Curriculum Vitae

Dr. Mahadevappa Y. Kariduraganavar

Professor & Chairman

Post-Graduate Department of Studies in Chemistry

Karnatak University, Dharwad - 580 003
Karnataka, INDIA

E-mail: kariduraganavarmy@kud.ac.in/mahadevappayk@gmail.com Fax: +91-836 -2747884
Ph: +91-836-2215286 Extn.23 (off.); +91-836-2776644 (Res.)
Mobile: 09448590765

Curriculum Vitae

Name	:	**Dr. Mahadevappa Y. Kariduraganavar**
Designation	:	Professor & Chairman
Qualification	:	M. Sc., Ph. D.
Correspondence Address	:	Post-Graduate Department of Studies in Chemistry Karnatak University Dharwad - 580 003, INDIA E-mail: kariduraganavarmy@kud.ac.in E-mail: mahadevappayk@gmail.com Fax: +91-836 -2747884 Ph: +91-836-2215286 Extn.23 (off.); +91-836-2776644 (Res.) Mobile: 09448590765
Date of Birth	:	May 23, 1962
Nationality	:	Indian
Caste	:	SC (Hindu Bhovi Waddar)
Research Experience	:	27 years
Fellowships Awarded	:	• 3 years as a Junior Research Fellow (UGC, New Delhi) • 2 years as a Senior Research Fellow (UGC, New Delhi) • Commonwealth Fellowship to undertake Post-Doctoral Research at UK.
Post-Doctoral Experience	:	J. J. Thomson Physical Laboratory, Department of Physics, University of Reading, Reading, UK from 1st October, 2007 to 4th April, 2008.
Industrial Experience	:	~2 years worked as a Manager (Operation) in Flora International Ltd., Bangalore looking after R&D and Manufacturing Process of Textile Auxiliaries.
Teaching Experience	:	Lecturer (7.7.1997 to 6.7.2006) Reader (7.7.2006 to 5.6.2007)

Professor (6.6.2007 to till date)

At P. G. Department of Studies in Chemistry
Karnatak University, Dharwad-580 003.

Research Areas : 1. Development of Ion Exchange Membranes for Electrodialysis and Fuel Cell Applications.

2. Development of Polymeric Membranes for Pervaporation Applications.
3. Development of Second-Order Nonlinear Optical (NLO) Materials for Photonic Devices.
4. Development of Nanofibers for Tissue Engineering Applications.
5. Studies on Molecular Transport Phenomenon through Polymeric Membranes.
6. Studies on Adduct Formation Constants of Metal Complexes.
7. Development of Nanocarriers for Tumor Targeted Drug Delivery across Blood-Brain Barrier (BBB).
8. Development of Polymeric Composite Materials for Supercapacitors Applications.
9. Synthesis of Shape Memory (Smart) Polymers.

Significant Achievements Made in Research:

1. **Development of Ion-Exchange Membranes for Electrodialysis Applications:** Prior to the development of Ion-Exchange Membranes for the applications of Electrodialysis from my research group, the Ion-Exchange Membranes reported in the literature used to convert only the brackish water (hard water) into potable water. No attempts were succeeded till our invention to convert sea water into potable water. First time in the literature, we developed Ion-Exchange Membranes for Electrodialysis application to convert sea water into potable water. In addition, the developed membranes also address the applications of removal of tartaric acid from wine, removal of nitrate from water, chlor-alkali production, etc. Thus, the work resulted to 2 US Patents. Infact, one of our patents has got 1st Rank among the US Patent ranking.
2. **Preparation of Hybrid Membranes for Pervaporation Applications:** Pervaporation is a membrane based technology by which industrially important azeotropic mixtures, close boiling liquids and isomers can be separated selectively. In order to make the technology commercially viable, the increase of both flux and selectivity are important

for the developed membranes. Although researchers have been trying to increase both the factors simultaneously, but nobody was succeeded due to a trade-off phenomenon existing between these two factors. First time in the literature, our group increased both the factors simultaneously by judiciously optimizing the properties of membranes so as to make the technology commercially viable. This is in fact a significant achievement in the area of pervaporation.

3. **Synthesis of Proton Exchange Membranes for Fuel Cell Applications:** Due to a reduction of fossil fuel, the development of an alternative energy source is of great importance. In this direction, my research group has been trying to develop Proton-Exchange Membrane for Fuel Cell Applications. In fact, the experts and technocrats are speculating that all Indian cars and buses will have fuel cell car/bus by 2024. Of course, it depends on the policy makers as well. Recently, we have succeeded in developing the Proton-Exchange Membranes for fuel cell applications and the properties of the membranes thus obtained are much superior to the commercially available Nafion 117 membrane developed by DuPont Company, USA. This is in fact a significant achievement in the area of pervaporation.

4. **Development of Polymeric Supercapacitor Devices for Energy Storage Applications:** Development of energy storage devices is equally important in order to save and optimally use the energy. To address this, the development of Supercapacitors is playing an important role. In this direction, my research group developed the polymer based Inter-Digital Flexible Supercapacitor Device for the first time in the literature. The properties of the developed device are much superior to the commercially available supercapacitors developed by Maxwell Company, USA. Our novel invention was immediately noticed by the ADL Ventures Company which is working in association with US Department of Energy and sent a request letter for commercializing the product. The discussion with this company is under process.

5. **Development of 3D Scaffolds for Tissue Engineering Applications:** Regaining of a damaged body part was a field of challenge in the medical history. But this has become a matter of possibility through tissue engineering. Tissue engineering makes use of scaffolds for the regeneration of complex tissues and organs and thereby regaining the damaged body parts through natural phenomena. An environment to enhance the cell proliferation and suitable mechanical strength are the two prime important factors of scaffolds to be intended for bone tissue engineering. Literature reveals that achieving both the factors simultaneously is of a great challenge. But we have fabricated the scaffolds with novel techniques using suitable polymer blends and metal dopants and enhanced both the properties simultaneously. The developed 3D scaffolds possessed greater percent of cell proliferation and enhanced the mechanical strength and thus proved to be a potential candidate for bone tissue engineering application.

6. **Development of Drug Loaded Nanocarriers for Tumor Targeted Drug Delivery to Treat Cancer across Blood-Brain Barrier (BBB):** Glioblastoma multiforme is a malignant glial tumor and commonly occurring type of primary astrocytoma. It accounts for more than 60% of all brain tumors in adults. One of the major challenges involved in treatment of brain cancer is the transportation of chemotherapeutic agents across BBB. To enhance the transportation and delivery of anticancer drugs (Doxorubicin and Paclitaxel) across BBB through synthetic protocols, we developed the nanocarriers, which are made of biopolymers and biodegradable inorganic materials. Targeting ligands such as Transferrin and Angiopep-2 were used to conjugate on the developed nanocarriers for specifically targeting the tumor site. The resulting nanocarriers exhibited significant anticancer activity and permeability across BBB. Thus, the developed nanocarriers proved to be potential candidates for targeted drug delivery and could contribute to the field of cancer research and particularly to treat

glioblastoma across BBB. In due course of time, the resulting nanocarriers will be subjected to animal study.

7. **Development of Non-linear Optical (NLO) Materials for Optonic Devices:** Owing to an emergence of photonic technologies in the area of telecommunication where the information is coded, transported, and routed through optically, there is a strong technological demand for the development of high-performance nonlinear optical materials. Thus, the NLO materials have created the tremendous interest among the scientific community around the world owing to their role in optical switching, sensor protections, light modulators, optical logic and memory storage devices. Unfortunately, the synthesis of chromophores is a tedious and expensive process. Even with expensive and specific catalysts, the reaction takes a longer time to obtain a better yield. Further, the reactions are to be performed in a dry organic solvent under an inert atmosphere; otherwise, the side products will be formed. As a result, the chromophores synthesized under this condition fail to get an acceptance from the industry point of view for their use in developing polymeric NLO chromophores for device applications.

   Realizing the pros and cons of the existing synthetic protocols used during the preparation of chromophores, we adopted a facile and an eco-friendly procedure to synthesize the push-pull type chromophores in water at ambient temperature without adding any catalyst. All the reactions occurred rapidly and yielded excellent products without using tedious purification process. Since water is the environmental benign solvent used here, the burden of organic solvent disposal was completely eliminated so as to enhance the rate of reactions. Thus, the adopted method is a powerful green chemical technology procedure from both the economical and synthetic points of view.

Number of Students Awarded Ph. D. / M. Phil. Degrees: 22

Sl. No.	Name of the Student	Title of the Thesis	Degree	Year of Award
1.	Dr. (Smt.) S. B. Kulkarni	Studies on molecular transport of organic liquids through fluoroelastomeric membranes	Ph.D.	2004
2.	Dr. (Smt.) A. A. Kittur	Synthesis and characterization of polymeric membranes for the pervaporation (PV) separation of aqueous-organic mixtures	Ph.D.	2005
3.	Dr. P. S. Kandagal	A study on ilkal sarees: Dyeing and designing	Ph.D.	2005
4.	Dr. S. S. Kulkarni	Synthesis and characterization of poly(vinyl alcohol) based polymeric membranes for the pervaporation (PV) separation of aqueous-organic mixtures	Ph.D.	2007
5.	Dr. S. M. Tambe	Studies on second-order nonlinear optical (NLO) materials	Ph.D.	2008
6.	Dr. S. K. Choudhari	Studies on polymeric membranes for pervaporation (PV) separation	Ph.D.	2010

		of aqueous-organic mixtures		
7.	Mrs. Vani S. Patil	Studies on pervaporation (PV) membranes	M.Phil.	2010
8.	Mrs. Saroja P. Bhovi	Nonlinear optical (NLO) materials	M.Phil.	2010
9.	Dr. (Smt.) Jolly Varghese	Development of pervaporation (PV) membranes for the separation of aqueous-organic mixture	Ph.D.	2010
10.	Dr. R. G. Tasaganva	Development of polymeric second order non-linear optical (NLO) materials	Ph.D.	2011
11.	Dr. Padma S. Rachipudi	Pervaporation (PV) separation of aqueous-organic mixture	Ph.D.	2012
12.	Dr. A. M. Sajjan	Studies on hydrophilic membranes for the pervaporation (PV) dehydration of isopropanol	Ph.D.	2013
13.	Dr. Ganesh. S. D.	Development of dielectric ionomers for technological applications	Ph.D.	2014
14.	Dr. Premakshi H.G.	Synthesis on hybrid membranes for pervaporation (PV) applications	Ph.D.	2015
15.	Dr. Radha V. Doddamani	Design and synthesis of polymeric nonlinear optical (NLO) materials for optonic devices	Ph.D.	2019
16.	Dr. Geetha B. Heggannavar	Development of polymeric nano carriers for tumor targeted drug delivery across blood-brain barrier (BBB)	Ph.D.	2019
17	Dr. Balappa B. Munavalli	Synthesis and characterization of proton exchange membranes for fuel cell applications	Ph.D.	2019
18	Dr. Anand I. Torvi	Development of polymeric nanocomposite materials for supercapacitors	Ph.D.	2019
19	Dr. Chinmay Hiremath	Development and characterization of drug delivery systems for cancer therapy	Ph.D.	2019
20	Mrs. Nandini A. Pattanshetti	Development of polymeric scaffolds for tissue engineering	Ph.D.	Thesis Submitted
21	Mr. Satishkumar R. Naik	Studies on polymeric composite materials for supercapacitor applications	Ph.D.	Thesis Submitted
22	Mrs. Divya D. Achari	Development of polymeric	Ph.D.	Thesis

		membranes for pervaporation separation		Submitted

Number of Post-Doctoral Students Working/Completed: 03

Sl. No.	Name of the Student	Title of the Work	Year
1.	Dr. A. A. Kittur	Development of pervaporation membrane for separation of azeotropic mixtures	2005-2007
2.	Dr. Venktesh Bhovi	Design and synthesis of polymeric nonlinear optical materials for optonic devices	2016 -2018
3.	Dr. Padma Rachipudi	Development of polymeric membranes for pervaporation separation	2018 - 2019

Number of Students Pursuing Ph. D. Degree: 04

Sl. No.	Name of the Student	Title of the Thesis
1.	Mr. Sachin N. Hegde	Development of proton exchange membranes for fuel cell applications
2.	Mr. Mohammadumar S. Mulla	Development of polymeric nanocomposite materials for supercapacitor applications
3.	Mr. Shrinivas G. Chawan	Polymeric membranes for the pervaporation separation of azeotropic mixtures
4.	Mr. Shankaragouda K. Sannakki	Development of polymeric scaffolds for tissue engineering applications

Administrative Positions Held:

1. **Chairman**, PG Department of Studies in Chemistry, Karnatak University, Dharwad since 22nd September 2018.
2. **Chairman**, Board of Studies (BOS), PG Department of Studies in Chemistry, Karnatak University, Dharwad since 22nd September 2018.
3. **Member,** Academic Council (AC) of P. C. Jobin College, Hubli for the year 2016-2019.
4. **Member**, Board of Studies (BOS), PG Department of Industrial Chemistry, Kuvempu University, Shimoga since 2015.
5. **Member**, Board of Studies (BOS), Visheshwar Technical University (VTU), Belgaum, since 2015.
6. **Member**, Board of Studies (BOS), Department of Chemistry, Gogate Institute of Technology, Belgaum, since 2013.

7. **Vice-Chancellor's Nominee**, for the recruitment of Assistant Professors in Kumareshwar Degree College, Hangal, for the year 2018.
8. **Vice-Chancellor's Nominee**, for the recruitment of Assistant Professors in M. A. S. C. College, Haunsbhavi, for the year 2018.
9. **Member**, Board of Appointment (BOA), Karnatak University, Dharwad, since 2018.
10. **Member**, Board of Appointment (BOA), Kuvempu University, Shimoga, since 2003.
11. **Member**, Board of Appointment (BOA), University of Mysore, Mysore, since 2010.
12. **Member**, Board of Appointment (BOA), Mangalore University, Mangalore, since 2018.
13. **Member**, Board of Appointment (BOA), S. K. University, Bellary, since 2018.
14. **Member**, Faculty of Science & Technology, Karnatak University Dharwad, 2000.
15. **Subject Expert**, the promotion of Assistant Professors in M. A. S. C. College, Haunsbhavi, for the year 2018.
16. **Subject Expert**, for the promotion of Assistant/Associate Professors in G. H. College, Haveri, for the year 2017.
17. **Chairman,** Squad for Undergraduate Courses Examination of Dharwad and Gadag Districts, for the year 2016.
18. **Member,** Squad for Undergraduate Courses Examination of Karwar District, for the year 2000.
19. **Member,** Department of Promotion Committee of Non-Teaching Staff, Karnatak University, Dharwad for year 2017-2019.
20. **Member,** Innovation & Incubation Centre, Karnatak University for the year 2017-19.
21. **Member,** Screening Committee of MoU, Karnatak University, Dharwad for year 2017-18.
22. **Member**, Local Inquiry Committee (LIC) for Continuation/Recognition of Affiliations of Colleges of Gadag, Bijapur, Karwar, Dharwad and Belgaum Districts since 1998.
23. **Chairman,** Local Inquiry Committee (LIC) for Continuation/Recognition of Affiliations of Colleges of Gadag, Karwar and Dharwad Districts, since 2016-17.
24. **Chairman**, Board of Examination (BOE), Industrial Chemistry, Karnatak University, Dharwad, for the year 2011-12 and 2012-13.
25. **Chairman**, Board of Examination (BOE), Physical Chemistry, Karnatak University, Dharwad, for the year 2009-2010, 2010-2011, 2012-2013, 2014-2015, 2015-2016, 2016-2017 and 2017-2018.
26. **Chairman**, Board of Examination (BOE), General Chemistry, Karnatak University, Dharwad, for the year 2013-2014.
27. **Member**, Prospectus Committee, Karnatak University, Dharwad, for the year 2013-14 and 2014-15.
28. **Convener**, 1st International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP- 2015), held at Karnatak University, Dharwad from 28th to 31st October, 2015.
29. **Co-convener**, 2nd International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP-2017), held at Centre for Rapid & Sustainable Product Development, Institute of Polytechnic Leiria, Portugal from 17th – 20th May, 2017.

30. **President**, 3rd International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP-2019), held at Karnatak University, Dharwad from 20th to 23rd February, 2019.
31. **Deputy Coordinator**, UPE-FAR-I Program, Karnatak University, Dharwad, since 2013.
32. **Coordinator**, UPE-FAR-I Program, Karnatak University, Dharwad, since 2017.
33. **Coordinator,** DST-PURSE-Phase-II Program**,** Karnatak University, Dharwad, since 2016.
34. **Subject Coordinator,** CPEPA Program, Karnatak University, Dharwad, from 2012-2018.
35. **Member**, UGC-Human Resource Development Centre, Karnatak University, Dharwad, for the year 2019-2020.
36. **Member**, IAS/KAS Examination Board, Karnatak University, Dharwad for the year 2018-2019.
37. **Member,** Patent Establishment Committee, Karnatak University, Dharwad, 2018.

Reviewer for Scientific Journals

1. Journal of Membrane Science (Elsevier)
2. Journal of Applied Polymer Science (Wiley Interscience)
3. Polymer International (Wiley Interscience)
4. Separation and Purification Technology (Elsevier)
5. Desalination (Elsevier)
6. Journal of Chemical Technology & Biotechnology (Wiley Interscience)
7. Chemical Engineering Science (Elsevier)
8. Carbohydrates Polymers (Elsevier)
9. Synthetic Metals (Elsevier)
10. Optical Materials (Elsevier)
11. Journal of Material Chemistry (RSC)
12. Journal of Chemical & Engineering Data (ACS)
13. Journal of Power Sources (Elsevier)
14. Electrochimica Acta (Elsevier)
15. Polymer (Elsevier)
16. Journal of Industrial and Engineering Chemistry (Elsevier)

17. ACS Omega (ACS)
18. Solid State Ionics (Elsevier)
19. Biomacromolecules (ACS)
20. Tissue Engineering and Regenerative Medicine (Wiley)

Positions in Editorial Boards & Professional Bodies

1. Chief Editor, Karnatak University Science Journal, K. U. Dharwad for the year 2015-16.
2. Editor, Karnatak University Science Journal, K. U. Dharwad, since 2016.
3. Member, Karnatak University Science Journal, K. U. Dharwad, from 2010-15.
4. Editor, Proceedings of International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP- 2015), for the year 2015.
5. Editor, Proceedings of International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP- 2019), for the year 2019.
6. Chairman, Editorial Board, Memorial Issue, Birth Centenary Year of Dr. Babu Jagajeevanram for the year 2007.
7. Life Member, Indian Chemical Society, Kolkata.
8. Life Member, Indian Council of Chemists, Agra.

International Collaborations

1. Centre for Rapid and Sustainable Product Development (CDRSP), Institute of Polytechnic Leiria, Portugal
2. Department of Chemistry, University of Reading, UK
3. Department of Physics, University of Reading, UK

National Collaborations

1. Department of Physics, Indian Institute of Science (IISc), Bangalore
2. Department of Industrial Chemistry, Kuvempu University, Shimoga
3. Department of Physics, Karnatak University, Dharwad

Projects Undertaken as Principal Investigator/Coordinator

1. DST, New Delhi has granted Rs. 15.40 crore under DST-PURSE-Phase-II Program to

undertake *Advanced Research in the Area Science & Technology* (2016- 2020).

2. UPE FAR-I, UGC, New Delhi has granted Rs. 11 Crore on *Anti-Tumor Activity – An Integrated Approach* under University with Potential for Excellence (2012-2015).
3. AICTE, New Delhi has granted Rs.15,00,000 on *Development of Electrodialysis Membranes for Water Purification, Waste Management, Effluent Treatment and Recycling* (1999-2001).
4. DST, New Delhi has granted Rs.14,00,000 on *Development and Characterization of Novel Polymeric Membranes for Use in Pervaporation Separation of Aqueous-Organic Mixtures* (2001-2005).
5. UGC, New Delhi has granted Rs. 5,76,800 on *Development of Novel Composite Hybrid Membranes for Pervaporation Separation* (2010-2012).

Projects Undertaken as Co-Investigator/Subject Coordinator

1. UGC, New Delhi has granted Rs. 6.85 Crore on *Advanced Materials* under Center with Potential for Excellence in Particular Area (CPEPA) program (2012-2015).
2. DST, New Delhi has granted Rs.14,81,718=00 on *Theoretical and Experimental Investigations of Sorption/Desorption, Diffusion and Permeation of Liquids into Polymer Membranes (*1996-2000).
3. DST, New Delhi has granted Rs.7,12,000=00 on *Intermolecular Interactions in Organic Mixtures and Polymer Solutions: A Theoretical and Experimental Approach* (2001-2004).

Awards, Prizes, Medals, Scholarships, etc.

1. **Best Presentation Award** at Session B "PLENARY MANUFACTURING" from ICDDMAP21 held virtually, from 20 to 22 of May 2021, Center for Rapid and Sustainable Product Development, Polytechnic of Leiria, Portugal and Karnatak University, Dharwad, India.
2. **Rajya mattada Shikshaka Siri Prashasti** , Karnataka State Teachers, Lectures Kriya Samithi(R), Bangalore
3. **Sir C. V. Raman Young Scientist Award with a Memento, Citation and Cash of Rs. 50,000/-** from Department of Science & Technology, Govt. of Karnataka, Bangalore in 2012.
4. **Commonwealth Fellowship Award** from United Kingdom (UK) to undertake the **Post-Doctoral Research at the University of Reading, UK** from 1st October, 2007 to 4th April, 2008.
5. **Best Research Paper Award with Rs. 25,000 Cash and Citation** from Vision Group of Science & Technology (VGST), Department of Science & Technology, Bangalore in 2011.
6. **The Best Research Publication Award in Science with Rs. 10,000 Cash** from Karnatak University, Dharwad in 2015.
7. **Adhyapaka Bhushana Prashasti Award** from Karnatak Adhyapak Parishad (KAP) and Karnataka Rajya Madhyamik Shikshaka Sangha in 2017.
8. **Smt. Aruna & Prof. S. T. Nandibewoor Best Researcher Gold Medal** from Karnatak University, Dharwad in 2018.
9. **The Best Research Publication Award in Science** with Rs.10,000 Cash from Karnatak University, Dharwad in 2019.

10. **The Best Boy Award** (Medal & Certificate) from M.A.S.C College, Haunsbhavi during the year 1985-86 for the excellent performance shown in the College.

11. **Best Debater of the College** (Certificate & Cash Prize) for best performance shown in the Debate Competitions in 1986.
12. **Best Essay Writer of the College** (Certificate & Cash Prize) for best performance shown in the Essay Competitions in 1986.
13. **Junior Research Fellowship** & **Senior Research Fellowship** from UGC, New Delhi from 1990 to 1995.

Awards Received by the Ph. D. Students

Sl. No.	Name of the Ph.D. Student	Name of the Award	Name of the Awarding Agency	Year of Award
1.	Dr. Balappa Munavalli	Dr. S. T. Nandibewoor Young Scientist Award	Karnataka Vidyavardhak Sangha Dharwad	2019
2.	Mrs. Nandini A. Pattanashetti	Best Oral Presentation Award	International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP), organized by Department of Chemistry, K. U. Dharwad and CDRSP, Portugal.	2019
3.	Dr. Anand I. Torvi	Best Oral Presentation Award	International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP), organized by Department of Chemistry, K.U. Dharwad and CDRSP, Portugal	2019
4.	Mr. Sachin N. Hegde	Best Poster Presentation Award	International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP), organized by Department of Chemistry, K. U. Dharwad and CDRSP, Portugal	2019
5.	Mrs. Divya D. Achari	Best Poster Presentation Award	International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP), organized by Department of Chemistry, K. U. Dharwad and CDRSP, Portugal	2019
6.	Dr. Geetha B. Heggannavar	Best Oral Presentation Award	National Seminar on “Recent Trends in Chemistry” organized by Department of Chemistry, K. U. Dharwad	2018
7.	Mrs. Nandini A.	Best Poster	National Seminar on “Recent	2018

	Pattanshetti	Presentation Award	Trends in Chemistry" organized by Department of Chemistry, K. U. Dharwad	
8.	Mrs. Nandini A. Pattanshetti	Prof. G. Gopal Rao Centenary Commemorative Award	Indian Council of Chemists, Agra	2016
9.	Dr. Geetha B. Heggannavar	Best Oral Presentation Award	International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP), organized by Department of Chemistry, K. U. Dharwad and CDRSP, Portugal	2015
10.	Mrs. Divya D. Achari	Best Poster Presentation Award	International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP), organized by Department of Chemistry, K. U. Dharwad and CDRSP, Portugal	2015
11.	Dr. Radha V. Doddamani	Young Scientist Award	Indian Council of Chemists, Agra	2013
12.	Dr. Srikant S. Kulkarni	Best Research Publication Award	VGST, Govt. of Karnataka, Bangalore	2010
13.	Dr. Jolly G. Varghese	Prof. A. K. Dey Memorial Award for Best Oral Presentation	Indian Chemical Society, Kolkatta	2008
14.	Dr. Santhsh K. Choudhari	Upadhyayulu Annapurna & Satyanarayana Memorial Award for Best Presentation of Research Paper	Indian Chemical Society, Kolkatta	2007
15.	Dr. Santhosh K. Choudhari	Dr. Upadhyayulu V. Rao Memorial Award for Best Presentation of Research Paper	Indian Chemical Society, Kolkatta	2006
16.	Dr. Jolly G. Varghese	Prof. Santi Ranjan Palit Memorial Award for Best Presentation of Research Paper	Indian Chemical Society, Kolkatta	2006

17.	Dr. Arjumand A. Kittur	Best Research Publication Award	The Muslim Association for the Advancement of Science (MAAS), Aligarh	2005

Foreign Countries Visits

1. Visited J. J. Thomson Physical Laboratory, University of Reading, UK, for the Post-Doctoral Study during 2007-2008 under a Prestigious Commonwealth Fellowship Program.
2. Visited Bangkok, Thailand as a Panel Expert to give a talk on Global Challenges and the Role of Chemists in the International Conference held during 11th-16th June, 2011.
3. Visited London, UK for the presentation of research paper in Euromembrane-2012 Conference held during 23rd - 27th September, 2012.
4. Visited Dubai & Abu-Dhabi for the presentation of research paper in 3rd International Conference held during 10th- 14th June, 2014.
5. Visited Portugal as a Visiting Professor at Centre for Rapid & Sustainable Product Development (CDRSP), Leiria, Portugal from 11th January to 11th March 2015.
6. Visited Charite University and Max Planck Institute of Germany for the establishment of MoU with Karnatak University, Dharwad from 22nd August to 4th September, 2016.
7. Visited Centre for Rapid and Sustainable Product Development (CDRSP), Polytechnic Institute of Leiria (IPL), Portugal for the establishment of MoU with Karnatak University, Dharwad from 22nd August to 4th September, 2016.
8. Visited Centre for Rapid and Sustainable Product Development (CDRSP), Polytechnic Institute of Leiria (IPL), Portugal to deliver Invited Lecture on Smart Biopolymers in International Conference on Advanced Research in Sustainable and Intelligent Manufacturing (RESIM-2016), Portugal from 14th to 17th December, 2016.
9. Visited Polytechnic Institute of Leiria, Portugal to delivery CDRSP Anniversary Lecture in International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP- 2017) from 17th to 20th May, 2017.

Keynote Lectures Presented in National/International Conferences

1. Keynote lecture on **Smart Biopolymers** in International Conference on Advanced Research in Sustainable and Intelligent Manufacturing (RESIM- 2016) held at Centre for Rapid and Sustainable Product Development (CDRSP), Polytechnic Institute of Leiria, Portugal from 14th to 17th December, 2016.
2. CDRSP Anniversary Keynote lecture on **Smart Polymers in Biomedical Applications** in the International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP-2017) held at Centre for Rapid and Sustainable Product Development (CDRSP), Polytechnic Institute of Leiria, Portugal from 15th to 18th May, 2017.

3. Keynote lecture on **Electrodialysis: An Overview** in the Training Program on Biosafety and Applications of Nanotechnology held at Agricultural University, Dharwad on 11th November, 2017.
4. Keynote lecture on **Shape Memory Polymers in Biomedical Applications** in the National Conference on Advanced Materials held at Mahantswamy Arts, Science and Commerce College, Haunsbhavi, on 22nd February, 2018.
5. Keynote lecture on **Applications of Ion Exchange Membrane in Electrodialysis** in the National Conference on Advanced Materials held at Jagadguru Tontadarya College, Betgeri, Gadag on 2nd March, 2018.
6. Keynote lecture on **Water and Energy** in the International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP-2019) held at Karnatak University, Dharwad in association with Centre for Rapid and Sustainable Product Development (CDRSP), Polytechnic Institute of Leiria, Portugal from 20th to 23rd February, 2019.
7. Keynote Lecture on **"Challenges and Sustainability in Water Technology"** in One day National Seminar held at Basaveshwar Science College, Bagalkot on 10th March, 2021.
8. Keynote Lecture on **"Electrodialysis and Energy"** in Two days **International Webinar on Recent Innovations in Chemical Sciences (IWRICS – 2020)** held at Karnataka Science College, Dharwad on 4th and 5th December, 2020.

Invited Talks Given in National/International Conferences/Academic Staff Colleges

1. Invited talk on **Polyethylene Success and Its Future Challenges** in the International Conference held at Don Center, London on 22nd March, 2008.
2. Invited talk on **Development of Novel Pervaporation Membranes** in the Second International Conference on Polymer Blend, Composites, IPN's Membranes, Polyelectrolyte and Gels, ICBC- 2008 held at Kottayam, Kerala from 22nd-24th September, 2008.
3. Invited talk on **Electrodialysis & Its Applications** in the State Level Seminar on Recent Trends in Chemistry held at Bharathi College, Bharathinagar, Mandya, Karnataka on 13th March, 2008.
4. Invited talk on **Development of Novel Alginate-Silica Hybrid Membranes for Pervaporation Dehydration of Isopropanol** in the Second International Conference on Polymer Processing and Characterization, ICPPC-2010 held at Kottayam, Kerala from 15th-17th January, 2010.
5. Invited talk on **Recent Advances in Polymer Chemistry** in the National Level Seminar on Chandrayana, Astrophysics, Polymer, Electro and Environment Chemistry held at SJVP Autonomous College, Harihar, Karnataka from 3rd-4th March, 2010.
6. Invited talk on **Polymer & Its Applications** in 100 KUMSBS Scholarship Training Programme held at Karnatak University, Dharwad on 2nd June, 2013.
7. Invited talk on **Advanced Polymeric Materials** in the International Conference of Polymers held at Mahatma Gandhi University from 11th-13th October, 2013.
8. Invited talk on **Polymer & Its Applications** in 100 KUMSBS Scholarship Training Programme held at Karnatak University, Dharwad on 1st January, 2014.
9. Invited talk on **Introduction to Polymers** in the Seminar on Trends in Condensed Matter Physics, CAS, UGC, New Delhi held from 7th to 8th March, 2014.
10. Invited talk on **Advances in Polymers** in the UGC Academic Staff College, Bangalore University, Bangalore on 21st March, 2014.
11. Invited talk on **Polymeric Nonlinear Optical Materials** in UGC Academic Staff

College, Bangalore University, Bangalore on 22nd March, 2014.

12. Invited lecture on **Polymer Membranes in Pervaportion** in the 3rd International Conference conducted by Indian Council of Chemists held at Dubai & Abu Dhabi from 10th-14th June, 2014.
13. Invited talk on **Development of Novel Crosslinkable Polymers for Second-Order Non Linear Optical (NLO) Devices** in the International Conference on Direct Digital Manufacturing and Polymers held at Karnatak University, Dharwad from 28th to 31st October, 2015.
14. Invited talk on **How to Write Research Papers** in one day Seminar on Research Skills and Plagiarism held at Karnatak University, Dharwad on 3rd February, 2017.
15. Invited talk on **Shape Memory Polymers in Tissue Engineering Applications** in the International Conference held at Centre for Rapid and Sustainable Product Development (CDRSP), Polytechnic Institute of Leiria, Portugal from 15th to 18th May, 2017.
16. Invited talk on **An Overview on Electrodialysis in the National Conference of Advanced Materials** held at Mahantswamy Arts, Science and Commerce College, Haunsbhavi on 22nd February, 2018.
17. Invited talk on **Water & Energy** in the UGC Academic Staff College, Karnatak University, Dharwad on 11th March, 2019.
18. Plenary Lecture on **"Hybrid Membranes are the Novel Materials for Pervaporation"** in the International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP-2021) held at Polytechnic Institute of Leiria, Portugal in association with Karnatak University, Dharwad from 20th to 22nd May, 2021.
19. Invited Lecture on **"Water and Energy"** for BSc. Students of M. E. S. College, Sirsi, Uttara Kannada, on 1st October, 2021.
20. Keynote Lecture on **"Water and Energy"** in the Webinar Programme held at Dharwad Regional Science Center, Karnatak University, Dharwad on 25th November, 2021.

Number of Patent(s) Obtained

1. Ion exchange membranes, methods and processes for production thereof and uses in specific applications, **US Patent 6, 814, 865 B1.**

This patent has got the 1st Rank among the US Patent Ranking.

2. Ion exchange membranes, methods and processes for production thereof and uses in specific applications, **US Patent 7,544,278 B2.**

No. of Technologies/Devices Developed

1. Electrodialysis Technologies - 03
2. Fuel Cell Devices - 04
3. Supercapacitor Devices - 08

Book Chapters Published

1. **M. Y. Kariduraganavar,** A. A. Kittur and S. S. Kulkarni, **Ion exchange membranes: preparation, properties, and applications,** in: Dr. Inamuddin and M. Luqman (Eds.), *Ion Exchange Technology I: Theory and Materials*, Springer link,

April 2012, pp 233-276.

2. **M. Y. Kariduraganavar**, A. A. Kittur and R. R. Kamble, **Polymer synthesis and processing,** in: *S.Kumbar, C. Laurencin and M. Deng (Eds.)* Natural and Synthetic Biomedical Polymers, Elsevier, 2014, pp 1–31.

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4. Geoffrey R. Mitchell, Saeed D. Mohan, Fred J. Davis, Kyung-hwaAhn, Mohamed Al-Azab, Ahmed El Hadi, Delyth Elliott, **Mahadevappa Y. Kariduraganavar**, Anitha Nagarajan, and Meruyert Nazhipkyzy, **Structure development in electrospunfibres** in:Geoffrey R. Mitchell (Ed.), Electrospinning: Principles, Practice and Possibilities,*Royal Society of Chemistry*, Cambridge, United Kingdom, 2014.

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6. N. A. Pattanashetti, C. G. Hiremath, N. Alues and **M. Y. Kariduraganavar, Advances in polymers and tissue engineering scaffolds**, in: Inamuddin (Ed.), Green Polymer Composites Technology: Properties and Applications, *CRC Press, Taylor & Francis*, USA, 2015.

7. C. G. Hiremath, G. B. Heggannavar, G. R. Mitchell and **M. Y. Kariduraganavar**, **Biopolymers in drug delivery applications**, in: Inamuddin (Ed.), Green Polymer Composites Technology: Properties and Applications, *CRC Press, Taylor & Francis*, USA, 2015.

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9. **M. Y. Kariduraganavar**, B. B. Munavalli and A. I. Torvi, **Proton conducting polymer electrolyte for fuel cells via electrospinning technique**, in: S. Inamuddin (Ed.), *Organic-Inorganic Composite Polymer Electrolyte Membranes, Springer*, Switzerland, 2015.

10. **M. Y. Kariduraganavar**, B. B. Munavalli, S. R. Naik and A. I. Torvi, **Dendrimers,** Handbook of Functional Polymers, *Springer*, 2017.

11. **M. Y. Kariduraganavar**, Geetha B. Heggannavar, Sandra Amado and Geoffrey R Mitchell, **Protein nanocarriers for targeted drug delivery for cancer therapy,** In S. Mohapatra, S. Ranjan, N. Dasgupta, R. Mishra and S. Thomas (eds.), Nanocarriers for Drug Delivery, *Elsevier*, pp. 173, 2019.

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16. Nandini A. Pattanashetti, Divya D. Achari and **Mahadevappa Y. Kariduraganavar,** Antifouling nanofiltration membranes, Inamuddin (Ed.), In: Microbial Bioremediation, Bentham Science Publishers, United Arab Emirates, 2020 (In Press).
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19. Geoffrey R. Mitchell, **Mahadevappa Y. Kariduraganavar,** Nandini A. Pattanashetti, Geetha B. Heggannavar, "Electrospun membranes for drug delivery" In: "*Electrospun and Nanofibrous Membranes: Principles and Applications*", Elsevier Publication, 2020 (In Press)**.**
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1. **M. Y. Kariduraganavar**, R. K. Nagarale, A. A. Kittur and S. S. Kulkarni, A Review on ion-exchange membranes: Preparative methods for electrodialysis and fuel cell applications, *Desalination,* **197** (2006) 225-246.
2. V. Mahendra, **M. Y. Kariduraganavar**, N. A. Pattanshetty. G. R. Mitchell, The coconut tree - A source of sustainable polymeric materials, United Journal of Biochemistry and Biotechnology, 1 (2018) 1-6.
3. B. B. Munavalli, S. R. Naik and **M. Y. Kariduraganavar**, Dendrimers and hyperbranched polymers as electrolytes for the application of proton exchange membrane fuel cells, International Journal of Hydrogen Energy, 2018 (Communicated).
4. **M. Y. Kariduraganavar**, Shaluah Vijeth, Geetha Heggannavar, Angiopep-2: A novel LRP-1 targeted ligand for glioma treatment, Biomacromolecules, (Communicated).

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1. M. Y. Kariduraganavar et al., Electrodialysis Research in Japan, Polymer News,

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2. M. Y. Kariduraganavar et al., Polymers in India, 26(5), 167 (2001).

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1. Dr. M. Y. Kariduraganavar, "**Membrane Vital in Water Purification",** Vijay Times, 24th May, 2005, Page- 2.

2. ¤. ªÄºzÀªÀ¥ PjzÄUÀ£ªÀ, "¤dz ¸ªðAVÀt ¤ÃPt¢P C©ª¢AiÆAzÀ KPÌP GzÁå¸ªVº: LLn ¸¤¥£U ºÄ§½-z¤ªqªÀ vP ¸¼", «dAiÄ P£ðlP, 15 J¦¯ï, 2015, ¥Äl-6.

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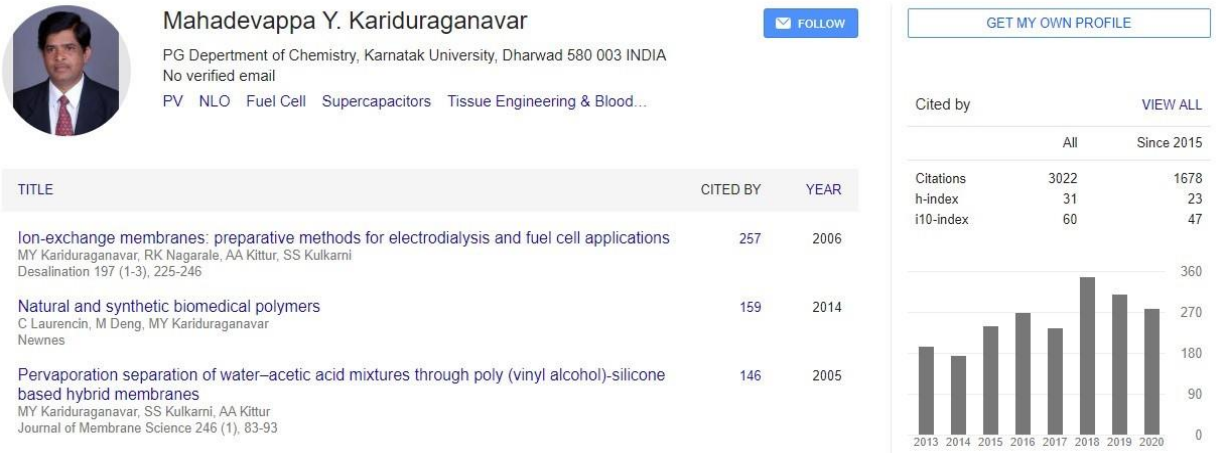

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Ion-exchange membranes: preparative methods for electrodialysis and fuel cell applications MY Kariduraganavar, RK Nagarale, AA Kittur, SS Kulkarni Desalination 197 (1-3), 225-246	257	2006
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4 to < 6	18
6 to < 10	20
Pending	14

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1. Aravind R Nesaragi, Ravindra R Kamble, Praveen K Bayannavar, Tukaram V Metre, **Mahadevappa Y Kariduraganavar**, Sheetal B Margankop, Shrinivas D Joshi, Vijay M Kumbar, Microwave facilitated one-pot three component synthesis of coumarin-benzoxazole clubbed 1, 2, 3-triazoles: Antimicrobial evaluation, molecular docking and in silico ADME studies, ***Synthetic Communications***, Taylor & Francis, 3460-3472, 2021
2. Pramod P Kattimani, Ravindra R Kamble, Aravind R Nesaragi, **Mahadevappa Y Kariduraganavar,** Shrinivas D Joshi, Suneel S Dodamani, Sunil S Jalalpure, Novel pyrazole derivatives *via* ring transformations: Anti-inflammatory and antifungal activity studies, *Synthetic Communications*, Taylor & Francis, 51, 3125-3140, 2021.
3. Nandini A Pattanashetti, Anand I Torvi, Arun K Shettar, Pramod B Gai, **Mahadevappa Y Kariduraganavar**, Polysaccharides as Novel Materials for Tissue Engineering Applications, Polysaccharides: Properties and Applications, *John Wiley & Sons, Inc*., 301-324, 2021.
4. Anand I Torvi, Satishkumar R Naik, Sachin N Hegde, Mohemmedumar Mulla, Ravindra R Kamble, Geoffrey R Mitchell, **Mahadevappa Y Kariduraganavar**, Conducting Polymer-Based Flexible Supercapacitor Devices, Flexible Supercapacitor Nanoarchitectonics, *John Wiley & Sons, Inc.,* 611-634, 2021
5. Satishkumar R Naik, Anand I Torvi, Balappa B Munavalli, Divya D Achari, **Mahadevappa Y Kariduraganavar**, Fabrication and Evaluation of Flexible Micro-Supercapacitor from MWCNTs-Ag Nanohybrid-Sulfonated PANI Nanocomposite Embedded PVA-TEOS Membrane, ***Chemistry Select***, 3126-3138, 2021.
6. Divya D Achari, Sachin N Hegde, Nandini A Pattanashetti, Ravindra R Kamble, **Mahadevappa Y Kariduraganavar**, Development of zeolite-A incorporated PVA/CS nanofibrous composite membranes using the electrospinning technique for pervaporation dehydration of water/tert-butanol, New Journal of Chemistry, ***Royal Society of Chemistry***,3981-3996, 2021.

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1. Divya D. Achari, Sachin N. Hegde and **Mahdevappa Y. Kariduraganavar**, Development of Zeolite-A Incorporated PVA/CS Nanofibrous Composite Membranes Using Electrospinning Technique for Pervaporation Dehydration of Water/Tert-butanol, ***Journal of Industrial & Engineering Chemistry***, (2020) **(Impact Factor – 3.573)**.

2. Divya D. Achari Geetha B. Heggannavar & **Mahadevappa Y. Kariduraganavar,** Modification of highly brittle polystyrene sulfonic acid-co-maleic acid crosslinked sodium alginate membrane into flexible membranes by the incorporation of dibutyl phthalate as plasticizer for pervaporation separation, ***Journal of Applied Polymer Science,*** 49431, (2020) **(Impact Factor – 2.52)**.

3. **Mahadevappa Y. Kariduraganavar,** H. G. Premakshi, Geoffrey R Mitchell, Crosslinked Nanocomposite Sodium Alginate-Based Membranes with Titanium Dioxide for the Dehydration of Isopropanol by Pervaporation, *Molecule,* **(**202**0)(Impact Factor – 3.267)**.

4. Nandini A. Pattanashetti, Tania Viana, Nuno Alves, Geoffrey R. Mitchell, **Mahadevappa Y. Kariduraganavar**, Development of novel 3D scaffolds using BioExtruder by varying the content of hydroxyapatite and silica in PCL matrix for bone tissue engineering, *Journal of Polymer Research,* (2020) (Impact Factor – 1.22).

5. Nandini A. Pattanashetti, Divya D. Achari, Anand I. Torvi, Radha V. Doddamani, **Mahadevappa Y. Kariduraganavar,** Development of Multilayered Nanofibrous Scaffolds with PCL and PVA: NaAlg Using Electrospinning Technique for Bone Tissue Regeneration, *Materialia,* (2020).

6. Divya D. Achari, Satishkumar R. Naik, Geetha B. Heggannavar and **Mahadevappa Y. Kariduraganavar,** Effects of different plasticizers on highly crosslinked NaAlg/PSSAMA membranes for pervaporative dehydration of tert-butanol, *New Journal of Chemistry (*2020) 1-15 **(Impact Factor-3.288)**.

7. Nandini A. Pattanashetti, Chinmay Hiremath, Satishkumar R. Naik, Geetha B. Heggannavar and **Mahadevappa Y. Kariduraganavar,** Development of nanofibrous scaffolds by varying the TiO_2 content in crosslinked PVA for bone tissue engineering, **New J. Chem.,** (2020) 44, 2111-2121 **(Impact Factor-3.288)**.

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9. Geetha B. Heggannavar, Shaluah Vijeth**, Mahadevappa Y. Kariduraganavar,** Preparation of transferrin-conjugated poly-ε-caprolactone nanoparticles and delivery of paclitaxel to treat glioblastoma across blood–brain barrier *Emergent Materials* (2019) 463-474

10. Nandini A. Pattanashetti, Divya D. Achari, Anand I. Torvi, Radha V. Doddamani**, Mahadevappa Y. Kariduraganavar,** Multilayer electrospinning of PCL and PVA: NaAlg nanofibres for bone tissue engineering**,** *Materialia***,** (2019).

11. Shilpa M. Somagond, Ravindra R. Kamble, Praveen K. Bayannavar, Saba Kauser J. Shaikh, Shrinivas D. Joshi, Vijay M. Kumbar, Aravind R. Nesaragi, **Mahadevappa Y. Kariduraganavar,** Click chemistry based regioselective one-pot synthesis of coumarin-3-yl-methyl-1,2,3-triazolyl-1,2,4-triazol-3 (4H)-ones as newer potent antitubercular agents, ***ARCH PHARM Chemistry in Life Sciences,*** (2019)**.**

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13. Akshay S. Kulkarni, Sonal M. Badi, Ashok M. Sajjan, Nagaraj R. Banapurmath, **Mahadevappa Y. Kariduraganavar**, Ashok S. Shettar, Preparation and characterization of B2SA grafted hybrid poly(vinyl alcohol) membranes for pervaporation separation of water-isopropanol mixtures, ***Chemical Data Collections,*** (2019) 100245**(Impact Factor-0.94)**.

14. Chinmay G. Hiremath, Geetha B. Heggnnavar, **Mahadevappa Y. Kariduraganavar**, Murigendra B. Hiremath, Co-delivery of paclitaxel and curcumin to foliate positive cancer cells using Pluronic-coated iron oxide nanoparticles, ***Progress in Biomaterials***, (2019) 1-14 **(Impact Factor-5.00)**.

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18. Prajakta S. Kadolkar, Shivaraj A. Patil, **M. Y. Kariduraganavar**, Sanjeev R. Inamdar, Evaluation of ground and excited state dipole moments of alexa fluor 350-NHS ester in binary mixtures of DMSO-water, ***AIP Conference Proceedings***, **2104** (2019) 030029.

19. Radha V. Doddamani, Padmeshwary S. Rachipudi, Sanjeev R. Inamdar, **M .Y. Kariduraganavar,** Enhancement of nonlinear optical and thermal properties of polyurethanes by modifying the chromophores with fused heterocyclic and pyrimidine rings, ***Polymer Engineering & Science,*59** (2018) 500-509 **(Impact Factor –1.449)**

20. B. B. Munavalli and **M. Y. Kariduraganavar,** Development of novel sulfonic acid functionalized zeolites incorporated composite proton exchange membranes for fuel cell applications, ***Electrochimica Acta*, 296** (2018) 294-307 **(Impact Factor –5.1)**

21. Cristiana Fernandes, Geetha B. Heggannavar, **Mahadevappa Y. Kariduraganavar,** Geoffrey R. Mitchell, Nuno Alves, Pedro Morouço, Smart Materials for Biomedical Applications: The Usefulness of Shape-Memory Polymers, ***Applied Mechanics and Materials*, 890** (2019) 237-247.

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