed Matrix Dual-Layer Nanocomposite Hollow-Fiber Membranes for Desalination, NPST-KACST (1.86 Million Saudi Riyals)

- Membrane autopsy for Damam region brackish water membranes

Personal Details:

Date of Birth : 03-05-1981

Nationality : Indian