

# SHANMUGAPRIYA R

## (CURRICULUM VITAE)

D/o. M. RAMU,  
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### OBJECTIVE

Looking for a suitable position to utilize my abilities and work with an organization offering a professional environment which will help to achieve the organization goals and also enhance my knowledge and skills

### ACADEMIC CHRONICLE:

Course	Institute	Year of completion	Percentage
Ph.D Chemistry	Gandhigram Rural Institute- Deemed to be University Gandhigram, Dindigul Dt, Tamil Nadu, India.	Thesis submitted on 26, July-2022	-
M.Sc. Chemistry	Gandhigram Rural Institute- Deemed to be University Gandhigram, Dindigul Dt, Tamil Nadu, India.	May-2019	83.3 First with Distinction
B.Sc. Chemistry	Gandhigram Rural Institute- Deemed to be University Gandhigram, Dindigul Dt, Tamil Nadu, India.	April-2017	88.5
Higher Secondary	Devangar Higher Secondary School, Chinnalapatti, Dindigul Dt, Tamil Nadu, India.	March-2014	95.2
Secondary	Devangar Girls High School, Chinnalapatti, Dindigul Dt, Tamil Nadu, India.	April- 2012	93.4

## **AWARDS**

- Awarded in 12<sup>th</sup> for obtaining school First Rank in Devangar Higher Secondary School, Chinnalapatti
- Awarded Gold Medal in B.Sc. Chemistry for obtaining University First Rank in Gandhigram Rural Institute-Deemed to be University, Gandhigram
- Awarded GRI- RESEARCH Fellowship by Gandhigram Rural Institute-Deemed to be University, Gandhigram and received fellowship during the period of Ph.D

## **M.Sc. PROJECT REPORT SUBMITTED:**

“INVESTIGATION OF ANTICORROSION FLIM OF BUTYLIMIDAZOLE FOR CORROSION PROTECTION OF COPPER” - Report submitted on March 2015 for evaluation under the guidance of Dr. S. Ramesh, Professor of Chemistry, GRI, Gandhigram.

## **ABSTRACT of Ph.D. Work:**

Simple organic probes for optical detection of ionic analytes in an aqueous solution. The organic molecular chemo-receptor has been designed, synthesized, characterized using <sup>1</sup>H NMR, <sup>13</sup>C NMR, FT-IR and Mass spectral techniques. The probes reported so far, for the recognition of ions with various strategies, include hydrogen bonding, deprotonation, forming complexes, nucleophilic addition to C=C double bond. Based on these, molecular receptors have been designed in such a way that a signaling fluorophore or chromophore units were coupled with binding site for the detection of analytes and both are connected by a linker unit. The compounds were synthesized by using simple condensation reaction and Schiff base formation, etc., and the synthesized chemo-receptors were used for the recognition of ionic analytes, which was screened by using absorption, fluorescence spectral techniques and experimental techniques. Theoretical calculations were also performed by using density functional theory (DFT) and time-dependent density functional theory (TD-DFT) to substantiate

the spectral results. Finally, for practical applicability, these chemo-receptor were applied for qualitative and quantitative detection ionic analytes in different natural matrices and biological samples.

### **FILED OF SPECIALIZATION AND INTEREST**

- ✓ Analytical, Organic & Inorganic, chemistry
- ✓ Design, synthesis, purification, characterization and analysis of organic probes

### **INSTRUMENTS & ANALYTICAL SKILLS:**

Hands on experience with

- ❖ Fourier Transform Infrared Spectrometer (FT-IR)
- ❖ Ultra-violet visible Spectrophotometer (UV-Vis)
- ❖ Fluorescence Spectrophotometer
- ❖ pH meter
- ❖ Cyclic voltammeter
- ❖ Conductometer
- ❖ NMR

### **SOFT SKILLS**

- ❖ Jaguar software (Material Science)
- ❖ Gaussian program package
- ❖ Origin(8.5 Version)
- ❖ Chem office, chem draw
- ❖ Spectra Manager
- ❖ Top spin (NMR Analysis)
- ❖ MS-Office

## Ph.D. CAREER

Pursuing Ph.D. from 29<sup>th</sup> August 2019 under the guidance of **Dr. K. P. Elango**, Professor & Head, Department of Chemistry, Gandhigram Rural Institute-Deemed to be University, Gandhigram. The thesis entitled "SIMPLE ORGANIC PROBES FOR OPTICAL DETECTION OF IONIC ANALYTES" has been submitted on 26, JULY 2022 for evaluation.

## RESEARCH PUBLICATION IN SCI JOURNALS

- 1) **R. Shanmugapriya**, P. Saravana Kumar, C. Nandhini, A. Satheeshkumar, K. N. Vennila, K. P. Elango, A highly selective and sensitive ratiometric fluorescent probe for quantitative detection of Al(III) in different natural matrices, *Methods Appl. Fluoresc.*, 10 (2022) 034005.  
<https://doi.org/10.1088/2050-6120/ac6eca>. (Impact Factor: 3.849)
- 2) **R. Shanmugapriya**, P. Saravana Kumar, S. Ponkarpagam, C. Nandhini, K.N. Vennila, A. G. Al-Sehemi, M. Pannipara, K. P. Elango, An indolinium-based chemo-dosimeter for highly selective dual-channel detection of cyanide ion: A combined experimental and theoretical investigations, *J. Mol. Struct.*, 1251 (2022) 132081.  
<https://doi.org/10.1016/j.molstruc.2021.132081>. (Impact Factor: 3.841)
- 3) **R. Shanmugapriya**, P. Saravana Kumar, C. Nandhini, K. N. Vennila, M. Pannipara, A. G. Al-Sehemi, K. P. Elango, TD-DFT method of analysis of fluorescent detection of bisulphite ion in an aqueous solution by a pyrene-based chemodosimeter, *J. Mol. Liq.*, (2021) 118129  
<https://doi.org/10.1016/j.molliq.2021.118129>. (Impact Factor: 6.633)

- 4) [R. Shanmugapriya](#), P. Saravana Kumar, K. Poongodi, C. Nandhini, K. P. Elango, 3-Hydroxy-2-naphthoic hydrazide as a probe for fluorescent detection of cyanide and aluminium ions in organic and aquo-organic media and its application in food and pharmaceutical samples, *Spectrochim. Acta Part A* 249 (2021) 119315. <https://doi.org/10.1016/j.saa.2020.119315>. (Impact Factor: 4.831)
- 5) [R. Shanmugapriya](#), P. Saravana Kumar, K. Poongodi, C. Nandhini, K. P. Elango, Optical detection of Al(III) and Cu(II) ions in an aqueous medium by using a simple probe possessing O,O-donor moiety, *Phosphorus Sulfur Silicon Relat. Elem.* 196 (2021) 780-790 <https://doi.org/10.1080/10426507.2021.1920940>. (Impact Factor: 1.082)
- 6) C, Nandhini, P.S. Kumar, [R. Shanmugapriya](#), K.N. Vennila and K.P. Elango, A Simple Schiff Base for Selective and Sensitive Fluorescent Detection Al(III) ion- A Spectroscopic and DFT/TD-DFT Study, *J. Mol. Struct.*, <https://doi.org/10.1016/j.molstruc.2021.132081>. (Impact Factor: 3.841)
- 7) C. Nandhini, P. Saravana Kumar, [R. Shanmugapriya](#), A. Satheeshkumar, K. N. Vennila, K. P. Elango, A multi-site probe for selective detection of cyanide and sulphite ions via different mechanisms with concomitant different fluorescent behaviors, *Results in Chemistry* 4 (2022) 100312. <https://doi.org/10.1016/j.rechem.2022.100312>.
- 8) K. Satheeshkumar, P. Saravana Kumar, [R. Shanmugapriya](#), C. Nandhini, K. N. Vennila, K. P. Elango, A simple metal ion displacement-type turn-on fluorescent probe for the detection of halide ions in 100% water - Spectroscopic and TD-DFT investigations, *Inorg. Chem. Commun.* 139 (2022) 109299. <https://doi.org/10.1016/j.inoche.2022.109299>. (Impact Factor: 3.17)
- 9) K. Satheeshkumar, P. Saravana Kumar, [R. Shanmugapriya](#), C. Nandhini, K. N. Vennila, K. P. Elango, An easy to make Hg(II) complex as a selective and sensitive fluorescent turn-on chemosensor for iodide in an aqueous solution based on metal ion displacement mechanism, *Inorg. Chem. Commun.* 138 (2022) 109269.

<https://doi.org/10.1016/j.inoche.2022.109269>. (Impact Factor: 3.17)

- 10) C. Nandhini, P. Saravana Kumar, [R. Shanmugapriya](#), K. N. Vennila, A. G. Al-Sehemi, M. Pannipara, K. P. Elango, A combination of experimental and TD-DFT investigations on the fluorescent detection of sulfite and bisulfite ions in aqueous solution via nucleophilic addition reaction, *J. Photochem. Photobiol. A* 425 (2022)113668.

<https://doi.org/10.1016/j.jphotochem.2021.113668>. (Impact Factor: 4.291)

- 11) C. Nandhini, P. Saravana Kumar, K. Poongodi, [R. Shanmugapriya](#), K. P. Elango, Selective smartphone aided colorimetric detection of Hg(II) in an aqueous solution via metal ion-induced *keto-enol* tautomerism–Spectroscopic and theoretical studies, *J. Mol. Struct.* 1246 (2021) 131134.

<https://doi.org/10.1016/j.molstruc.2021.131134>. (Impact Factor: 3.841)

- 12) C. Nandhini, P. Saravana Kumar, K. Poongodi, [R. Shanmugapriya](#), K. P. Elango, Development of simple imine-based probe for selective fluorescent cyanide sensing with red-emission in solid and solution phases, *J. Mol. Liq.* 327 (2021) 114833.

<https://doi.org/10.1016/j.molliq.2020.114833>. (Impact Factor: 6.633)

- 13) K. Poongodi, P. Saravana Kumar, [R. Shanmugapriya](#), C. Nandhini, K. P. Elango, 2-Aminophenols based Schiff bases as fluorescent probes for selective detection of cyanide and aluminium ions – Effect of substituents, *Spectrochim. Acta Part A* 249 (2021) 119288.

<https://doi.org/10.1016/j.saa.2020.119288>. (Impact Factor: 4.831)

- **Average Impact Factor: 4.00**

## LIST OF INTERNATIONAL CONFERENCES PRESENTATION

- “INTERNATIONAL CONFERENCE ON RESEARCH INITIATIVES IN CHEMISTRY FOR SUSTAINABLE DEVELOPMENT (RICS-2019) in Department of Chemistry, The Gandhigram Rural Institute-Deemed to be University, Dindigul held during September 12<sup>th</sup> & 13<sup>th</sup>, 2019- presented the *Poster presentation* entitle the “Investigation of anticorrosion flim of butylimidazole for corrosion protection of copper” **R. Shanmugapriya**, P. Durainatarajan, S. Ramesh
- “AICTE SPONSORED SECOND INTERNATIONAL CONFERENCE ON ENERGY, ENVIRONMENT AND ADVANCED MATERIALS FOR A SUSTAINABLE FUTURE (ICEEAMSF-2021)”\_in Department of Chemistry and physics, Kongu Engineering College, Erode held during July 15 & 16<sup>th</sup>, 2021 - presented an *Oral presentation* entitled “The differential optical sensing of Cu(II) and Al(III) ions in aqueous medium by using a simple fluorophore”, **R. Shanmugapriya** and Kuppanagounder P. Elango\*
- INTERNATIONAL VIRTUAL CONFERENCE ON RECENT INNOVATIONS IN CHEMICAL SCIENCES in Department of Chemistry, Periyar University, Salem held during March 24 & 25<sup>th</sup>, 2022 - presented an *Oral presentation* entitled a “Pyrene-based chemo-dosimeter for high selective fluorescent detection of bisulfite ions in aqueous solution via nucleophilic addition reaction and TD-DFT investigations”, **R. Shanmugapriya** and Kuppanagounder P. Elango\*

## PARTICIPATED IN CONFERENCE/SEMINARS:

- International Webinar on Recent Advance in Chemical Science (RACS -2022) Gandhigram Rural Institute-Deemed to be University, Gandhigram, Tamil Nadu during 21 & 22<sup>th</sup> July 2022

- International Conference on Frontiers in Chemical and Material Sciences (ICFCMS-2020) Gandhigram Rural Institute-Deemed to be University, Gandhigram, Tamil Nadu during 21 & 25<sup>th</sup> February 2020.
- National level workshop on Nuclear Magnetic Resonance Spectroscopy (WNMRS-2019) Gandhigram Rural Institute-Deemed to be University, Gandhigram, Tamil Nadu during 22 & 23<sup>rd</sup> March 2019
- National level workshop on Nuclear Magnetic Resonance Spectroscopy (WNMRS-2018), Gandhigram Rural Institute-Deemed to be University, Gandhigram, Tamil Nadu during 8 & 9<sup>th</sup> March 2018

#### **CO-CURRICULAR ACTIVITIES:**

- NSS volunteer (7<sup>th</sup> January 2017) attended 1 day special Medical Camp Programme organized at Sirumalai village, Dindigul, Tamil Nadu
- NSS Volunteer (December 2017) attended 10 days special Camping Programme organized at Sirumalai village, Dindigul, Tamil Nadu
- Attended One Week Village Placement Programme organized by Department of Chemistry for four years (2014 - 2018)

#### **PERSONAL DETAILS:**

- Name : R. Shanmugapriya
- Father's Name : M. Ramu
- Mother's Name : R. Nagalakshmi
- Date of Birth : 01.05.1997
- Gender : Female
- Blood Group : A+ve
- Languages Known : Tamil, English
- Marital Status : Married



**REFERENCE:**

**Dr. K. P. Elango,**  
Professor of Chemistry,  
Gandhigram Rural Institute-(DU),  
Gandhigram,  
Dindigul,  
Tamilnadu-624 302.  
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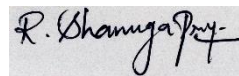
**DECLARATION:**

I hereby declare that the above written particulars are true and correct to the best of my knowledge and belief.

Date :

Place : Gandhigram

Yours sincerely



(SHANMUGAPRIYA R)