

CURRICULUM VITAE

Dr.K.MUTHU VENGAIAN

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Academic Profile

 **Ph.D., Chemistry** : Department of Chemistry, Anna University, University
(2014-2018) College of Engineering, Dindigul, Tamilnadu.
(Highly Commended)


Title of the thesis : **Synthesis of phenothiazine based fluorescent probes for sensing biological toxic ions.**

Advisor : **Dr. K. Sekar**

 **M. Phil., Chemistry** : Department of Chemistry, GTN Arts College,
(2012-2013) Madurai Kamaraj University, Madurai, Tamilnadu.
(I Class, 70.6%).


M. Phil., Dissertation : **Spectroscopy methods used for analyzing protective film formed by piper nigrum on mild steel.**

Advisor : **Dr. J. Sathiyabama**

 **M. Sc., Chemistry** : Department of Chemistry, GTN Arts College,
(2010-2012) Madurai Kamaraj University, Madurai, Tamilnadu.
(I Class, 67.5%).

M. Sc., Dissertation : **A study of the quality assurance of antihistamine and cough syrup as per indian pharmacopoeia standard.**

Advisor : **Dr. M. S. Dheenadayalan**

 **B. Sc., Chemistry** : Department of Chemistry, GTN Arts College,
(2006-2009) Madurai Kamaraj University, Madurai, Tamilnadu.
(II Class, 59.8%).

Work Experience

- Assistant Professor, PG and Research Department of Chemistry, GTN Arts College (Autonomous), Old Karur Road, Dindigul - 624005. **February 2021 - till date**
- Assistant Professor, Department of Chemistry, Sacred Heart College of Arts and Science, RMTTC Colony, Dindigul - 624003. **January 2019 - February 2021**
- Assistant Professor, Department of Chemistry, PMT College, Usilampatti, Madurai - 625532. **September 2013 - May 2014**

Professional Activity

- ❖ **Assistant Controller of Examination** at GTN Arts College (Autonomous), Old Karur Road, Dindigul - 624005 from **September 2022 - till date**
- ❖ **Technical Assistant in University Examination** held on April 2021, November 2021 and April 2022 at GTN Arts College (Autonomous), Old Karur Road, Dindigul - 624005
- ❖ **Coordinator of Value Added Course** at Sacred Heart College of Arts and Science, Dindigul from **June 2019 - February 2021**
- ❖ **Co-Convener in One Day National Conference** on "Emerging Trends in Chemical Sciences-2020" (ETCS-2020) on 12th March 2020 at Sacred Heart College of Arts and Science, RMTTC Colony, Dindigul - 624003.

Patent Publication

1. Indian Patent IPR#: **C11D0009380000 05/2022 Dated 04/02/2022 202241004388**
Method of Manufacturing Natural Soap Composition Process.
2. Indian Patent IPR#: **CBR Number: 203495 Application number 367265-001**
Solar Empowered Agriculture Robot. Applied date: 05/07/2022.

Book Publications

1. Dr.K.Muthu Vengaiyan, **Organic Chemistry, BLUEROSE PUBLISHERS,** 4233/1, First Floor, Main, Ansari Rd, near Allahabad Bank, Daryaganj, Delhi, 110002, **ISBN-978-93-5668-586-4.**

Research Publications

1. Phenothiazine based sensor for naked-eye detection and bioimaging of Hg (II) and F⁻ ions.

K. Muthu Vengaiyan, C. Denzil Britto, K. Sekar, G. Sivaraman and S. Singaravadivel

RSC Advances 5 (2015) 94903-94908. (Impact Factor: 4.036)

2. Fluorescence “on-off-on” chemosensor for selective detection of Hg²⁺ and S²⁻: application to bioimaging in living cells.

K. Muthu Vengaiyan, C. Denzil Britto, K. Sekar, G. Sivaraman and S. Singaravadivel

RSC Advances 6 (2016) 7668-7673. (Impact Factor: 4.036)

3. Phenothiazine-diaminomalenonitrile based colorimetric and fluorescence “Turn-off-on” sensing of Hg²⁺ and S²⁻.

K. Muthu Vengaiyan, C. Denzil Britto, K. Sekar, G. Sivaraman and S. Singaravadivel

Sensors and Actuators B: Chemical 235 (2016) 232-240. (Impact Factor: 7.335)

4. Carbazole-azine based fluorescence ‘off-on’ sensor for selective detection of Cu²⁺ and its live cell imaging.

C. Denzil Britto, *K. Muthu Vengaiyan*, K. Sekar, G. Sivaraman and S. Singaravadivel

Luminescence 32 (2017) 1354-1360. (Impact Factor: 2.464)

5. A fluorescent Turn-On Carbazole-Rhodanine based sensor for detection of Ag⁺ ions and application in Ag⁺ ions imaging in cancer cells.

C. Denzil Britto, K. Sekar, *K. Muthu Vengaiyan*, G. Sivaraman and S. Singaravadivel

Journal of Fluorescence 29 (2019) 75-89. (Impact Factor: 2.217)

6. Phenothiazine-rhodamine-based colorimetric and fluorogenic 'turn-on' sensor for Zn²⁺ and bioimaging studies in live cells.

K. Muthu Vengaiyan, C. Denzil Britto, K. Sekar, G. Sivaraman and S. Singaravadivel

Luminescence 35 (2020) 90-97. (Impact Factor: 2.464)

7. Hydro Chemistry and Quality of Ground water from Paraipatti pond Area at Dindigul District.

K. Muthu Vengaiyan, A. Pandiarajan and R. Shanmuga Selvan

Indian Journal of Natural Sciences 12 (2021) 32913-32918.

(Impact Factor: 1.988)

8. A Phenothiazine-Thiophene linked Chalcone as a Highly Sensitive Fluorescent Chemosensor for Ag⁺ Ions.

K. Sekar, *K. Muthu Vengaiyan* and C. Denzil Britto

Chemistry Select 7 (2022) e202200555.

(Impact Factor: 2.307)

Papers Presented in National / International Conferences

1. *K. Muthu Vengaiyan* & K. Sekar, 'Phenothiazine -Diaminomaleonitrile based colorimetric and fluorescence 'turn-off-on' sensing of Hg²⁺ and S²⁻', National Conference on Recent Advances in the Application of Macromolecular Materials (RAAMM-2017), Department of Chemistry, The Gandhigram Rural Institute (Deemed University), Dindigul, Tamil Nadu, India on 2nd and 3rd March 2017.
2. *K. Muthu Vengaiyan*, C. Denzil Britto & K. Sekar, 'A phenothiazine-diaminomaleonitrile based selective colorimetric chemosensor for mercury (II) ion', International Conference on Recent Trends in Analytical Chemistry (ICORTAC-2015), Department of Analytical Chemistry, University of Madras Guindy Campus Chennai, Tamil Nadu, India on 28th to 30th December 2015.
3. *K. Muthu Vengaiyan* & K. Sekar, 'Phenothiazine-thiosemicarbazide - Hg (II) ensemble-based fluorescence turn-on toward fluoride for naked-eye detection and imaging application in live cells', International Conference on Recent Advances in Materials and Chemical Sciences (ICRAMCS-2015),

Department of Chemistry, The Gandhigram Rural Institute (Deemed University), Dindigul, Tamil Nadu, India on 14th and 15th December 2015.

4. [K. Muthu Vengaiyan](#) & K. Sekar, 'Highly selective and sensitive fluorescent signaling for Hg²⁺ using N-Hexyl phenothiazine' National level 10th Mid-Year CRSI Symposium in Chemistry - July 2015', National Institute of Technology and Bharathidasan University Tiruchirappalli, Tamil Nadu, India on 23rd to 25th July 2015.
5. [K. Muthu Vengaiyan](#) & K. Sekar, 'Water soluble chemosensor for biologically toxic mercury ions', International Conference on Chemistry and Materials (ICCM-2014), Department of Chemistry, BIT Campus, Anna University, Tiruchirappalli, Tamil Nadu, India.
6. [K. Muthu Vengaiyan](#) 'A study of the quality assurance of antihistamine & cough syrup as per Indian pharmacopoeia standard', International Conference on Biological Inorganic Chemistry (ICBIC - 2013), department of Chemistry, Periyar University, Periyar Palkalai Nagar, Salem, Tamil Nadu, India on 20th to 22nd February 2013.

Seminar / Workshop Attended

1. One day International Seminar on Emerging Trends in Chemistry and Energy Science held on 7th February 2020 organized by PG and Research Department of Chemistry, Saraswathi Narayanan College, Perungudi, Madurai, Tamil Nadu.
2. State Level Seminar on Emerging Trends in Chemical Sciences-2k19 (ETCS-2k19) held on 18th October 2019 organized by Department of Chemistry, GTN Arts College, Dindigul, Tamil Nadu.
3. National level Workshop On Nuclear Magnetic Resonance Spectroscopy (WNMRS-2018) held on 8-9th March 2018 organized by The Gandhigram Rural Institute - Deemed to be University, Gandhigram, Dindigul District, Tamil Nadu.

4. National level seminar on Recent Challenges to Environment (RCE-2015) held on 25th September 2015 organized by Department of Chemistry, Sakthi College of Arts and Science for Women, Oddanchathiram, Dindigul District, Tamil Nadu.
5. UGC sponsored one day national level seminar on Recent Advances in Chemistry (RAC-2015) held on 18th March 2015 organized by PG and Research Department of Chemistry, G.T.N. Arts College, Dindigul, Tamil Nadu.
6. One day national level seminar on The Widening Horizons of Chemistry (TWHC-(II)-2013) held on 11th February 2013 organized by Arulmigu Palaniandavar Arts College for Women, C.K. Puthur, Palani, Dindigul District, Tamil Nadu.
7. UGC, CSIR, DST & TNSCST Sponsored national level seminar on Emerging Trends In Chemistry (ETC-4-2012) held on 4th and 5th October 2012 organized by The Postgraduate Department of Chemistry, Cardamom Planters' Association College, Bodinayakanur, Theni District, Tamil Nadu.
8. CSIR & TNSCST Sponsored national level seminar on Alternative Energy Resources - A Future Perspective held on 30th & 31st August 2012 organized by The Post Graduate and Research Department of Chemistry, PSGR Krishnammal College for Women, Peelamedu, Coimbatore, Tamil Nadu.

Research Expertise

- ❖ Strong knowledge and research experience in the synthesis of complex fluorescent probes for the detection of metal ions.
- ❖ Experience in extract the complicated probe mixture using with suitable solvents.

Research Interests

- Fluorescent Chemosensors - Detection of Metal Ions and anions - Water soluble fluorescent sensor

Research Experience

✓ M. Sc dissertation work

A study of the quality assurance of antihistamine and cough syrup as per indian pharmacopoeia standard

✓ M. Phil dissertation work

Spectroscopy methods used for analyzing protective film formed by piper nigrum on mild steel

✓ Doctoral Research

Major features:

- Synthesized Phenothiazine-Thiourea and Diaminomaleonitrile based fluorescent sensors for sensing Hg²⁺ ion.
- Synthesized Phenothiazine-Rhodamine based fluorescent sensors for zinc ion via Through Bond Energy Transfer (TBET) mechanism.
- Synthesized phenothiazine chalcone based fluorescent sensors for detection of Ag⁺ ion.
- Synthesized Phenothiazine-Azine based fluorescent sensors for selective detection of Cu²⁺ ion.
- Carried out characterization for all Phenothiazine based fluorescent probes and its metal ion complexes by using various techniques like FT-IR, NMR titration, ESI-MS studies, EDAX, UV-visible and fluorometric detection.
- Carried out the surface morphology and the molecular orbital interaction of probe and probe with metal ion by using SEM analysis and Density Functional Theory (DFT) calculations respectively.
- Developed application in fluorescent bioimaging of probe and probe with metal ions using cancer cells.

Extra-Curricular Activity

- Passed the Certificate 'C' examination in National Cadet Corps (NCC) held in 2009 under the authority of Ministry of Defence, Government of India.
- Passed the Certificate 'B' examination in National Cadet Corps (NCC) held in 2008 under the authority of Ministry of Defence, Government of India.

- Attended several combined annual training camp from the college 14 (TN) BN NCC unit of GTN arts college, Dindigul for the academic year 2006-2009.
- Participated in National Integration Camp from 17th to 28th November 2007 at Pataudi, Haryana, India.
- Participated in state level silambam championship for boys and girls held at Madurai on 17th to 19th October 2003, Organized by Jawahar Bal Bhavan under authority from Tamilnadu Silambattam Association, Tamil Nadu, India.

Personal Details

Name : K. Muthu Vengaiian
Father Name : M. Karmegam
Mother Name : K. Kannammal
Gender : Male
Date of Birth : 23 May 1989
Marital Status : Married
Spouse Name : M. Pandiammal B.Com (CA),, MBA.,
Language Known : Tamil, English

Declaration

I hereby declare that the information furnished above is true to the best of my knowledge and belief.

Place: Dindigul

Date:



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References

1. **Dr. K. Sekar**

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2. **Dr. S. Senthilkumar**

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