

CURRICULUM VITAE

OF

Prof. (Dr.) K.GIRISH KUMAR

Dr.K.GIRISH KUMAR

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PERSONAL DETAILS

FULL NAME : Dr. K. GIRISH KUMAR

DESIGNATION : Dean (Faculty of Science, CUSAT)
Senior Professor
Director (Internal Quality Assurance Cell, CUSAT)

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DATE OF BIRTH : 23-07-1962

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RESIDENCE : Kavyam
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EDUCATIONAL QUALIFICATION

SSLC	1 st Class	KeralaState Board	1977
Pre-Degree	1 st Class	KeralaUniversity	1979
B.Sc (Chemistry)	1 st Class	KeralaUniversity	1982
M.Sc (Chemistry)	1 st Class	KeralaUniversity	1984
Ph.D (Chemistry)		Kerala University	1989

SERVICE HISTORY

- 1. Lecturer in Chemistry** :1989 - 1994
Gandhigram Rural University
Tamil Nadu

- 2. Lecturer (Senior Grade)** :1994 – 1998
Gandhigram Rural University
Tamil Nadu

- 3. Reader in Chemistry** :1998 – 1999
Gandhigram Rural University
Tamil Nadu

- 4. Reader in Analytical Chemistry** :1999 – 2006
Cochin University of Science and Technology
Cochin

- 5. Professor** :2006 - 2018
Cochin University of Science and Technology
Cochin

- 6. HEAD, Department of Applied Chemistry** :2007 – 2010 (Rotation)
Cochin University of Science and Technology
Cochin

- 7. HEAD, Department of Applied Chemistry** :2016 - 2020 (Rotation)
Cochin University of Science and Technology
Cochin

- 8. Senior Professor** :2018 onwards
Cochin University of Science and Technology (w.e.f. 17-08-2018)
Cochin

Over 14 years and 9 months of experience as professor in university system

EXPERIENCE

ACADEMICS

Over **THIRTY ONE years and 11 Months** of teaching experience in Chemistry at post-graduate level at Gandhigram Rural University, Tamil Nadu (1989 - 1999), India and at Cochin University of Science and Technology (1999 onwards), India.

Visiting Professor at Sultan Qaboos University, Muscat, Sultanate of Oman (Fall Semester – Sept. - 05 to Dec. - 05)

RESEARCH

Over **THIRTY FOUR years** of research experience in Analytical Chemistry.

ADMINISTRATION

- **Presently serving as Dean, Faculty of Science, Cochin University of Science and Technology [From June 2019 onwards]**
- **Head, Department of Applied Chemistry, Cochin University of Science and Technology [(2007-2010) and (2016-2020) (rotation)] - 6 YEARS**
- **Director, Internal Quality Assurance Cell, CUSAT**
- **Chairman, Board of Studies in Chemistry, CUSAT**
- **Former Member, Senate, CUSAT**
- **Member, Board of Studies in Chemistry, CUSAT**
- **Member, Academic Council, CUSAT.**
- **Chairman, Faculty of Science, CUSAT**

- **Member, Research Advisory Committee, Cochin University of Science and Technology, Kochi**

Ph.D. THESIS SUPERVISED (25)

1. G. Devala Rao - “Development of novel spectrophotometric methods for the determination of certain pharmaceuticals”
2. Saji John K. - “Polymeric complexes – Synthesis, characterization and analytical applications”
3. R. Muthuselvi - “Development of some novel reagents for the spectrophotometric determination of certain metals”
4. V. Otchan - “Development of polymeric ligands as novel metal ion removing reagents”
5. Remalakshmy Poduval - “Fabrication of potentiometric sensors for the determination of certain metal ions”
6. Jose P. Kallopparambil - “Synthesis, characterization and application studies of some polymer supported metal complexes”
7. Sareena John - “Fabrication of electrochemical sensors for pharmaceutical analysis”
8. Pearl Augustine - “Development of electrochemical sensors for the determination of certain pharmaceuticals”
9. Beena Saraswathyamma - “Fabrication of potentiometric sensors for the determination of lanthanide ions”
10. Mohanraj. K - “Synthesis and characterization of lanthanide complex of some biologically active ligands”
11. Sindhu Issac - “Fabrication of electrochemical sensors for the determination of pharmaceuticals”
12. Renjini Joseph - “Fabrication of electrochemical Sensors for Various Pharmaceuticals”
13. Sobhana Mathew - “Development of Macrocyclics based Electrochemical Sensors”
14. Leena R. - “Chemically modified glassy carbon electrode as sensors for various pharmaceuticals”

15. Laina A.L. - “Voltammetric sensors for the determination of pharmaceuticals”
16. Theresa C. J. - “ Square wave voltammetric determination of various Pharmaceuticals”
17. Divya Thomas - “ Development of Electrochemical and Fluorescent Sensors ”
18. Anuja E. V. - “ Novel Electrochemical and Fluorescence Sensors for Food additives and Neurotransmitters”
19. Soumya T Cyriac - “ Development of Electrochemical and optical sensors for some food additives and pharmaceuticals”
20. Jesny S - “Electropolymer based sensor for DNA bases and xanthenes and their electrokinetic studies”
21. Unni Sivasankaran-“Nanomaterials based electrochemical and optical sensors for food additives and biomarkers”
22. Ammu Rosin Jose-“Voltammetric and fluorescent sensors for food colorant, pharmaceuticals and biomolecules”
23. Zafna Rasheed – “ Development of electrochemical and fluorescence sensors for food additives and clinically significant molecules”
24. Shalini Menon-“Optical and electrochemical sensors for individual, simultaneous and multianalyte determination of clinically important compounds”
25. Ambily Thomas – “ Voltammetric and optical sensors for individual, dual and simultaneous determination of some antioxidants and biomarkers”

Postdoctoral fellows

1. Dr. Priya Rao- Women Scientists Scheme (WOS-A) fellowship (DST funded)
2. Dr. Jintha Thomas - Dr. D. S. Kothari postdoctoral fellowship (UGC funded)
3. Dr. Monica Raina -Women Scientists Scheme (WOS-A) fellowship (DST funded)
4. Dr. Swathi Mukundan - Dr. D. S. Kothari postdoctoral fellowship (UGC funded)
5. Dr. Shalini Menon -CSIR Research Associate
6. Dr. S. Kaviya - - Dr. D. S. Kothari postdoctoral fellowship (UGC funded)

Ph. D. thesis under progress :08

M. Phil. thesis supervised :17

SPONSORED RESEARCH PROJECTS

1. “Methods for the Quality Control of Certain Drugs Using Dibromodimethyl Hydantoin” (**University Grants Commission, Govt. of India – 1991-1993**)
2. “Development of Extractive Spectrophotometric Methods for Determination of Lanthanides at Trace Level” (**University Grants Commission, Govt. of India – 1996-1998**)
3. “Synthesis of Novel Polymeric Complexes – A search for new Membrane Electrode and Ion Exchange Materials” (**Council of Scientific and Industrial Research Govt. of India - 1999-2002**)
4. “Development of Ion Selective Electrodes for the determination of Metal Ions” (**Defence Research and Development Organisation, Govt. of India – 2003-2007**)
5. “Fabrication of Biosensors for the determination of pharmaceuticals” (**Department of Science and Technology, Govt. of India- Indo-Polish S&T Programme– 2006-2008**)
6. “Development of Electrochemical Sensors for the Determination of Pharmaceuticals” (**Defence Research and Development Organisation, Govt. of India – 2006-2009**)
7. “Development of Novel Macrocyclics based Electrochemical Sensors for Metals” (**Kerala State Council for Science, Technology and Environment – 2010-2013**)
8. “Development of Electrochemical Sensors for Food Analysis” (**Defence Research and Development Organisation, Govt. of India –2011-2014**)
9. Recipient of **UGC ONETIME RESEARCH GRANT(2014)**

10. Development of fluorescent sensors for pharmaceutical and clinical analysis. (**Kerala State Council for Science, Technology and Environment – 2016-2019**)
11. Development of sensors for compounds important for clinical analysis and food safety(**Department of Science and Technology, Govt. of India- Indo-Polish S&T Programme– 2017-2019**)

AREAS OF RESEARCH

1. Development of enzyme immobilized biosensors and optical sensors based on quantum dots for pharmaceutical analysis.
2. Fabrication of biosensors for determination of pharmaceuticals.
3. Fabrication of electrochemical sensors for determination of metal ions and pharmaceuticals.
4. Development of sensors based on Fluorescence.
5. Development of new Spectrophotometric methods for Pharmaceuticals.
6. Development of methods for trace analysis of metals.
7. Synthesis, characterization and application studies of Coordination complexes including polymeric complexes.
8. Environmental Chemistry and Pollution Monitoring.
9. Bio mass upgradation to value - added chemicals.

CURRENT RESEARCH

Our group is actively involved in the fabrication of different types of chemical sensors , specifically electrochemical and optical sensors. Electrochemical sensors include potentiometric sensors, incorporating different types of ionophores – calixarenes, porphyrins, crown ethers, schiff bases, ion association complex etc are used for the determination of metal ions and drugs as well as voltammetric sensors for the analysis of drugs, food additives and biological molecules by modification of electrode surface using metalloporphyrins, conducting polymers, nanomaterials and self assembled monolayers. Currently the main focus of the group is on the development of fluorescence sensors and colorimetric sensors based on quantum dots, nanomaterials etc. for environmental, food and clinical monitoring. The group is also working in the field of immunosensors and biosensors.

RESEARCH COLLABORATIONS

NATIONAL

Electrodics division, CECRI (CSIR), Karaikudi, Tamilnadu, India

INTERNATIONAL

Department of Biosensors, Polish Academy of Sciences, Poland

MEMBERSHIP (Academic and Research Bodies)

1. Member, Editorial board, Journal of Biosensors and Bioelectronics, USA
2. Fellow of Indian Chemical Society.
3. **Vice President**, Indian Society for Electro Analytical Chemistry (ISEAC)
4. Former Member, Executive Committee, Central Instrumentation Centre, M.G. University, Kottayam, India
5. Member, Executive Committee, Advanced Centre of Environmental Studies and Sustainable Development, **M G University, Kottayam, Kerala**
6. Former Member, Governing Council, Inter University Centre for Nano Materials and Devices, Cochin University of Science and Technology, Kochi
7. Former Member, Advisory Committee, Centre for Science in Society, Cochin University of Science and Technology, Kochi
8. Member, Editorial Board, "Science Communicator" Cochin University of Science and Technology, Kochi
9. Member, American Nano Society
10. **Member NAAC Peer Team**
11. **Member, National Academic Committee, Childrens Science Congress, Govt. of India**

12. **Member, Governing body & General body, Vigyan Prasar- An Autonomous organisation under Department of Science & Technology, Govt. of India**
13. **Member, National steering committee –Rashtriya Avishkar Abhiyan, Ministry of Human Resource Development, Govt. of India**
14. **UGC NOMINEE** to Advisory Committee, St. Josephs College, Devagiri, Kozhikkod B.V.V Sangha's Basaveshwar Science College, Bagalkot, Karnataka (College with Potential for Excellence(CPE))
15. **UGC NOMINEE** to autonomy extension committee of Govt. Arts and Science College, Coimbatore

OTHER ACADEMIC ACTIVITIES

- ◆ Member, Board of Studies in Chemistry, Amritha Viswavidhya Peetham, Coimbatore, India.
- ◆ Member, Board of Studies, Alagappa University, Karaikkudi, Tamil Nadu
- ◆ Member, Board of Studies in Chemistry, Gandhigram Rural University, Tamil Nadu, India.
- ◆ Member, Board of Studies in Chemistry, Maharajas College (AUTONOMOUS), Ernakulam
- ◆ Member, Board of Studies in Chemistry, Vimala College (AUTONOMOUS), Trissur.
- ◆ Former Member, Board of Studies in Chemistry, Kerala Central University, Kasargod.
- ◆ Delivered a number of lectures in various colleges and universities.
- ◆ Ph. D thesis evaluator and examination board member of different universities.
- ◆ Served as UGC expert committee member for the selection of Commonwealth fellows.
- ◆ Served/serving as resource person in refresher courses conducted by different universities /colleges.
- ◆ Former member, Board of Editors, International Journal of Chemistry, Canada.

- ◆ **Coordinator, “SASTHRAYAN” a programme conducted by CUSAT to showcase the research result of the university to peoples representatives and public(2016).**

PEER REVIEWER FOR JOURNALS

- ◆ Talanta
- ◆ Analyst
- ◆ Indian Journal of Chemistry
- ◆ Indian Journal of Chemical Technology
- ◆ Bioresource Technology
- ◆ Applied Organometallic Chemistry
- ◆ Journal of Applied Polymer Science
- ◆ International Journal of Environmental Analytical Chemistry
- ◆ Journal of SolidState Electrochemistry
- ◆ Sensor Letters
- ◆ Drug Testing and Analysis
- ◆ Monatshefte für Chemie

SEMINARS/CONFERENCES ORGANISED

1. Co-Convener, National seminar on Newer Vistas in Bio-Active agents, Gandhigram University, Tamil Nadu (1999).
2. Convener, Matcon, Cochin University of Science and Technology (2001).
3. Coordinator, UGC sponsored refresher course for college teachers, Cochin University of Science and Technology (2002).
4. Chairman, National Seminar on Current Trends in Chemistry, Cochin University of Science and Technology (2008).
5. Chairman, International Conference on Materials (MATCON 2010), Kochi, January 2010.
6. Served/Serving as member of organising/ advisory Committee of different conferences/seminars.

7. Convener International Conference on Materials for the Millenium (MATCON 2016),Kochi, January14-16

SCIENCE POPULARISATION PROGRAMMES ORGANIZED

- ◆ Conducted an all Kerala Chemistry Quiz competition for PG chemistry students in the year 2007 with the support of KSCSTE.
- ◆ Conducted a unique programme “**Magic of Chemistry**” (chemistry made easy) for Govt. and aided school students during 2008 with the support of Science & Technology museum, Govt. of Kerala.
- ◆ Conducted a one day seminar in connection with National Science Day celebrations during 2009 with the support of KSCSTE.
- ◆ Coordinator, **Inculcate programme** of Govt. of Kerala, conducted at CUSAT for 3 years.
- ◆ Coordinated **CSIR- NET National Exam** at Cochin centre for Four Times
- ◆ Chairman, sathraprathibha matsaram conducted by Swadeshi Science Movement, Kerala for Four times.
- ◆ Convenor, Swadeshi Science Congress, M. G.University, Kottayam 2013.
- ◆ Coordinator, Children’s Science Congress, Navodaya Vidyalaya Samiti Hyderabad Region.
- ◆ Published articles and a book on general topics.
- ◆ **Chief Coordinator, Guinness World Record Breaking Event “Largest Practical Science Lesson” held at IIT Delhi** organized in connection with India International Science Festival, December 7. 2015.
- ◆ **Chief Coordinator, Guinness World Record Breaking Event “Largest Biology Lesson” held at ANNA UNIVERSITY, CHENNAI** organized in connection with India International Science Festival ,October 14, 2017.

➤ **Books published**

“Plastic Kathayum Karyavum”

(A book in Malayalam for popularization of Science published by NBS)

- ◆ **Research Publications (National and International): 129 (list attached)**
- ◆ **Book Chapter : 1**
- ◆ **Research Papers in Conferences/ Seminars :233(list attached)**
- ◆ **Article on General Topics :3 (list attached)**

➤ RESEARCH PUBLICATIONS

Book Chapter

1. **Girish Kumar Krishnapillai**, Sanu K Anand, Manna Rachel Mathew, Electro-oxidation in the development of voltammetric sensors for clinically important compounds, *Electro-oxidation Principles, Materials and Applications, Nova Science Publishers*, New York, (2020).

Papers published in International and National Journals

1. Sanu. K. Anand, Manna Rachel Mathew, **K Girish Kumar**, A dual channel optical sensor for biliverdin and bilirubin using glutathione capped copper nanoclusters, *J. Photochem. Photobiol. A*, **418**, 113379 (2021)
2. Sanu. K. Anand, Manna Rachel Mathew, **K Girish Kumar**, Poly(l-cysteine) modified Glassy Carbon Electrode as a Voltammetric Sensor for the Individual and Simultaneous Determination of Serotonin and Tyramine, *J. Electrochem. Soc*, **168**, 047507 (2021)
3. Devika Sudha Ravindran, Swathi Mukundan and **Krishnapillai Girish Kumar**, A Simple and Efficient Turn-off Fluorescence Sensor for the Nanomolar Detection of Homovanillic Acid Using Protein Mediated Blue Emitting Nickel Nanoclusters, *Chemistry Select*, **6**, 2477-2482 (2021)
4. Swathy S, Sanu K Anand, Manna Rachel Mathew, **K Girish Kumar**, Thioglycolic Acid Capped Cadmium Sulphide Quantum Dots as a Turn-On Fluorescence Sensor for the Determination of 5-Hydroxyindoleacetic Acid, *J. Photochem. Photobiol. A*, **409**, 113145(2021)

5. Sonia Sam, Sanu K Anand, Manna Rachel Mathew, **Krishnapillai Girish Kumar**, Tannic Acid Capped Copper Nanoclusters as a Cost Effective Fluorescence Probe for Hemoglobin Determination, *Anal. Sci.*, **37**, 599-603(2021).
6. Swathy Mukundan, Jorge N Beltramini, **Girish K Kumar**, Devika Sudha Ravindran, Surface Engineering of Carbon Supported CoMoS- An Effective Nanocatalyst for Selective Deoxygenation of Lignin Derived Phenolics to Arenes, *Appl Catal A-Gen*, **606**, 117811 (2020)
7. Shalini Menon, Manna Rachel Mathew, Sonia Sam, K. Keerthi, **K. Girish Kumar**, Recent advances and challenges in electrochemical biosensors for emerging and re-emerging infectious diseases, *J. Electroanal. Chemistry*, **878**, 114596 (2020) **(Review Article)**
8. Sanu K. Anand, Manna Rachel Mathew, Jerzy radecki, Hanna Radecka, **K. Girish Kumar**, Individual and Simultaneous Determination of Norepinephrine and Tyramine Based on poly(L-arginine)/Reduced Graphene oxide composite modified glassy carbon electrode, *J. Electroanal. Chemistry*, **878**, 114531 (2020)
9. Unni Sivasankaran, Lena Reinke, Sanu K. Anand, Kamila Malecka, **Krishnapillai Girish Kumar**, Hanna Radecka, Stefan Kubik, Jerzy Radecki, Ultrasensitive Electrochemical Sensing of Posphate in Water Mediated by a Dipicolylamine-Zinc(II) Complex, *Sens. Actuator B-Chem.*, **321**, 128474 (2020)
10. Sunny P Orathel, Ronnie Thomas, N. Chandramohanakumar, Joy Job Kulavelil, **Krishnapillai Girish Kumar**, Vadayath Usha Menon, P. Jayaprakash, Sajitha Krishnan, P.S. Manju, Shaiju Param, M. G. Rajamanickam, U.G Unnikrishnan, Joe Thomas, and Ponnu Jose, Possible Effects of Perchlorate Contamination of Drinking Water on Thyroid Health, *J. Thyroid Res.*, 5208657 (2020)
11. Manna Rachel Mathew, Sanu K. Anand, Jerzy Radecki, Hanna Radecka, **K. Girish Kumar**, Simple and Cost-effective “Turn-on” Fluorescence Sensor for the Determination of Xanthine, *J. Fluoresc.*, **30**, 695 (2020).
12. Manna Rachel Mathew, **K. Girish Kumar**, Poly(Amino Hydroxy Naphthalene Sulphonic Acid) Modified Glassy Carbon Electrode: An Effective Sensing Platform for the Simultaneous Determination of Xanthine and Hypoxantine, *J. Electrochem. Soc.*, **167**, 047519 (2020)
13. Kamila Malecka, Shalini Menon, Gopal Palla, **Krishnapillai Girish Kumar**, Mathias Daniels, Wim Dehaen, Hanna Radecka and Jerzy Radecki, Redox Active

- Monolayers Self-Assembled on Gold Electrodes- Effect of Their Structures on Electrochemical Parameters and DNA Sensing Ability, *Molecules*, **25**, 607 (2020)
14. Sanu K. Anand, Manna Rachel Mathew, **K. Girish Kumar**, A Simple and Cost Effective Turn off Fluorescence Sensor for Biliverdin and Bilirubin Based on L-Cysteine Modulated Copper Nanoclusters, *J. Fluoresc.*, **30**, 63 (2020)
 15. U. Sivasankaran, **K. Girish Kumar**, A cost effective strategy for dual channel optical sensing of adrenaline based on 'in situ' formation of copper nanoparticles, *Spectrochim. Acta Mol. Biomol. Spectrosc.*, **223**, 1386 (2019)
 16. U. Sivasankaran, J. Redecki, H. Radecka, **K. Girish Kumar**, Copper nanocluster: An efficient fluorescence sensing platform for quinoline yellow, *Luminescence*, **34**, 243(2019)
 17. A. Thomas, **K. Girish Kumar**, Acetylene black-chitosan mediated electro-oxidation of serotonin and melatonin: An efficient platform for simultaneous voltammetric sensing, *Ionics*, **25**, 2337 (2019)
 18. S. K. Anand, U. Sivasankaran, A. R. Jose, **K. Girish Kumar**, Interaction of Tetracycline with L-cysteine functionalized CdS quantum dots- Fundamentals and sensing application, *Spectrochim. Acta Mol. Biomol. Spectrosc.*, **213**, 410 (2019).
 19. P. Golebiewski, B. Pucilowski, F. Sommer, S. Kubic, M. Daniels, W. Dehaen, U. Sivasankaran, **K. Girish Kumar**, H. Radecka, J. Radecki, Electrochemical sensing of sulphate in aqueous solution with a cyclopeptide-dipyrrromethene- Cu(II) or Co(II) complex attached to a gold electrode, *Sens. Actuator B-Chem.*, **285**, 536 (2019).
 20. U. Sivasankaran, **K. Girish Kumar**, Electrochemical sensing of synthetic antioxidant propyl gallate-a cost effective strategy using nanoparticles, *J. Electrochemi. Soc.*, **166** (2) B92 (2019).
 21. S. T. Cyriac, U. Sivasankaran, **K. Girish Kumar**, Biopolymer Based Electrochemical Sensor for Ponceau 4R – An Insight into Electrochemical Kinetics, *J. Electrochemi Soc.*, **165**, B746 (2018).
 22. S. Jesny, **K. Girish Kumar**, Poly(para amino benzene sulfonic acid) Modified Glassy Carbon Electrode for the Simultaneous as well as Individual Voltammetric Determination of Guanine, Adenine and Uric Acid, *J. Electrochemi Soc.*, **165**, B720 (2018).

23. A. Thomas, **K. Girish Kumar**, Electro-oxidation of Dopamine at CoNP-pAHNSA modified electrode: A sensitive approach to its determination, *J. Electrochemi Soc.*, **165**, B466 (2018).
24. A. Thomas, **K. Girish Kumar**, Electro-catalytic resolution and simultaneous determination of two phenolic antioxidants, *J. Electrochemi Soc.*, **165**, B351 (2018).
25. U. Sivasankaran, T. Jos, **K. Girish Kumar**, Selective recognition of creatinine- Development of a colorimetric sensor, *Anal. Biochem.*, **544**, 1 (2018).
26. S. Menon, Sirijagan Jesny, **K. Girish Kumar**, A voltammetric sensor for acetaminophen based on electropolymerized-molecularly imprinted poly(*o*-aminophenol) modified gold electrode, *Talanta*, **179**, 668 (2018).
27. A.R. Jose, A.E. Vikraman, **K. Girish Kumar**, Photoinduced electron transfer between quantum dot and pralidoxime ; an efficient sensing strategy, *New J. Chem.*, **41**, 10828 (2017).
28. S. Menon, **K. Girish Kumar**, Simultaneous voltammetric determination of acetaminophen and its fatal counterpart nimesulide by gold nano/L-cysteine modified gold electrode, *J. Electrochemi Soc.*, **164**, B482(2017).
29. S. Jesny, **K. Girish Kumar**, Electrocatalytic resolution of guanine, adenine and cytosine along with uric acid on poly (4-amino-3-hydroxy naphthalene-1-sulfonic acid) modified glassy carbon electrode, *J. Electroanal. Chem.*, **801**, 153 (2017).
30. S. Menon, **K. Girish Kumar**, A fluorescent biosensor for the determination of xanthine in tea and coffee via enzymatically generated uric acid, *LWT- Food Science and Technology*, **86**, 8 (2017).
31. A. Thomas, U. Sivasankaran, **K. Girish Kumar**, Biothiols induced colour change of silver nanoparticles: A colorimetric sensing strategy, *Spectrochim. Acta Mol. Biomol. Spectrosc.*, **188**, 113 (2017)
32. S. Jesny, **K. Girish Kumar**, Non-enzymatic electrochemical sensor for the simultaneous determination of xanthine, its methyl derivatives theophylline and caffeine as well as its metabolite uric acid, *Electroanalysis*, **29**, 1828 (2017)
33. S. Menon, **K. Girish Kumar**, Fluorescence Immunosensing of Insulin via Protein Functionalized Gold Nanoclusters, *J. Fluoresc.*, **27**, 1541(2017).
34. U. Sivasankaran, A. Thomas, A. R. Jose, **K. Girish Kumar**, Poly (Bromophenol Blue)-Gold Nanoparticle Composite: An Efficient Electrochemical Sensing Platform for Uric Acid, *J. Electrochem. Soc.*, **164**, B292 (2017).

35. S. Jesny, Z.Rasheed, **K. Girish Kumar**, A biopolymer-based voltammetric sensor for thymine: Elucidation of electrochemical kinetics, *Ionics*, **23**, 1533 (2017)
36. U. Sivasankaran, S. Jesny, A. R. Jose, **K. Girish Kumar**, Fluorescence determination of glutathione using paper-derived carbon dots as fluorophores, *Anal. Sci.*, **33**, 281 (2017).
37. U. Sivasankaran, S. T. Cyriac, S. Menon, **K. Girish Kumar**, Fluorescence Turn off Sensor for Brilliant BlueFCF - an Approach Based on Inner Filter Effect, *J. Fluoresc.*, **27**, 69 (2017).
38. S. T. Cyriac, D. Thomas, A. E. Vikraman, **K. Girish Kumar**, Electrochemical Sensor for Propyl gallate, based on Synergic Effect of Gold Nanoparticles and Poly(p-Aminobenzene sulfonic acid), *J. Electrochem. Soc.*, **163**, B683- B688, (2016).
39. Beena S. and Krishnapillai Girish Kumar, PVC Membrane Sensor for Nd (III) Based on N 1 , N 2 -Bis (Salicylidine) Butane-1, 4 -Diamine, *International Journal of Advanced Research in Chemical Science (IJARCS)*, **3**, 30(2016)
40. S. Jesny, S. Menon, **K. Girish Kumar**, Simultaneous determination of Guanine and Adenine in the presence of Uric Acid by a poly (para toluene sulfonic acid) mediated electrochemical sensor in alkaline medium, *RSC. Adv.*, **6**, 75741 (2016).
41. S. Menon, S. Jesny, U. Sivasankaran, **K. Girish Kumar**, Fluorimetric Determination of Epinephrine: A Green Approach, *Anal. Sci.*, **32**, 999 (2016).
42. S. Menon, A. R. Jose, S. Jesny, **K. Girish Kumar**, A colorimetric and fluorometric sensor for the determination of norepinephrine, *Anal. Methods*, **8**, 5801 (2016); COVER ARTICLE (5729).
43. A. R. Jose, U. Sivasankaran, S. Menon, **K. Girish Kumar**, A silicon nanoparticle based turn off fluorescent sensor for sudan I, *Anal. Methods*, **8**, 5701 (2016)
44. U. Sivasankaran, A. E. Vikraman, D. Thomas, **K. Girish Kumar**, Nanomolar Level Determination of Octyl Gallate in Fats and Oils, *Food Anal. Methods*, **9**, 2115 (2016)
45. S. Sheen, T. Jos, L. Rajith, **K. Girish Kumar**, Manganese porphyrin sensor for the determination of bromate, *J. Food Sci. Technol*, **53**, 1561 (2016)
46. S. Menon, A. E. Vikraman, S. Jesny, **K. Girish Kumar**, "Turn On" Fluorescence Determination of Nitrite Using Green Synthesized Carbon Nanoparticles, *J. Fluoresc.*, **26**, 129 (2015)

47. A. E. Vikraman, A. R. Jose, M. Jacob, **K. Girish Kumar**, Thioglycolic acid capped CdS quantum dots as fluorescent probe for the nanomolar determination of dopamine, *Anal. Methods*, **7**, 6791 (2015).
48. D. Thomas, A. E. Vikraman, T. Jos, **K. Girish Kumar**, Kinetic approach in the development of a gold nanoparticle based voltammetric sensor for sudan I, *LWT-Food Science and Technology*, **63**, 1294 (2015).
49. D. Thomas, Z. Rasheed, J. S. Jagan, **K. Girish Kumar**, Study of kinetic parameters and development of a voltammetric sensor for the determination of butylated hydroxyanisole (BHA) in oil samples, *Journal of Food Science and Technology*, **52**, 6719 (2015).
50. A. Thomas, A.E. Vikraman, D. Thomas, **K. Girish Kumar**, Voltammetric Sensor for the Determination of TBHQ in Coconut Oil, *Food Anal. Methods*, **8**, 2028 (2015).
51. T. Jos, A. R. Jose, U. Sivasankaran, **K. Girish Kumar**, Electrochemical Sensing of Tinidazole on Modified Glassy Carbon Electrodes, *J. Electrochem. Soc.*, **162**, B94, (2015).
52. A.E. Vikraman, D. Thomas, S. T. Cyriac, **K. Girish Kumar**, Kinetic and Thermodynamic Approach in the Development of a Voltammetric Sensor for Sunset Yellow, *J. Electrochemi Soc*, **161**, B305 (2014).
53. T. Jos, L. Lonappan, Z. Rasheed, A. E. Vikraman, **K. Girish Kumar**, Voltammetric determination of Guaifenesin on a MWCNT modified Pt electrode. *ECS Electrochem. Lett.*, **3**, B23 (2014).
54. Z. Rasheed, A. E. Vikraman, D. Thomas, J. S. Jagan, **K. Girish Kumar**, Carbon-nanotube-based sensor for the determination of butylated hydroxyanisole in food samples. *Food Anal. Methods*, **8**, 213-221 (2015).
55. S. Mathew, L. Rajith, L. Lonappan, T. Jos, **K. Girish Kumar**, A lead (II) selective PVC membrane potentiometric sensor based on a tetra azamacrocyclic ligand. *J. Incl. Phenom. Macrocycl. Chem.*, **78**, 171 (2014).
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Seminars/Conferences Papers(As Author / Co-author)

1. An Electrochemical Sensor for Guanine Based on Molecularly Imprinted Polymer Modified Glassy Carbon Electrode (Keerthi K and **K. Girish Kumar**, MATCON 2021, Cochin University of Science and Technology, Kochi, March 2021)
2. A Simple and Efficient Turn-Off Fluorescence Sensor for the Nanomolar Detection of Homovanillic acid Using Protein Mediated Blue Emitting Nickel Nanoclusters (Devika S. R and **K. Girish Kumar**, MATCON 2021, Cochin University of Science and Technology, Kochi, March 2021)
3. Voltammetric Sensor for the Simultaneous Determination Melanoma Biomarkers (Sonia Sam and **K. Girish Kumar**, MATCON 2021, Cochin University of Science and Technology, Kochi, March 2021)
4. Fluorescence Turn On Sensing Method for the Determination of 5-Hydroxyindoleacetic acid using Thioglycolic acid Capped Cadmium Sulphide Quantum dots (Swathy. S and **K. Girish Kumar**, MATCON 2021, Cochin University of Science and Technology, Kochi, March 2021)
5. A Simple Turn on Fluorescence Sensor for xanthine Based on Glutathione Capped Copper Nanoclusters (Manna Rachel Mathew and **K. Girish Kumar**, MATCON 2021, Cochin University of Science and Technology, Kochi, March 2021)
6. Voltammetric Sensor for the Simultaneous Determination of Norepinephrine and Octopamine Based on Tyrosine Modified Glassy carbon electrode (Goldamol S.

- Pallam and **K. Girish Kumar**, MATCON 2021, Cochin University of Science and Technology, Kochi, March 2021)
7. Voltammetric Sensing of Norepinephrine and Tyramine Based on poly(L-Arginine)/Graphene oxide Composite film Modified Glassy Carbon Electrode (Sanu K. Anand and **K. Girish Kumar**, MATCON 2021, Cochin University of Science and Technology, Kochi, March 2021)
 8. Determination of Biliverdin and Bilirubin-A Dual Channel Optical Sensing Strategy (Sanu K Anand and **K. Girish Kumar**, 33rd Kerala Science Congress, Thiruvananthapuram.)
 9. Sensing of 5-Hydroxyindoleacetic acid Based on Aggregation Induced Emission Enhancement of Thioglycolic acid- Capped Cadmium Sulphide Quantum dots (Swathy. S and **K. Girish Kumar**, 33rd Kerala Science Congress, Thiruvananthapuram.)
 10. BSA Capped Nickel Nanoclusters as an Effective Tool for the Sensing of Homovanillic acid (Devika S R and **K. Girish Kumar**, CTriC-2020, Cochin University of Science and Technology, Kochi, January 2020)
 11. Electrochemical Genosensor for the Detection of Specific DNA Sequences of Avian Influenza Virus H5N1 (Shalini Menon and **K. Girish Kumar**, CTriC-2020, Cochin University of Science and Technology, Kochi, January 2020)
 12. A Sensitive and Cost Effective Fluorescence Sensor for Hemoglobin Based on Tannic Acid Capped Copper Nanoclusters (Sonia Sam and **K. Girish Kumar**, CTriC-2020, Cochin University of Science and Technology, Kochi, January 2020)
 13. Poly Methionine/GO Modified Glassy carbon Electrode Based Voltammetric Sensor for 5- Hydroxy Indole Acetic Acid (Swathy S and **K. Girish Kumar**, CTriC-2020, Cochin University of Science and Technology, Kochi, January 2020)
 14. Turn Off Fluorescence Sensor for Biliverdin and Bilirubin Using L-Cystein Capped Copper Nanoclusters (Sanu K Anand and **K. Girish Kumar**, CTriC-2020, Cochin University of Science and Technology, Kochi, January 2020)
 15. A Fluorescence Sensor for Cardiac Biomarker Myoglobin Based on Palladium Nanoclusters (Goldamol S Pallam and **K. Girish Kumar**, CTriC-2020, Cochin University of Science and Technology, Kochi, January 2020)
 16. Simultaneous Determination of Guanine and Adenine based on L-Arginine/Graphene oxide Modified Glassy carbon electrode (Manna Rachel Mathew

- and **K. Girish Kumar**, CTriC-2020, Cochin University of Science and Technology, Kochi, January 2020)
17. A Simple and Sensitive Voltammetric Sensor for the Individual AS WELL AS Simultaneous Determination of Serotonin and Tyramine (Sanu K Anand and **K. Girish Kumar**, NCE-21, VIT Chennai, January 2020)
 18. L- Arginine/Graphene oxide Modified Glassy carbon Electrode for the Simultaneous Determination of Guanine, Adenine and Thymine (Manna Rachel Mathew and **K. Girish Kumar**, NCE-21, VIT Chennai, January 2020)
 19. Poly Methionine/ Graphene oxide Modified Glassy carbon Electrode for the Simultaneous Determination of 5- Hydroxy indole acetic acid and Tyrosine (Swathy. S and **K. Girish Kumar**, NCE-21, VIT Chennai, January 2020)
 20. Voltammetric Sensor for the Individual and Simultaneous Determination of Norepinephrine and Tyramine (Sanu K Anand and **K. Girish Kumar**, 32nd Kerala Science Congress, Yuvakshetra Institute of Management Studies, Palakkad.)
 21. Voltammetric Sensing Platform For Simultaneous Determination of Xanthine and Hypoxanthine (Manna Rachel Mathew and **K. Girish Kumar**, 32nd Kerala Science Congress, Yuvakshetra Institute of Management Studies, Palakkad.)
 22. A Fluorescence Sensor for Cardiac Biomarker Myoglobin Based on Palladium Nanoclusters (Goldamol S Pallam and **K. Girish Kumar**, 32nd Kerala Science Congress, Yuvakshetra Institute of Management Studies, Palakkad.)
 23. Tannic acid Stabilized Copper Nanoclusters as a Fluorescence sensor for Hemoglobin (Sonia Sam and **K. Girish Kumar**, 32nd Kerala Science Congress, Yuvakshetra Institute of Management Studies, Palakkad.)
 24. A Simple and Selective Turn-on Fluorescence Sensor for the Determination of Xanthine (Manna Rachel Mathew and **K. Girish Kumar**, NEEHCON'19, NIT Calicut, December 2019).
 25. Fluorimetric Determination of Biliverdin and Bilirubin using L-Cysteine stabilized Copper Nanoclusters (Sanu K. Anand and **K. Girish Kumar**, NEEHCON'19, NIT Calicut, December 2019).
 26. A Dual Channel Optical Sensor for Norepinephrine via Situ Generated Silver Nanoparticles (Shalini Menon and **K. Girish Kumar**, IUBB 2019, World Academy of Science, London, United Kingdom, August 2019.)

27. Synergistic electrocatalytic action of poly(P-Toluene sulphonic acid) and gold nano particle based glassy carbon electrodes for the simultaneous determination of Xanthine and Hypoxanthine (Manna Rachel Mathew and **K.Girish Kumar**, NSEST 2019, Electrochemical Society of India, IISC Bangalore, July 2019)
28. Effective determination of Homovanillic acid using poly(4-amino 3-hydroxy naphthalene1-sulphonic acid modified glassy carbon electrode.(Ammu Rosin Jose, Devika S R and **K.Girish Kumar**, NSEST 2019, Electrochemical Society of India, IISC Bangalore, July 2019).
29. Poly Aspartic acid /AuNPs modified GCE as a voltammetric sensor for Vanillyl Mandelicacid (Swathy S and **K.Girish Kumar**, NSEST 2019, Electrochemical Society of India, IISC Bangalore, July 2019).
30. Poly methyl red modified glassy carbon electrode as a voltammetric sensor for sensitive and cost effective detection of L-Dopa (Sonia Sam and **K.Girish Kumar**, NSEST 2019, Electrochemical Society of India, IISC Bangalore, July 2019).
31. Electrochemical determination of guanine using L-histidine modified glassy carbon electrode (Manna Rachel Mathew, Goldamol S Pallam and **K.Girish Kumar**, NSEST 2019, Electrochemical Society of India, IISC Bangalore, July 2019).
32. Electrochemical sensors for the individual and simultaneous determination of some clinically important compounds (Shalini Menon and **K.Girish Kumar**, NSEST 2019, Electrochemical Society of India, IISC Bangalore, July 2019).
33. Voltammetric determination of Tyramine on L-aspartic acid polymerized glassy carbon electrode.(Sanu K Anand and **K.Girish Kumar**, NSEST 2019, Electrochemical Society of India, IISC Bangalore, July 2019).
34. Fluorescence Sensing of Butylated Hydroxyanisole Using Protein Templated gold Nanoclusters(Anuja E.V. and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019).
35. Screen Printed Carbon Electrode Sensor for Guafenesin (Laina A.L.and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
36. Electrochemical Sensing Metronidazolebenzoate on a Conducting Polymer Layer of p-TSA on GCE(Theresa C.J. and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
37. Potentiometric Membrane Sensors for the Determination of Lomefloxacin(Pearl Augustine and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)

38. An Electrochemical Sensor for the Wonder drug –Melatonin(Ambily Thomas and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
39. Electrochemical Determination of Some Clinically Important Compounds Using Acetylene Black-Chitosan Composite Film Modified Boron-Doped Diamond Electrode(Shalini Menon and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
40. Electrochemical Sensing of Ponceau 6R based on Poly(p-aminobenzenesulfonicacid) Modified Glassy Carbon Electrode(Zafna Rasheed and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
41. Voltammetric Sensor for the Quantification of Tert-Butylhydroquinone in Edible Oil Sample(Soumya T.Cyriac and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
42. An Investigation on the Interaction of CdTe Quantum Dots with Pralidoxime Chloride-A Fluorescence Study(Ammu Rosin Jose,Aparna K.B.and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
43. Kinetics of Electrochemical Oxidation of Uric acid on Various Sulfonic Acid Based Polymer Modified Electrodes:A comparative Study(Jesny S. and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
44. L-cysteine Capped Copper Nanocluster as a Fluorescence Probe for the Sensitive Determination of Biliverdin (Sanu K. Anand and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
45. Voltammetric Determination of Xanthine Based on Poly (p-Amino Hydroxyl Naphthalene Sulphonic Acid) Modified Glassy Carbon Electrode- An Efficient Sensing Platform (Manna Rachel Mathew and **K. Girish Kumar**, MATCON 2019, CUSAT , Kochi, March 2019)
46. Electrochemical sensors - Novel analytical technique for multicomponent analysis of biomolecules (**Keynote address - K. Girish Kumar**, National seminar on recent advances in photochemistry, St. Michaels College Cherthala, Kerala, February 2019).
47. Poly(p-amino hydroxyl naphthalene sulphonic acid) modified electrochemical sensor for the simultaneous determination of Xanthine and Hypoxanthine (Manna Rachel Mathew and **K. Girish Kumar**, 31st Kerala Science Congress, Fathima Matha National College, Kollam, February 2019).

48. Sensors for single to multicomponent analysis- An electrochemical approach (**Invited Lecture- K. Girish Kumar**, An International conference on Sustainable Innovation in Green Chemistry and New Technological Development, Post Graduate and Research Department of Chemistry, Maharajas College, Ernakulam, December 2018).
49. Specific sensing strategies: its applications in clinical analysis (Shalini Menon and **K. Girish Kumar**, workshop on Nano Bio-Sensors : present status and future perspectives (NANOSE 2018), Department of Bioelectronics and Biosensors, Alagappa University, Karaikudy, March 2018).
50. Multivalent QD Affimer conjugates for fluorescence sensing of cancer biomarkers(Ammu Rosin Jose and **K. Girish Kumar**, workshop on Nano Bio-Sensors : present status and future perspectives (NANOSE 2018), Department of Bioelectronics and Biosensors, Alagappa University, Karaikudy, March 2018).
51. A turn-off fluorescent sensor for tetracycline : an efficient sensing strategy (Sanu K. Anand and **K. Girish Kumar**, workshop on Nano Bio-Sensors : present status and future perspectives (NANOSE 2018), Department of Bioelectronics and Biosensors, Alagappa University, Karaikudy, March 2018).
52. A cost effective electrochemical sensor for propyl gallate (Ambily Thomas and **K. Girish Kumar**, workshop on Nano Bio-Sensors : present status and future perspectives (NANOSE 2018), Department of Bioelectronics and Biosensors, Alagappa University, Karaikudy, March 2018).
53. A novel sensor for paracetamol based on a supramolecular metal organic framework (SMOF) (Manna Rachel Mathew and **K. Girish Kumar**, workshop on Nano Bio-Sensors : present status and future perspectives (NANOSE 2018), Department of Bioelectronics and Biosensors, Alagappa University, Karaikudy, March 2018).
54. An electrochemical sensor for the neurotransmitter dopamine (Shalini Menon, M. J. Akhila and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).
55. Fluorimetric determination of Guanine using Zn²⁺ doped CdTe quantum dots (Ammu Rosin Jose and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).

56. Novel supramolecular copper complex based sensor for paracetamol (Manna Rachel Mathew and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).
57. Determination of quinoline yellow via fluorescence quenching of copper nanoclusters (Unni Sivasankaran and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).
58. Fluorimetric detection of Tetracycline using L-cysteine protected CdS quantum dots (Sanu K. Anand and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).
59. An Eco-friendly voltammetric sensor for serotonin (Ambily Thomas and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).
60. Simultaneous voltammetric determination of uric acid, guanine and thymine (Jesny S. and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).
61. Protein conjugated gold nanoclusters for selective determination of nimesulide (Zafna Rasheed and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).\
62. Green synthesized carbon dots for sensitive detection of sunset yellow (Soumya T. Cyriac and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2018, Cochin University of Science and Technology, Kochi, January 2018).
63. Simultaneous determination of Epinephrene and Homovanillic acid on Bromophenol Blue modified Glassy Carbon Electrode (Ammu Rosin Jose and **K. Girish Kumar**, Electrochem 2017, Brimingham).
64. Ultra-sensitive fluorescence assay for Pralidoxime (Ammu Rosin Jose and **K. Girish Kumar**, Prof. K.V. Thomas Endowment International Symposium on NEW TRENDS IN APPLIED CHEMISTRY (NTAC-2017); Sacred Heart College, Thevara)
65. Colorimetric sensing of Cysteine and Cysteamine (Ambily Thomas and **K. Girish Kumar**, Prof. K.V. Thomas Endowment International Symposium on NEW

- TRENDS IN APPLIED CHEMISTRY (NTAC-2017); Sacred Heart College, Thevara)
66. Voltammetric determination of propyl gallate using SAM modified glassy carbon electrode (Unni Sivasankaran and **K. Girish Kumar**, Prof. K.V. Thomas Endowment International Symposium on NEW TRENDS IN APPLIED CHEMISTRY (NTAC-2017); Sacred Heart College, Thevara)
 67. Fluorescence sensing of xanthine via enzymatically generated uric acid (Shalini Menon and **K. Girish Kumar**, Prof. K.V. Thomas Endowment International Symposium on New Trends In Applied Chemistry (NTAC-2017), Sacred Heart College, Thevara, February 2017).
 68. Voltammetric determination of Melatonin using Poly (p-Toluenesulfonic acid) modified glassy carbon electrode (Zafna Rasheed and **K. Girish Kumar**, Prof. K.V. Thomas Endowment International Symposium on NEW TRENDS IN APPLIED CHEMISTRY (NTAC-2017); Sacred Heart College, Thevara)
 69. Polymer modified electrode as multianalyte sensor for Theophylline and Caffeine (Jesny S. and **K. Girish Kumar**, Prof. K.V. Thomas Endowment International Symposium on NEW TRENDS IN APPLIED CHEMISTRY (NTAC-2017); Sacred Heart College, Thevara, February 2017)
 70. Polyethyleneimine-coated CdS/ZnS quantum dots: A fluorescent sensor for Anthrax Biomarker Detection (Gopika Bhaskar and **K. Girish Kumar**, Prof. K.V. Thomas Endowment International Symposium on NEW TRENDS IN APPLIED CHEMISTRY (NTAC-2017); Sacred Heart College, Thevara, February 2017)
 71. Fluorimetric determination of 2-PAM (Ammu Rosin Jose and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2017; Cochin University of Science and Technology, Kochi)
 72. Fluorescence Immunosensor for Insulin (Shalini Menon and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2017, Cochin University of Science and Technology, Kochi, January 2017).
 73. Biothiol induced color change of Ag NPs: Colorimetric Sensing Strategy. (Ambily Thomas and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2017; Cochin University of Science and Technology, Kochi)

74. Poly (p-Toluenesulfonic acid) based sensor for the determination of Melatonin. (Zafna Rasheed and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2017; Cochin University of Science and Technology, Kochi)
75. Quantification of Propyl Gallate in Food samples using Differential Pulse Voltammetry, (Unni Sivasankaran and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2017; Cochin University of Science and Technology, Kochi)
76. Development of Voltammertic Sensor for the Determination of Green S Using Poly (glycine) Modified Glassy Carbon Electrode (Soumya T. Cyriac and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2017; Cochin University of Science and Technology, Kochi)
77. Polymer Modified Electrode for the Simultaneous Sensing of Adenine and Guanine in DNA Samples (Jesny S. and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2017; Cochin University of Science and Technology, Kochi, January 2017)
78. Rapid onsite determination of Dipicolinic acid by fluorescent CdS/ZnS quantum dots. (Gopika Bhaskar and **K. Girish Kumar**, A National Seminar on Current Trends in Chemistry CTriC 2017; Cochin University of Science and Technology, Kochi, January 2017)
79. “Turn off” fluorescence biosensor for xanthine and its use in food and clinical monitoring (Shalini Menon and **K. Girish Kumar**, 29th Kerala Science Congress; Mar Thoma College, Thiruvalla, January 2017).
80. A dual channel optical sensor for norepinephrine (Shalini Menon and **K. Girish Kumar**, World Congress on Drug Discovery & Development; J.N. Tata Auditorium, Indian Institute Of Science, Bengaluru, September 2016).
81. Poly (bromophenol blue) modified glassy carbon electrode for the voltammetric determination of Epinephrine (Ammu Rosin Jose and **K. Girish Kumar**, World Congress on Drug Discovery & Development; J.N. Tata Auditorium, Indian Institute of Science, Bengaluru, 2016)
82. A colorimetric and fluorometric sensor for noradrenaline via insitu generated silver nanoparticles (Shalini Menon and **K. Girish Kumar**, 26th Swadeshi Science Congress, A National Seminar, Central Marine Fisheries Research Institute, Kochi, November 2016).

83. Voltammetric determination of Guanine and its primary metabolite Uric Acid, simultaneously in body fluids (Jesny S. and **K. Girish Kumar**, 26th Swadeshi Science Congress, A National Seminar, Central Marine Fisheries Research Institute, Kochi, November 2016)
84. Poly (bromophenol blue) modified glassy carbon electrode for the voltammetric determination of Adrenaline (Ammu Rosin Jose and **K. Girish Kumar**, 26th Swadeshi Science Congress, A National Seminar; Central Marine Fisheries Research Institute, Kochi, 2016)
85. Determination of cysteamine: A colorimetric approach (Ambily Thomas and **K. Girish Kumar**, 26th Swadeshi Science Congress, A National Seminar; Central Marine Fisheries Research Institute, Kochi, 2016).
86. Poly (p-Toluenesulfonic acid) modified glassy carbon electrode for the determination of Melatonin (Zafna Rasheed and **K. Girish Kumar**, 26th Swadeshi Science Congress, A National Seminar, Central Marine Fisheries Research Institute, Kochi, November 2016).
87. Poly (glycine) modified glassy carbon electrode for the determination of Green S (Soumya T. Cyriac and **K. Girish Kumar**, 26th Swadeshi Science Congress, A National Seminar; Central Marine Fisheries Research Institute, Kochi, 2016).
88. Square wave voltammetric determination of Uric Acid using poly (Bromophenol Blue) film modified glassy carbon electrode (Unni Sivasankaran and **K. Girish Kumar**, 26th Swadeshi Science Congress, A National Seminar; Central Marine Fisheries Research Institute, Kochi, 2016).
89. Polyethyleneimine-Coated CdS/ZnS Quantum Dots: A Fluorescent Sensor for Anthrax Biomarker Detection (Gopika Bhaskar and **K. Girish Kumar**, 26th Swadeshi Science Congress, A National Seminar; Central Marine Fisheries Research Institute, Kochi, 2016).
90. A dual channel optical sensor for norepinephrine (Shalini Menon and **K. Girish Kumar**, International Seminar on Recent Advances in Solar Energy Applications (RASE 2016); St. Teresa's College, Ernakulam, December 2016).
91. Evaluation of Kinetic Parameters of Electro Oxidation of Thymine on a Poly (l Glutamic Acid) modified Glassy Carbon Electrode. (Jesny S. and **K. Girish Kumar**, National Symposium Electrochemical Science and Technology NSEST, IISc Bangalore, July 2016).

92. Electrochemical determination of Uric Acid in alkaline media on a Glassy Carbon electrode modified with poly (p-toluene sulfonic acid). (Shalini Menon, Jesny S. and **K. Girish Kumar**, National Symposium Electrochemical Science and Technology NSEST, IISc Bangalore, July 2016).
93. A simple and sensitive fluorescent sensor for the determination of Epinephrine (Shalini Menon and **K.Girish Kumar**, Frontier Areas in Chemical Technologies FACTs 2016, Alagappa University , Karaikudi, March 2016).
94. Glassy Carbon Electrode modified with poly (Glutamic Acid) as a probe for the voltammetric determination of Thymine. (Jesny S. and **K. Girish Kumar**, Frontier Areas in Chemical Technologies FACTs 2016, Alagappa University , Karaikudi, March 2016).
95. Determination of Nitrite contamination in ground water : A green Approach (Shalini Menon and **K.Girish Kumar**, Kerala Science Congress, Calicut, January 2016)
96. Voltammetric Sensing of Tamsulosin on Poly(o-phenylene diamine) Modified Gold Electrode (Theresa J. and **K.Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
97. Electrochemical Deposition of Gold Nanoparticles on Poly (p-Amino Benzene Sulphonic Acid) Film Modified Glassy Carbon Electrode and Voltammetric Determination of Metronidazole Benzoate (Sindhu I. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
98. Carbon Nanotube and Polypyrrole Based Electrochemical Sensor for the Selective Determination of Tamsulosin Hydrochloride (Renjini J. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
99. Electrochemical Distinction of Trimethoprim and Ambroxol on Metalloporphyrin Modified Glassy Carbon Electrode (Leena R. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
100. The Electrochemical Behavior of Amoxicillin Trihydrate at Multiwalled Carbon Nanotube/Platinum Nanoparticle Modified Glassy Carbon Electrode (Laina A. L. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
101. Poly (glycine) Modified Glassy Carbon Electrode for the Voltammetric Determination of Azorubine in Soft Drinks (Zafna R. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)

102. Poly (Aspartic Acid) Modified Glassy Carbon Electrode for the Determination of Adenine (Jesny S. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
103. Poly (L-cysteine) Modified Glassy Carbon Electrode for the Determination of Cochineal Red A Soumya T. C. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
104. MWCNT - Modified Gold Electrode Sensor for the Determination of TBHQ (Ambily T. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
105. A New Chemically Modified Carbon Paste Sensor Based on Schiff's Base for Pr(III) Ion (Beena S. and **K. Girish Kumar**, MatCon2016, CUSAT, Kochi, January 2016)
106. Gold Nano Cluster Based Fluorescence Sensor for the Selective Determination of Norepinephrine (Anuja E. V. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
107. Sensing of Brilliant Blue FCF using Cadmium Sulphide Quantum Dots (Unni S. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
108. Synthesis of Thioglycerol Functionalized Cadmium Telluride Quantum Dot for the Determination of Mercury Ion (Meera J. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
109. A Fluorescent Sensor for the Determination of Sudan 1 (Ammu R. J. and **K. Girish Kumar**, MatCon2016, CUSAT , Kochi, January 2016)
110. Green carbon nanoparticles for the "Turn On" fluorescence determination of nitrite in milk (Shalini Menon and **K. Girish Kumar**, MatCon2016, Kochi, January 2016).
111. Development of a Fluorescent Sensor for the Determination of Ferric Ion (Divya T. and **K. Girish Kumar**,. MatCon2016, CUSAT , Kochi, January 2016)
112. Electrochemical sensing of Pyridine-2-aldoxime chloride on modified gold Electrodes (Theresa Jos, **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015).
113. Development of fluorescent sensor for the determination of Butylated hydroxyanisole (Divya Thomas, **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015)

114. Gold nanocluster based fluorescent sensor for butylated hydroxyanisole (Anuja E.V., **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015)
115. Poly (L-cysteine) modified glassy carbon electrode for the determination of Cochineal Red A (Soumya T. Cyriac, **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015)
116. Electrochemical behaviour of Metanil Yellow on a bare gold electrode (Jesny S., **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015)
117. Poly (p-amino benzene sulfonic acid) modified glassy carbon electrode for the determination of food colorant (Zafna Rasheed, **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015)
118. Synthesis of determination of Mercury (II) ion in well water using thioglycerol functionalised cadmium telluride quantum dots (Meera Jacob, **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015)
119. Fluorescence sensor for the determination of Sudan dyes (Ammu Rosin Jose, **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015)
120. Determination of Nitrite Pollution in Soil using Fluorescent Nanoparticles (Shalini Menon, **K. Girish Kumar**, Swadeshi Science Congress, Kalady, December 2015)
121. Electrochemical sensing of Metronidazole benzoate on a conducting polymer layer of p-TSA on GCE (Theresa C. J., **K. Girish Kumar**, National Seminar at S.H. Thevara, December 2014).
122. Voltammetric Determination of Octyl Gallate using SAM modified Glassy Carbon electrode, (Unni Sivasankaran, **K. Girish Kumar**, National Seminar at S.H. Thevara, December 2014).
123. Voltammetric Determination of Sunset Yellow using MWCNT/AuNP Nanocomposite Film Modified glassy carbon electrode, (Anuja. E.V., **K. Girish Kumar**, National Seminar at S.H. Thevara, December 2014).
124. Development of voltammetric sensor for the determination of allura red using poly (l-cysteine) modified glassy carbon electrode (E.V. Anuja, **K. Girish Kumar**, Swadeshi Science Congress, Tirur, November 2014)
125. Voltammetric determination of butylated hydroxyanisole (BHA) on poly (L- cysteine) modified glassy carbon electrode (Divya Thomas, **K. Girish Kumar**, Swadeshi Science Congress, Tirur, November 2014)

126. Colourimetric Sensor for Tetracycline (Soumya T Cyriac, **K. Girish Kumar**, Swadeshi Science Congress, Tirur, November 2014)
127. Electrochemical sensing of tinidazole on modified glassy carbon electrodes (Theresa Jos, **K. Girish Kumar**, Swadeshi Science Congress, Tirur, November 2014)
128. Self assembled monolayer modified glassy carbon electrode for the determination of octyl gallate (Unni Sivasankaran, **K. Girish Kumar**, Swadeshi Science Congress, Tirur, November 2014)
129. Electrochemical sensors (**K. Girish Kumar**, Innovations in Electrochemical Science and Technology, (IEST) NIT-Warangal, December-2013).
130. Study of electrochemical oxidation of sulphite on a gold electrode modified with multi-walled carbon nano-tubes (Jesny S., **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
131. Manganese (ii) –selective potentiometric sensor based on calix[4]resorcinarene in pvc matrix (Shobhana Mathew, **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
132. Development of multiwalled carbon nanotube modified platinum electrode sensor for the voltammetric determination of guaifenesin (Theresa C. J., **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
133. Nanotube modified gold electrode for the determination of pam chloride (Theresa C.J., **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
134. Poly (eriochrome black t) modified electrode for the voltammetric determination of tinidazole (Leena R., **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
135. Cobalt (II) selective pvc membrane electrode based on a new tetraaza macrocyclic ligand (Sruthy C.B., **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
136. Development of sensor for amoxicillin trihydrate (Laina A.L., **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
137. Development of gold nanoparticle based voltammetric sensor for the determination of sunset yellow (Anuja E. V., **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).

138. Development of multiwalled carbon nanotube based sensor for sulfamethoxazole (Sindhu Issac, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
139. Gold nanoparticle modified glassy carbon electrode sensor for the voltammetric determination of sudan I in food samples (Divya Thomas, **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
140. Development of poly(bromophenol blue) modified glassy carbon electrode based sensors for the determination of synthetic antioxidant tert-butylhydroquinone (Soumya T. C. **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
141. Development of poly(o-aminophenol) modified gold sensor for the determination of ceftriaxone sodium (Theresa C. J., **K. Girish Kumar**, Swadeshi Science Congress, November 2013, M.G. University, Kottayam).
142. Carbon nitride dots based fluorescent sensor for the determination of BHA in food samples. (Anuja E. V., **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2013, Kochi).
143. Differential pulse voltammetric determination of amaranth using MWCNT (Sreejith Chandran, **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2013, Kochi).
144. Electrochemical determination of guaiphenesin on a Pt electrode incorporating the 1-d character of MWNT. (Theresa C. J. **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2013, Kochi).
145. Development of nanoparticle based sensors for the determination of amoxicillin. (Iaina A.L., **K. Girish Kumar** CTric, Cochin University of Science and Technology, March, 2013, Kochi).
146. Electroanalytical method for the determination of a synthetic antioxidant tert-butylhydroquinone. (Soumya T. C., **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2013, Kochi).
147. Development of gold nanoparticle modified glassy carbon electrode Sensor for the voltammetric determination of sunset yellow. (Anuja E. V., **K. Girish Kumar** CTric, Cochin University of Science and Technology, March, 2013, Kochi).

148. Film Modified Electrodes for Voltammetric Sensing of Pharmaceuticals. (**K. Girish Kumar**, RASS – 2013, Gandhigram Rural Institute- Deemed University, February 2013, Tamil Nadu).
149. Propyl Gallate sensing through multi walled carbon nanotube (MWCNT) modified gold electrode (Anuja E. V., **K. Girish Kumar**, RASS – 2013, Gandhigram Rural Institute- Deemed University, February 2013, Tamil Nadu).
150. A multiwalled carbon nanotube modified gold sensor for the determination of Amaranth. (Sreejith Chandran, **K. Girish Kumar**, RASS – 2013, Gandhigram Rural Institute- Deemed University, February 2013, Tamil Nadu).
151. Voltammetric sensor for bromate. (Shanthy A.A., **K. Girish Kumar**, RASS – 2013, Gandhigram Rural Institute- Deemed University, February 2013, Tamil Nadu).
152. Surface modification of gold electrode with multiwalled carbon nanotubes for sulphite sensing. (Jesny S., **K. Girish Kumar**, RASS – 2013, Gandhigram Rural Institute- Deemed University, February 2013, Tamil Nadu).
153. Voltammetric determination of tamsulosin on a p(opd)/Au electrode. (Theresa C.J., **K. Girish Kumar**, RASS – 2013, Gandhigram Rural Institute- Deemed University, February 2013, Tamil Nadu).
154. Sensing through polymeric films - Voltammetric determination of some pharmaceuticals. (**K. Girish Kumar**, ELAC-2013, ISEAC, January 2013, Hyderabad).
155. Nanoparticle based sensor for the quantification of amoxicillin. (Laina A.L., **K. Girish Kumar**, ELAC-2013, ISEAC, January 2013, Hyderabad).
156. Development of multiwalled carbon nanotube modified platinum electrode sensor for the voltammetric determination of guaiphenesin. (Theresa C.J., **K. Girish Kumar**, ELAC-2013, ISEAC, January 2013, Hyderabad).
157. PAM chloride sensing through multiwalled carbon nanotube. (Theresa C.J., **K. Girish Kumar**, ELAC-2013, ISEAC, January 2013, Hyderabad).
158. PB/MWNT composite based sensor for the determination of hesperidin methyl chalcone. (Laina A.L., **K. Girish Kumar**, Swadeshi Science Congress, November 2012, Kasaragod).
159. Electrochemical oxidation of Propyl Gallate on a multi walled carbon nanotube (MWCNT) modified gold electrode sensor. (Anuja E.V., **K. Girish Kumar**, Swadeshi Science Congress, November 2012, Kasaragod).

160. Electrochemical determination of amaranth using multiwalled carbon nanotube modified gold sensor. (Sreejith Chandran, **K. Girish Kumar**, Swadeshi Science Congress, November 2012, Kasaragod).
161. TMOPPMn(III) Cl modified gold electrode sensor for the determination of nitrite in food samples. (Divya Thomas, **K. Girish Kumar**, Swadeshi Science Congress, November 2012, Kasaragod).
162. Development of multi walled carbon nanotube (MWCNT) modified Platinum electrode sensor for the voltammetric determination of BHA (Zafna Rasheed, **K. Girish Kumar**, ICBAM, Gandhigram Rural Institute- Deemed University, March 2012, Tamil Nadu).
163. Nanoparticle probe for the detection of Tetracycline (Soumya T.C., **K. Girish Kumar**, ICBAM, Gandhigram Rural Institute- Deemed University, March 2012, Tamil Nadu).
164. Potentiometric sensor for determination of Fe^{2+} in pharmaceuticals (Shinu P.J., **K. Girish Kumar**, ICBAM, Gandhigram Rural Institute- Deemed University, March 2012, Tamil Nadu).
165. Quantum dots based fluorescent probe for the selective determination of Nimesulide (Divya Thomas, **K. Girish Kumar**, Kerala Science Congress, January, 2012, Kottayam)
166. Carbon nanotube modified gold sensor in food analysis- Determination of propyl gallate (Anuja E.V., **K. Girish Kumar**, Kerala Science Congress, January, 2012, Kottayam)
167. Gold nanoparticle modified electrodes - Development of Sensors for some Pharmaceuticals (**K. Girish Kumar**, ISEAC International symposium cum workshop on electrochemistry, December, 2011, Goa).
168. Fabrication PVC membrane and carbon paste potentiometric determination of Lamivudine and its applications (Pearl Augustine, **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2011, Kochi).
169. Voltammetric behavior of sulfite on a gold electrode modified with multiwalled carbon nanotubes. (Jesny S., **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2011, Kochi).

170. Voltammetric determination of PAM Chloride using PB/MWCNT modified gold electrode. (Theresa C.J., **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2011, Kochi).
171. Carbon nanotube based sensor for voltammetric determination of Hesperidin methyl chalcone (Laina A. L., **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2011, Kochi).
172. Development of a PVC membrane sensor based on metalloporphyrin as ionophore for salicylate ions. (Shobhana Mathew, **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2011, Kochi).
173. Voltammetric sensor for the determination of pyrine-2-aldoxime methochloride at 2-mercaptobenzothiazol and multiwalled carbon nanotube modified gold electrode. (Renjini Joseph, **K. Girish Kumar**, CTric, Cochin University of Science and Technology, March, 2011, Kochi).
174. Metalloprphyrin complexes as sensing materials in the electrochemical determination of certain pharmaceuticals (**K. Girish Kumar**, ISEAC International discussion meet on electrochemistry and its applications, February, 2011, Trivandrum).
175. A new PVC membrane sensor for neodymium (III) based on N¹,N²-bis(salicylidine)butane-1,4-diamine. (Beena S., **K. Girish Kumar**, National Convention of Electrochemists-15, February, 2010, VITUniversity).
176. Electrochemical behaviour of sulfamethoxazole on a polymalachite green based glassy carbon electrode. (Leena R., **K. Girish Kumar**, National Convention of Electrochemists-15, February, 2010, VITUniversity)
177. Development of an AuNP/polyPABSA-modified glassy carbon sensor for the voltammetric determination of metronidazole benzoate. (Theresa C. J, **K. Girish Kumar**, National Convention of Electrochemists-15, February, 2010, VITUniversity).
178. Electrochemical sensor for the determination of acyclovir based on 2-mercaptobenzothiazol-[5,10,15,20-tetrakis (3-methoxy-4-hydroxy phenyl) porphyrinato] Cu(II) –modified gold electrode. (Renjini Joseph, **K. Girish Kumar**, National Convention of Electrochemists-15, February, 2010, VITUniversity).
179. Carbon nanotube based sensor for the differential pulse voltammetric determination of tamsulosin hydrochloride. (Laina A.L., **K. Girish Kumar**, 1st Kerala Women's Science Congress, August, 2010, Kochi).

180. Development of poly aniline modified gold electrode sensors for the voltammetric determination of trimethoprim. (Renjini Joseph, **K. Girish Kumar**, 1st Kerala Women's Science Congress, August, 2010, Kochi).
181. Electrochemical sensor for the determination of nimesulide based on AuNP/poly-cystamine modified glassy carbon electrode. (Sindhu Issac, **K. Girish Kumar**, 1st Kerala Women's Science Congress, August, 2010, Kochi).
182. A TMoPPMn(III)Cl modified gold electrode sensor for the determination of nitrite in food samples using differential pulse Voltammetry. (Divya Thomas, **K. Girish Kumar**, 1st Kerala Women's Science Congress, August, 2010, Kochi).
183. Development of voltammetric sensors for lamivudine base on L-Cysteine modified glassy carbon electrode. (Sindhu Issac, **K. Girish Kumar**, MATCON, Cochin University of Science and Technology, January, 2010, Kochi).
184. Determination of Ambroxol on metalloporphyrin modified glassy carbon electrode using various voltammetric techniques. (Leena R., **K. Girish Kumar**, MATCON, Cochin University of Science and Technology, January, 2010, Kochi).
185. A new PVC membrane sensor for samarium. (Beena s., **K. Girish Kumar**, MATCON, Cochin University of Science and Technology, January, 2010, Kochi).
186. Voltammetric determination of sulfamethaxazole on modified carbon paste electrode. (Renjini Joseph, **K. Girish Kumar**, MATCON, Cochin University of Science and Technology, January, 2010, Kochi).
187. Nickel (II) selective potentiometric sensor based on 3, 4- Dimethoxy calix[4]resorcinarene in PVC matrix. (Shobhana Mathew, **K. Girish Kumar**, MATCON, Cochin University of Science and Technology, January, 2010, Kochi).
188. Electrochemical Sensors in Drug Analysis. (**K. Girish Kumar**, National Seminar on Emerging Trends in Pharmaceutical Analysis, February 2009, Vijayawada).
189. The electrochemical behavior of PAM Chloride at a multiwalled carbon nanotube-nafion modified Platinum electrode. (Laina A. L., **K. Girish Kumar**, National Seminar on Emerging Trends in Pharmaceutical Analysis, February 2009, Vijayawada).
190. Characterisation of multiwalled carbon nanotube modified gold electrode and voltammetric determination of PAM Chloride. (Theresa C.J., **K. Girish Kumar**, National Seminar on Emerging Trends in Pharmaceutical Analysis, February 2009, Vijayawada).

191. Electrocatalytic oxidation of Trimethoprim at [5,10,15,20-tetrakis(4-methoxyphenyl) porphyrinato] Mn (III) chloride modified Glassy Carbon Electrode and its analytical applications. (Leena R., **K. Girish Kumar**, Frontiers in Chemical Research, December 2008, Mangalore University).
192. Metalloporphyrin based voltammetric sensor for the determination of Metronidazole benzoate. (Renjini Joseph, **K. Girish Kumar**, Frontiers in Chemical Research, December 2008, Mangalore University).
193. Development of poly(p- Toluene Sulfonic Acid) based voltammetric sensor for the determination of PAM- Chloride. (Sindhu Issac, **K. Girish Kumar**, Current Advances in Chemical Science, November 2008, Thevara).
194. Electrochemical sensor for the determination of Tinidazole based on [5,10,15,20-tetrakis(3- methoxy- 4- hydroxy phenyl) porphyrinato] Zn (II) mercaptobenzothiazole modified gold electrode. (Renjini Joseph, **K. Girish Kumar**, Current Advances in Chemical Science, November 2008, Thevara).
195. Development of potentiometric sensors for the selective determination of Ketoconazole and its application to pharmaceutical analysis. (Pearl Augustine, **K. Girish Kumar**, National Seminar on Current trends in Chemistry, Cochin University of Science and Technology, Kochi, India, 2008).
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■ CUSAT conducts a talent hunt for the country's future scientists

Back to the basics

KRISHNA KUMAR K.E. |
DC
KOCHI, FEB. 22

It was a day to cherish for a group of bright eighth standard students from across the State when they got an opportunity to do scientific experiments and fire away questions to an IAS officer.

"We were on a journey to an entirely different world that begins with atoms and extends all the way up to the Antarctica Sea. The session with Swagath Bhandari IAS, Assistant Collector, Ernakulam, was really motivational. It was an eye-opener when she told us how she chose her career and overcame the hurdles," said Atul Raj, student of HSS Srikrishnapuram, Palakkad.

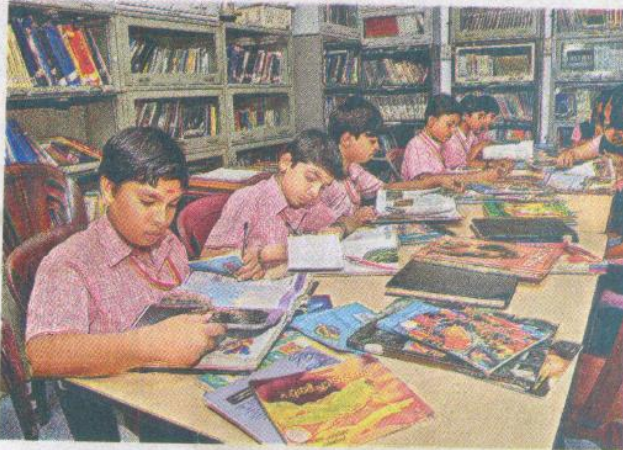
He was among the 60 students selected for 'Inculcate 2012' held at CUSAT campus in Kochi after a state-wide competitive exam held by the Kerala State Science and Technology Museum (KSSTM).

The idea was to spot talent in basic sciences early and mould them by offering scholarships at school-level.

"Nowadays, only a few among the bright students opt for courses other than medicine or engineering. So the programme is an attempt to attract talented students to basic sciences," Dr Girish Kumar K, Professor, Department of Applied Chemistry, CUSAT, said.

A total of 20,000 students sat for the exam that tested their knowledge in basic sciences and 300 of them came out trumps.

"They were divided into five groups of 60 before they attended the talent pruning camps at five universities including CUSAT. Each university will select 50 students and provide them a monthly stipend of ₹750 till they pass the 12th standard exam. Mentors will be allotted to them to help



Students during the training in basic science as part of the Inculcate 2012 programme in CUSAT, Kochi. Sixty students from across the state took part in the programme.



Dr Girish Kumar. K



them excel in their chosen field," Kumar said.

Swagath Bhandari termed the interaction "vibrant" and observed that the kids were really curious about the happenings around them.

"I asked them to choose a career according to their capability and aptitude and cultivate the habit of reading," she told *Deccan Chronicle*.

"One student asked me why I chose civil service to which I replied that my idea was to serve the poor. He then said there were so many other ways to serve the poor," she

said, smiling.

The children virtually had a peep into the polar region, thanks to the lecture by Dr A.A. Mohammed Hatha, Associate Professor, Department of Marine Biology, CUSAT.

The students had the rare opportunity to familiarise themselves with the life and culture of the Arctic region.

The students also had the opportunity to do experiments in chemistry, physics, mathematics and biotechnology laboratories and understand the principles behind

them.

A quiz programme on basic sciences was another session that they enjoyed.

"I was really thrilled to know about distinct bacteria and virus in biotechnology, working of simple pendulum in physics, fun problems in mathematics. I had the shock of my life when I learned about the adulterants that can get into our body and was amazed to see artificial sun setting in the chemistry lab," said Aiswarya M.V., an eight standard student from Kozhikode.

Hunt for the most talented

■ 60 students selected for 'Inculcate 2012' held at CUSAT campus in Kochi

■ A state-wide exam held by the Kerala State Science and Technology Museum

■ Idea was to spot talent in basic sciences early and mould them by offering scholarships at school-level.

Biosensors for quality control

Biosensors are fast becoming an important tool in research and commercial applications as they can identify specific targets in the human body and environment



simply science

have caught the interest of the industry because of their remarkable ability in detec-

tion, experimental simplicity and low cost. The Department of Applied Chemistry at Cusat has been working on electrochemical sensors to detect metal ions and drugs in the human body.

Working on research projects funded by the Defence Research and Development Organisation (DRDO), the team has made biosensors to detect metal ions and drug residues. "Clinical trials will be done later by the funding agency. We have handed over the technology to the DRDO," said K Girish Kumar, professor and head, Department of Applied Chemistry, Cusat.

"When we finished 'Fab-

rication of potentiometric sensors for the determination of metal ions' for DRDO, we got the next project, 'Development of electrochemical sensors for the determination of pharmaceuticals', which has been completed," he said.

The team had an international collaboration with the Polish Academy of Sciences, a bilateral research programme of Department of Science and Technology (DST).

Girish says that the electrochemical sensors group plans to take up active research on enzyme immobilised biosensors and develop new Voltametric sensors for checking the quality of food in the market.

"Our ultimate aim is to develop disposable sensors," he said.

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WITH most people becoming conscious and aware of the quality of food, water and medicine, biosensors have started to play an important role in our lives. They are fast becoming an important tool in research and commercial applications as they can identify specific targets in the human body and environment.

Glucose monitoring is familiar to most of us. Researchers are now working on remote sensing of air-

borne bacteria in bio-warfare, detection of pathogens, determining levels of toxic substances before and after bioremediation, routine blood urine analysis, drug residues in food and the human body.

While human senses provide essential information about our close environment, researchers are looking for new sensors that will give us an analysis of the food we eat, the water we drink and the air we breathe. This requires novel chemical sensors, molecular recognition and signal transduction.

Electrochemical sensors



The New Indian Express

KOCHI, Monday, 11 January, 2010

മരുന്നിലെയും ഭക്ഷണത്തിലെയും പദാർത്ഥങ്ങളുടെ അളവ് കണ്ടുപിടിക്കാൻ പുതിയ സെൻസറുകൾ

എൻ.പി. പരിഭാസ്

കളമത്തേരി: മരുന്ന്, ഭക്ഷണം, ശീതള പാനീയങ്ങൾ എന്നിവയിലടങ്ങിയിരിക്കുന്ന വിവിധ പദാർത്ഥങ്ങളുടെ അളവ് കണ്ടെത്തുന്നതിനുള്ള സെൻസറുകളുമായി കൊച്ചി സർവകലാശാല. ശീതള പാനീയത്തിലെ രാസമാലിന്യത്തിന്റെ അളവ് മുതൽ ശരീരം ആഗിരണം ചെയ്യുന്ന മരുന്നിന്റെ അളവ് വരെ കണ്ടെത്താൻ ഇതുവഴി കഴിയും.

ഒരു പദാർത്ഥം എത്ര അളവുണ്ടെന്ന് കണ്ടുപിടിക്കാനുള്ള രാസപരമായ രീതിയാണ് കെമിക്കൽ സെൻസറുകളുടെ ചെയ്യുന്നത്. കെമിക്കൽ സെൻസറുകളിൽ തന്നെ ഇലക്ട്രോ കെമിക്കൽ സെൻസറുകളിലാണ് കൊച്ചി സർവകലാശാല പ്രധാനം കണ്ടെത്തിയിരിക്കുന്നത്. കൊച്ചി ശാസ്ത്ര സാങ്കേതിക സർവ

കലാശാല (കുസാറ്റ്) യിലെ അഡ്വൈസ് കെമിസ്ട്രി പ്രൊഫസർ ഡോ. കെ. ശീരിഷ് കൃമാറിന്റെ നേതൃത്വത്തിൽ 15 പേരുള്ള സംഘമാണ് സെൻസറുകൾ വികസിപ്പിച്ചെടുത്തത്.

കേന്ദ്ര സർക്കാറിന്റെ ഡിഫൻസ് റിസർച്ച് ഓർഗനൈസേഷൻ കേരള സ്റ്റേറ്റ് കമ്മിറ്റി ഓൺ സയൻസ് ടെക്നോളജി ആൻഡ് എൻവിറോൺമെന്റ് എന്നിവയുടെ സാമ്പത്തിക സഹായത്തോടെയാണ് സെൻസറുകൾ വികസിപ്പിച്ചെടുത്തത്.

ലോഹങ്ങളുടെയും ഫാർമസ്യൂട്ടിക്കലുകളുടെയും മറ്റും അളവ് നിർണയിക്കാനുള്ള 60-ഓളം സെൻസറുകളാണ് വികസിപ്പിച്ചെടുത്തിട്ടുള്ളത്.

മരുന്ന് കഴിച്ച ഒരു രോഗിയുടെ മൂത്രം പരിശോധിച്ചാൽ ശരീരം ആഗിരണം ചെയ്യാതെ പുറത്തുള്ള മരുന്നിന്റെ

അളവ് ഇത്തരം സെൻസർ ഉപയോഗിച്ച് കണ്ടെത്താനാവും. ഇതുവഴി ശരീരത്തിൽ എത്ര മരുന്ന് ആഗിരണം ചെയ്തിട്ടുണ്ടെന്ന് അറിയാനാകും.

നിലവിലുള്ള സംവിധാനങ്ങൾ ഉപയോഗിച്ച് വിവിധ പദാർത്ഥങ്ങളുടെ അളവ് കണ്ടെത്തുന്നതിനേക്കാൾ വളരെ കുറഞ്ഞ ചെലവിൽ സെൻസറുകൾ ഉപയോഗിച്ച് ഇവ കണ്ടെത്താനാകും.

ഏകദേശം ഒരു കണ്ടെത്തലിന് 5000 രൂപയേ ചെലവാകുകയുള്ളൂവെന്ന് ഡോ. ഗിരീഷ് കൃമാർ പറഞ്ഞു.

നിലവിൽ ലോഹങ്ങളുടെ അളവ് കണ്ടെത്തുന്നതിന് ആറ്റമിക് അബ്സോർബ്ഷൻ സ്പെക്ട്രോമീറ്റർ പോലുള്ള ഉപകരണങ്ങൾ ഉപയോഗിച്ചാണ്. ഈ ഉപകരണത്തിന് മാത്രം 20 ലക്ഷത്തോളം വിലയുണ്ട്. ഇതുപയോഗിച്ചുള്ള പരിശോധനയ്ക്ക് വേറെയും ചെലവുകൾ വരും.

പരിശീലനം ലഭിച്ച ആളുകൾക്ക് ലാബിൽ തന്നെ ഉണ്ടാക്കിയെടുക്കാൻ പറ്റുന്നതാണ് ഈ സെൻസറുകൾ.

ചോക്ലേറ്റിൽ എത്രമാത്രം നിക്കൽ ഉണ്ടെന്ന് കണ്ടുപിടിക്കാനുള്ള നിക്കൽ സെൻസർ, വെള്ളത്തിലെ ഘന ലോഹങ്ങളെ കണ്ടുപിടിക്കുന്നതിനുള്ള സെൻസറുകൾ തുടങ്ങിയവയും ഉണ്ട്.

ഫാർമസ്യൂട്ടിക്കൽ അനാലിസിസിന് ഭാവിയിൽ വ്യാപകമായി ഉപയോഗിക്കാവുന്ന വിവിധ സെൻസറുകൾ വികസിപ്പിച്ചെടുത്തവയിൽ പെടും. മരുന്നുകളുടെ ഗുണനിലവാര പരിശോധനയ്ക്ക് ഭാവിയിൽ ഇത്തരം സെൻസറുകൾ ഉപയോഗിക്കാം.

പലതരത്തിലുള്ള ആൻറി ബയോട്ടിക്കുകൾ, വേദനസംഹാരികൾ തുടങ്ങിയവയ്ക്കുള്ള സെൻസറുകളും വികസിപ്പിച്ചെടുത്തവയിലുണ്ട്.