

Curriculum Vitae

Name : **Usha Kulangara Aravind (Dr.)**

Sex : Female

Nationality : Indian

Marital status : Married with one child.

Present Position & Address: Professor, School of Environmental Studies, Cochin University
P.O., Kochi-682022, Kerala, India Fax: 0484-2577595 Ph: 0484-2577311

Previous - Research Scientist, At the Advanced Centre of Environmental Studies and
Sustainable Development (ACCESSD), M.G. University

Address: (Residence) : Kiranam, Arpookara East P.O., Kottayam-686008, Ph:0481- 2594458
9447779269

Academic

- Bachelor of Science (B.Sc) University of Calicut 1987 (August)
- Master of Science (M.Sc.)[&] University of Pune 1990 (July) (I class)
Physical Chemistry
- Doctor of Philosophy (Ph.D) Cochin University of Science and Technology, 1996 (Dec.)
(Analytical Chemistry)

Post-Doctoral Research

1. School of Biosciences, **Mahatma Gandhi University, India**, 1996-'97 (1 year) Topic:
Isolation and purification of a plant protein (lectin) and their structural studies (Research
Associate Fellowship from the central Scientific and Industrial Research (CSIR), 1996, Govt.
of India)

2. Laboratory for Macromolecular and Structural Chemistry, **Katholieke Universiteit Leuven, Belgium**, 1997-'98 in *Structural studies of polymer surfactants using X-ray scattering and optical microscopic techniques* (Procter and Gamble R&D project Fellowship)
- 3) Laboratory of coating technology, **Technical University of Eindhoven, The Netherlands**
- 4) Aug.2000-July 2002 (2 years) in *Film formation and drying of alkyd emulsion Paints (ppm-stw)* Studies are mainly focused on the use of *Confocal Raman spectroscopy* for Depth profiling and also the use of *ATR –FTIR* to study the back side of films (Under TUE post-doctoral fellowship—combined project of DSM, Sigma coatings and Akzo Nobel, Netherlands.). For the development of Eco-friendly paints
- 5) **At the School of Environmental Sciences, M.G.University** (2003 June-2005 February) on self assembled polyelectrolyte (nano) membranes, as **CSIR-Pool Officer**.
- 6) **At the School of Chemical Sciences, M.G. University, Kottayam**, (2005 March- 2008 February), on Development of multilayer (nano) membranes for protein purification and Environmental Applications, as **Principal Investigator, DST Women Scientist Project**
- 7) **At the School of Chemical Sciences, M.G.University** (2009 sept.-2010 April) Immobilization of proteins to self assembled (nano)films and their related applications as sensor (**DST Women Scientist Project**)

Area of research: Green technology: Development of Nanomembranes for environmental applications

Research Projects Awarded

Sl.N	Title of the project	Duty	Amount /in Lakhs	Funding Agency	Duratio
1.	Development of multilayer (nano) membranes for protein purification	Principal Investigator	17.5	Department of Science and Technology(DST), New Delhi	2004-2008
2.	Immobilization of proteins to self- assembled (nano) films and their related applications as sensor.	Principal Investigator	13.0	DST, New Delhi	2009-2012
3.	Chemical transformation and bioaccumulation of mercury in Vembanad wetland and Cochin Near Shore Areas	Co-Investigator	65.0	Department of Ocean Development, New Delhi	2008-2011
4.	Clean Energy: An Alternate Route To DMFC Through Chitosan Based Nanomembranes (With Duke University, USA)	Principal Investigator-I	125.0	University Grants Commission (UGC) Under Obama-Singh 21 st Century Knowledge Initiative	2012-2015

5.	Polyelectrolyte multilayer membranes for the treatment of paper and pulp industry waste water	Principal Investigator	26.0	Kerala State Council for Science, Technology Environment, Trivandrum	2014
6.	Nanoskinned coir matrix for the removal of biological contaminants from water	Principal Investigator	32.0	DST, New Delhi	2017-
7.	Detection and identification of pharmaceutical waste in Vembanad lake	Co-Investigator	25.0	Kerala State Council for Science, Technology Environment, Trivandrum	2018-2021
8.	Indo-Denmark Network Programme “Nanofibre structures for efficient enzyme immobilization in membrane applications”	Collaborator	Partnership programme	Danish Research Council	2016-2017
9.	Layer by layer (LbL) assisted antimicrobial membranes for water purification <i>(With Bengurion University of the Negev, Israel)</i>	Principal Investigator	44.59	SPARC (MHRD) New Delhi	2019-
10.	Towards sustainable surface water ecosystems in India: Predicting the fate, transport and effects of urban wastewater pollutants in rivers. <i>(With University</i>	Co-Investigator	48.49	SPARC (MHRD) New Delhi	2019-

	<i>Leicester, UK)</i>				
11	"Establishment of centre for sensor Devices"	Co- Investigator	248.0	(Government of Kerala under PLEASE(Performance Linked Encouragement for Academic Studies and Endeavours)	2021
12	"Portable Device for the preliminary analysis preeclampsia (consortium project)	Co- Investigator	24.4	DST NEW DELHI	2021

Teaching Experience

16+ years of teaching experience in the field of analytical chemistry, Environmental Chemistry, Water-Air-Soil Chemistry, membrane chemistry and technology, bio-energy,

Masters Guidance:

M.Sc. : 15 Masters Thesis guided

M.Tech.: 8 MTech projects guided

M.Phil Guidance

5 M.Phil degrees were awarded

Ph.D Guidance

8 Ph.D. awarded as guide;

5 Ph.D awarded as Co-guide

8 Ph.D students are currently working

Reviewer of >10 Major International Journals

J. Membr.Sci., Chemosphere, J. Haz Materials, Colloids & Surfaces A., J. Biomaterial Science, Langmuir, Biosensor Bioelectronics, J.Phys.Chemistry (A,B,C), ACS AppliedMaterial Interface etc

Current Research Interests

Water and waste water treatment , Membranes for water purification, low pressure filtrations, LbL assembled membranes in water treatment, water pollution, screening of emerging contaminnts in aquatic systems, protein adhesive surfaces, protein based sensors, structural variation of proteins in response to environmental triggers, dynamics of emerging contaminnts at indoor air, and

Advanced Oxidation Processes (for the degradation of organic pollutants)

International Conference organized (as Convener/organizing committee member)

1. **Convener:** International conference on Climate Change and Developing Countries, Feb.19-22, 2010
2. **Convener:** International Conference on Advanced Oxidation Processes, Sept.18-21, 2010, Kottayam
3. **Convener:** International Conference on Membranes: Environmental and Biological Applications, Sept.16-19, 2011, Kottayam;
4. **Convener,** Second International Conference on Membranes (ICM - 2013) Oct.3-6, 2013, Kottayam, Kerala
5. **Organising Committee member,** International conference on Frontiers of Mass spectrometry (ICMS 2013) Sep. 6-9, 2013, Kottayam, Kerala
6. **Organising Committee member,** Third International Conference on Advanced Oxidation Processes (AOP 2014) Sep 2014, Munnar, Kerala
7. **Convener:** International conference on water: From pollution to purification, 23 - 26 January 2015, Kottayam, Kerala
8. **Convener,** Third International Conference on Membranes (ICM2015), Aug.21-23, 2015 (www.ceetindia.org/icm2015)
9. **Convener,** Forth International Conference on Membranes (ICM2017), Sept.30- Oct.3, 2017, Alappuzha
10. **Coordinator:** International Conference on Water: From Pollution to Purification, Dec.7-10, 2018, Kottayam
11. **Coordinator:** International Conference on Separation Science and Technology (ICST), December 13-16, 2019, Kottayam
12. **Coordinator:** 4th International Conference on Frontiers of Mass Spectrometry (ICMS), December 04-07, 2019, Kottayam
13. **Coordinator:** International Conference on Separation Science and Technology (ICST), December 13-16, 2019, Kottayam
14. **Convener:** Indo-Israel workshop on Membranes in Water Treatment: Opportunities and Challenges, Nov 5-6, 2020

Convener--Short term training programmes in Analytical Instrumentation-

1. Short term training programmes in Analytical Instrumentation-chromatographic techniques (Ion Chromatography, High pressure liquid chromatography and Gas chromatography). 25-17, April 2011
2. Short term training programmes in Analytical Instrumentation- chromatographic and microscopic techniques (High pressure liquid chromatography, Gas chromatography and Scanning electron microscopy). 1-3, Dec., 2012.
3. Fourier Transform Infrared microscopy, High Pressure Liquid chromatography, and Trace metal analyzer, - 12-14, Sept. 2012

Instrumental Experience: Membrane filtration equipments, UV, IR, IC, TGA-DSC, HPLC, GC, ICP-AAS, SAX, WAXD, Ellipsometer, Contact angle, Microscopies (SEM and AFM), Confocal Raman spectroscopy, FTIR-ATR etc.

Languages Known: Malayalam, Hindi and English

Conference attended

1. International Conference on Photo-irradiation and adsorption based Novel Innovations for Water Treatment (PANI-WATER), March 3-4, 2020, Goa, India
2. International Conference on Separation Science and Technology (ICST), December 13-16, 2019, Kottayam
3. 4th International Conference on Frontiers of Mass Spectrometry (ICMS), December 04-07, 2019, Kottayam
4. International Conference on Water: From Pollution to Purification, Dec.7-10, 2018, Kottayam
5. Water DTU 3rd Partner Seminar, Technical University of Denmark, Copenhagen, May 23-24, 2017
6. International Conference on Frontiers of Mass Spectrometry, Dec.12-15, 2017, Kottayam
7. International Conference on Photochemistry and Its Applications, Nov.11-14, 2017, Kottayam
8. International Conference on Membranes, Sept.30-Oct.3, 2017, Alleppy
9. International Conference on Water: From Pollution to Purification, Dec.12-15, 2016
10. OSI workshop on “Membrane technology” MGU- Duke University, USA, August 2015
11. Third International Conference on Membranes (ICM2015), Aug.21-23, 2015
(www.ceetindia.org/icm2015)

12. International conference on water: From pollution to purification, 23 - 26 January 2015, Kottayam, Kerala
13. Third International Conference on Advanced Oxidation Processes (AOP 2014) Sep 2014, Munnar, Kerala
14. Second International Conference on Membranes (ICM - 2013) Oct.3-6, 2013, Kottayam, Kerala
15. International conference on Frontiers of Mass spectrometry (ICMS 2013) Sep. 6-9, 2013, Kottayam, Kerala
16. International Conference on Advanced Oxidation Processes, Oct.5-8, 2012, Kottayam
17. International Conference on Membranes: Environmental and Biological Applications, Sept.16-19, 2011, Kottayam
18. International Conference on Advanced Oxidation Processes, Sept. 18-21, 2010, Kottayam
19. International Conference on Climate change and Developing Countries, Feb. 19-22, 2010, Kottayam
20. International Conference on Nanomaterials: Synthesis, Characterization and Applications, Kottayam, April 27-29, 2010
21. International Symposium on Nano Material, Kottayam, April 2009
22. International Conference on Polymer Blends and Composite, Sept. 2009
23. International Conference on Frontiers of Radiation and Photochemistry, Kottayam, Feb.8-11, 2007
24. International symposium on advances in organic chemistry, Kottayam, Jan. 2006.
25. International conference on advances in polymer blends ,composites, IPNS and gels:macro to nano composites, Kottayam, March 2005
26. XIII National Space Science Symposium (NSSS-2004), Kottayam, India, Feb 2004
27. Lunteren meeting on Coating 12-13, 2001, The Netherlands
28. "Material research" May 8-9, 2001, Veldhoven, Netherlands.
29. Fourth annual coating symposium, May 11, 2001 , Eindhoven, The Netherlands
30. Fifth annual coating symposium, May 17, 2002, Eindhoven, The Netherlands
31. Materials research, 27 th May , 2002 Veldhoven, Netherlands.

Recent Invited Talks

- 1) Emerging Pollutants and their Challenges on Earth Ecosystem” , FDP, 16th-20th November, 2020 , Centarl University of Kerala
- 2) International Conference on Photo-irradiation and adsorption based Novel Innovations for Water Treatment (PANI-WATER), March 3-4, 2020, Goa, India
- 3) National Seminar on Air quality monitoring, Kottayam, Sept.2-3, 2019
- 4) Research and funding opportunities, at Bharatmata College, Thrikkakara, Feb.7th ,2020
- 5) Nanomembranes in water purification, Water DTU 3rd Partner Seminar, Technical University of Denmark, Copenhagen, May 23-24, 2017
- 6) International Conference on Membranes, Sept.30-Oct.3, 2017, Alleppy
- 7) OSI workshop on “Membrane technology” MGU- Duke University, USA, in Kottayam, August 2015
- 8) Third International Conference on Membranes (ICM2015), Aug.21-23, 2015 (www.ceetindia.org/icm2015)
- 9) Third International Conference on Advanced Oxidation Processes (AOP 2014) Sep 2014, Munnar, Kerala
- 10) Second International Conference on Membranes (ICM - 2013) Oct.3-6, 2013,Kottayam, Kerala
- 11) *Persistent organic pollutants in plantation*; National seminar on Green chemistry – the ultimate tool for pollution control, Feb 2012, Assumption College, Changanacherry, kottayam, kerala

Ongoing Research Collaborations

1. Department of Civil and Environmental Engineering, Duke University, USA
2. Department of Environmental Engineering, California Institute of Technology, USA
3. Department of Desalination and Water Treatment, Zuckerberg Institute for Water Research, Ben-Gurion University of the Negev , Israel
4. Technical University of Denmark, Roskild, Denmark
5. Department of Mechanical Engineering, IIT, Johdpur, India
6. Tashkent state technical university ,(Islam Karimov) Uzbekistan
7. Univerity of Maribor ,Slovania
8. Norwegian University
9. IICT,Hyderabad
10. Central University of Kerala
11. Mahatma Gandhi university, Kottayam
12. St Petersburg University,Russia
13. The University of Sheffield
14. Geomaterials Department, University of Paris-Est-Marna-la-Vallee (UPEM), Campus-Sur-Marne, France
15. University Leicester, UK

Membership in professional bodies

1. Member, Board of Studies, CUSAT
2. Adjunct Faculty, Advanced centre of Environmental Studies and Sustainable Development (ACCESSD), M. G. University
3. Coordinator, Virtual centre for Basic Sciences, CUSAT
4. Life member, Centre for Environment Education and Technology (CEET), Kottayam
5. Life member and Treasurer, Society of Environmental Chemistry and Allied Sciences (SECAS), Kottayam
6. Life Member ,Indian Membrane Society
7. Cusat Alumni Association CUSAT Excecutive member
8. Facility Management committee-SAIF -CUSAT CUSAT Member
9. Facility Management committee-SAIF -MGU DST Member
10. Zero waste campus initiative CUSAT coordinator

References:

Prof. Mark Wiesner

Director, Center for Environmental Implications of Nanotechnology, Department of Civil and

Environmental Engineering, Duke University, Durham, USA E-mail: wiesner@duke.edu

Prof. Yoram Oren ,

Department of Desalination and Water Treatment, Zuckeberg Institute for Water Research,
Blaustein Institutes for Desert research,

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Prof. Michael Hoffmann Environmental Engineering

California Institute of Technology (Caltech), Pasadena, USAE-mail: mrh@caltech.edu

Prof. RAMARAJ, Ramasamy

School of Chemistry, Director, Centre for Photoelectro- Chemistry, Madurai Kamaraj University,
Madurai – 625021 Email: ramaraj.ram@gmail.com

Prof. Dr. B.S.M. Rao IISER, Pune

Pune 411008, Maharashtra, bsmr@hotmail.com

Research Publications

Book Chapter

1. R. K. Satankar, A. Kaurwar, S. Gupta, K. Usha, S T. Azeko, W. O. Soboyejo, A. B.O. Soboyejo and A Plappally, Role of Equine Ordure in Enhancing Physical and Mechanical Properties of Natural Bio-active Composites, in *Advanced Polymeric Materials For Sustainability And Innovations*, Editor(S): D. Rouxel, Sajith T.A, S. Thomas, N. Kalarikkal, 2017, Apple Academic Press, NY.
2. Jeeva M. Philip, Usha K. Aravind, C. T. Aravindakumar “Use of Antibiotics in Animals and Its Possible Impacts in the Environment” (pages 77- 91), in the “Handbook of Research on Social Marketing and Its Influence on Animal Origin Food Product Consumption” Edited by Diana Bogueva, Dora Marinova, and Talia Raphaely (Editors), IGA Global (Idea Group, USA), 2018, ISBN13: 9781522547570
3. Usha K. Aravind, Subha Sasi, Mary Lidiya Mathew, C. T. Aravindakumar, Layer by layer (LbL) coated multilayer membranes in dye house effluent treatment (Chapter 22) in “Membrane Technology: Sustainable Solutions in Water, Health, Energy and Environmental Sectors” Edited by S. Sridhar, CRC Press 2018

Reviews

4. Manoj P. Rayaroth, Usha K. Aravind, Charuvila T. Aravindakumar , Degradation of pharmaceutically active compounds by ultrasound based advanced oxidation process: A review, *Env. Chem. Lett.*, **2016**, *14*, 259-290
5. Jeeva M. Philip, Usha K. Aravind and C.T. Aravindakumar, Emerging Contaminants in Indian

Environmental Matrices – A Review, *Chemosphere*, **2018**,Jan;190:307-326. doi: 10.1016

Editorial as Guest Editor

6. *Environ. Chem.*,**2019** (*in press*)(Special Issue), *Foreword to the Special Issue on the International Conference on Water: From Pollution to Purification*, C. T. Aravindakumar, Usha K. Aravind and Roland Kallenborn
7. *Env Sci Pollut. Res.*, **2018**, 25:20281–20282 (Special Issue), Water: From Pollution to Purification
C. T. Aravindakumar, Mehmet Oturan and Usha Aravind

In International Journals

1. Philip, J. M., Koshy, C. M., Aravind, U. K., & Aravindakumar, C. T. (2022). Sonochemical degradation of DEET in aqueous medium: Complex by-products from synergistic effect of sono-Fenton–New insights from a HRMS study. *Journal of Environmental Chemical Engineering*, 10(3), 107509.
2. Sreedharan Nair, S., Unni, K. K., Sasidharanpillai, S., Kumar, S., Aravindakumar, C. T., & Aravind, U. K. (2022). Bio-physical and computational studies on serum albumin/target protein binding of a potential anti-cancer agent. *European Journal of Pharmaceutical Sciences*, 172, 106141.
3. Khalid, N. K., Reyaroth, M. P., Devadasan, D., Aravind, U. K., & Aravindakumar, C. T. (2022). Sonochemical Degradation Studies of Isoniazid in Aqueous Medium. *Water, Air, & Soil Pollution*, 233(3), 1-13.
4. Nair, S. R., Menacherry, S. P. M., Renjith, S., Manoj kumar, T. K., Aravind, U. K., & Aravindakumar, C. T. (2022). Oxidation reactions of carbaryl in aqueous solutions. *Chemical Physics*, 554, 111427.
5. Sreejith, V. M., Thomas, J. R., Khalid, N. K., Varghese, A., Aravind, U. K., & Aravindakumar, C. T. (2022). Implosion–demolitions: impact on the local environment in a tropical humid Ramsar site located in southwestern India. *Air Quality, Atmosphere & Health*, 1-19.
6. Thomas, J. R., Sreejith, M. V., Aravind, U. K., Sahu, S. K., Shetty, P. G., Swarnakar, M., ... & Aravindakumar, C. T. (2022). Outdoor and indoor natural background gamma radiation across Kerala, India. *Environmental Science: Atmospheres*.
7. John, R., Mathew, J., Mathew, A., Aravindakumar, C. T., & Aravind, U. K. (2021). Probing the Role of Cu (II) Ions on Protein Aggregation Using Two Model Proteins. *ACS omega*.
8. Nejumal, K. K., Sreejith, M. V., Dineep, D., Aravind, U. K., & Aravindakumar, C. T. (2021). Identification and Ecological Hazard Analysis of Contaminants of Emerging Concerns (CECs) in Water Bodies Located in a Coastal Metropolitan Environment. *Water, Air, & Soil Pollution*, 232(10), 1-14.
9. Sreejith, M. V., Aradhana, K. S., Varsha, M., Cyrus, M. K., Aravindakumar, C. T., & Aravind, U. K. (2021). ATR-FTIR and LC-Q-ToF-MS analysis of indoor dust from different micro-environments

- located in a tropical metropolitan area. *Science of The Total Environment*, 783, 147066.
10. Athullya, M. K., Dineep, D., Mathew, M. L., Aravindakumar, C. T., & Aravind, U. K. (2021). Identification of micropollutants from graywater of different complexity and remediation using multilayered membranes. *Environmental Science and Pollution Research*, 1-13.
 11. Shalumon, C. S., Sanu, K. S., Thomas, J. R., Aravind, U. K., Radhakrishnan, S., Sahoo, S. K., ... & Aravindakumar, C. T. (2021). Analysis of uranium and other water quality parameters in drinking water sources of 5 districts of Kerala in southern India and potability estimation using water quality indexing method. *HydroResearch*.
 12. CS, S., CT, A., & K. Aravind, U. (2021). Detection of bromate in packaged drinking water and its removal using polyelectrolyte multilayer membranes. *Environmental Quality Management*, 30(4), 101-112.
 13. Sasi, S., Rayaroth, M. P., Aravindakumar, C. T., & Aravind, U. K. (2021). Alcohol ethoxysulfates (AES) in environmental matrices. *Environmental Science and Pollution Research*, 1-20.
 14. M. Mathew, C. T. Aravindakumar, Usha K. Aravind, Potential involvement of environmental triggers in protein aggregation with mercuric chloride as a model, *International Journal of Biomacromolecules*, 2021 (in press)
 15. Subha Sasi, Manoj P. Rayaroth, C. T. Aravindakumar and Usha K. Aravind, Occurrence, Distribution and Removal of organic micro-pollutants in a low saline water body, *Science of the Total Environment*, 2020, 749, 141319
 16. M. Mathew, C. T. Aravindakumar, Usha K. Aravind, Unravelling the fibrillation mechanism of ovalbumin in the presence of mercury at its isoelectric pH, *RSC Advances*, 2020 (in press)
 17. S. Thomas, M.P. Rayaroth, S. P. M. Menacherry, Usha K. Aravind, C. T. Aravindakumar, Sonochemical Degradation of Benzenesulfonic Acid in Aqueous Medium, *Chemosphere*, 2020, 252, 126485
 18. K.K Nejumal, P.R Manoj, D. Dineep, Usha K. Aravind and C.T. Aravindakumar, Photochemical Oxidative Degradation Studies of Isoniazid in Aqueous Medium, *Materials Today: Proceedings*, 2020 (in press)
 19. Naveen S. Lal, John Richard Thomas, Sumith Satheendran, Abin Varghese, Usha K. Aravind, C. T. Aravindakumar, Air Quality Disturbance Zone mapping in Greater Cochin Region of Kerala State,

India using Geoinformatics, *Spatial Information Research* **2020**, <https://doi.org/10.1007/s41324-020-00329-7>

20. S. Sreedhanya, S. Ammu, C. T. Aravindakumar and Usha K. Aravind, Spectroscopic and theoretical methods to probe protein-ligand binding, *Materials Today: Proceedings*, **2020** (in press)
21. Jain Maria Thomas, C.T. Aravindakumar and Usha K Aravind, Removal of Beta Blockers using Polyelectrolyte Monolayered Membrane and its Antifouling Performance, *Journal of Industrial and Engineering Chemistry*, **2020** , 87, 222-233
22. M. Vishnu Sreejith, John Richard Thomas, C.T. Aravindakumar and Usha K. Aravind, Characterisation of atmospheric particulate matter over a site in southern Kerala, India - using ATR-FTIR and Confocal micro-Raman Spectroscopy, *Materials Today: Proceedings*, **2020** (in press)
23. Kishore Kumar Nair, Bennie Viljoen; C T Aravindakumar; H C Swart; Richard A Harris; Usha K Aravind, Synthesis of silver incorporated lithium doped zinc oxide nanocomposites for in-vitro biorational evaluation of Candidiasis and Cryptococcosis, *Applied Surface Science* , **2020**, 506, 144800
24. Jain Maria Thomas, C.T. Aravindakumar and Usha K Aravind, Protein loading studies using polyelectrolyte microcapsules *International Journal of Polymeric Materials and Polymeric Biomaterial*, **2019**, DOI:10.1080/00914037.2019.1667803
25. V.Vijayan, S. Yesodharan, C.T. Aravindakumar, Usha K. Aravind, V.J. Koshy and E.P. Yesodharan, Role of electrodes and electrolytes on the efficiency of electrolytic decontamination of water from indigo carmine dye pollutant. *Indian Journal of Applied Research* **2019**, 9(11) ISSN No. 2249 - 555X | DOI : 10.36106/ijar
26. Jisha Chandran, U. K. Aravind, P. T. Nguyen, C. T. Aravindakumar, Solvent dependent ESI-collisionally induced dissociation of protonated nitenpyram, *Int. J. Mass Spectrometry*, **2019**, 445, 116207
27. C.S. Shalumon, C.T. Aravindakumar and Usha K. Aravind, A multilayered surface for the interactive separation of perchlorate from aqueous medium, *Environmental Chemistry*, **2019**, 16(8) 587-598
28. Jisha Chandran, Vishnu N. R., Usha K. Aravind and C. T. Aravindakumar, ESI- MSMS characterization and differentiation of the cross links of thymine from one electron oxidation with

SO₄^{•-}, *Int. J. Mass Spectrometry*, **2019**, 443, 53-60

29. Mary Lidiya Mathew, G. Akhil, C.T. Aravindakumar and U.K. Aravind, Low - cost multilayered green fiber for the treatment of textile industry waste water, *Journal of Hazardous Materials* **2019**, 365, 297-305
30. M. T. Elias, J. Chandran, Usha K. Aravind, C. T. Aravindakumar Oxidative Degradation of Ranitidine Induced by UV and Ultrasound: Identification of Transformation Products using LC-Q-ToF-MS, *Environmental Chemistry*, **2018**16(1), 41-54
31. Sunil Paul M.Menachery, T. P.Nguyen, G. Pramod, Usha K.Aravind , C. T. Aravindakumar, Exploring the Mechanism of Diphenylmethanol Oxidation: A Combined Experimental and Theoretical Approach, *Chemical Physics*, **2018**, 513, 201-208
32. Manoj P. Rayaroth, Usha K. Aravind, and C. T. Aravindakumar, Effect of inorganic ions on the ultrasound initiated degradation and product formation of Triphenylmethane dyes, *Ultrasonic Sonochemistry*, **2018**, 48, 482-491
33. K.K. Nejumal, D. Dineep, Mahesh Mohan, K.P. Krishnan, U.K. Aravind, C.T. Aravindakumar, Presence of Bisphenol S and Surfactants in the Sediments of Kongsfjorden: A Negative Impact of Human Activities in Arctic?, *Environmental Monitoring and Assessment*, **2018**, 190, 22
34. Subha Sasi, P.R. Manoj, C.T. Aravindakumar and U.K. Aravind, Identification of surfactants and its correlation with physico-chemical parameters at the confluence region of Vembanad Lake in India, *Env Sci Pollut. Res.*, **2018** , 25(21):20527- 20539. doi: 10.1007/s11356-017-0563-4
35. P.R. Manoj, Usha.K. Aravind and C.T. Aravindakumar, Photocatalytic Degradation of Lignocaine in Aqueous Suspension of TiO₂ Nanoparticles: Mechanism of Degradation and Mineralization, *Journal of Environmental Chemical Engineering*, **2018** (6), 3556-3564
36. K.K. Nejumal, D. Dineep, Mahesh Mohan, K.P. Krishnan, U.K. Aravind, C.T. Aravindakumar, Presence of Bisphenol S and Surfactants in the Sediments of Kongsfjorden: A Negative Impact of Human Activities in Arctic?, *Environmental Monitoring and Assessment*, **2018**, 190, 22
37. Subha Sasi, P.R. Manoj, C.T. Aravindakumar and U.K. Aravind, Identification of surfactants and its correlation with physico-chemical parameters at the confluence region of Vembanad Lake in India, *Env Sci Pollut. Res.*, **2018** Jul;25(21):20527-20539. doi: 10.1007/s11356-017-0563-4

38. P.R. Manoj, U.K. Aravind and C.T. Aravindakumar, Photocatalytic Degradation of Lignocaine in Aqueous Suspension of TiO₂ Nanoparticles: Mechanism of Degradation and Mineralization, *Journal of Environmental Chemical Engineering*, **2018** (6), 3556-3564
39. Jain Thomas, R. Vishnu, C.T. Aravindakumar, and Usha K. Aravind, Polyelectrolyte Functional Bilayers for the Removal of Model Emerging Contaminants, *Industrial Engineering Chemistry Research*, **2017**, 56 (46), 13874–13884
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