

## Department of Chemistry

The department of Chemistry is formed when organization of department of Basic Sciences is restructured as departments of individual science disciplines on 1<sup>st</sup> April, 2017. This department focuses on engineering chemistry involving the understanding of fundamental chemical principles as applied to solving engineering problems. Students are trained in chemistry theory as well as laboratory experiments, designed to impart practical insight relevant to various core branches of engineering. The department has 12 faculty members devoted to teach the subject connecting it to the latest technological advancements with a particular emphasis on how innovations in chemistry lead to new technologies. Apart from active teaching, the faculty are involved in conducting research in some interesting areas of chemistry. 3 of the faculty members are doctorates and another 4 are pursuing Ph.D on a part-time basis.

| YEAR                  | NATIONAL JOURNAL | INTERNATIONAL JOURNAL | NATIONAL CONFERENCE | INTERNATIONAL CONFERENCE |
|-----------------------|------------------|-----------------------|---------------------|--------------------------|
| TILL JUNE 2010        | --               | 26                    | --                  | --                       |
| JULY 2010- JUNE 2011  | --               | --                    | --                  | --                       |
| JULY 2011- JUNE 2012  | --               | --                    | --                  | --                       |
| JULY 2012- JUNE 2013  | --               | --                    | --                  | --                       |
| JULY 2013- JUNE 2014  | --               | 4                     | --                  | --                       |
| JULY 2014- JUNE 2015  | --               | 7                     | --                  | 1                        |
| JULY 2015- JUNE 2016  | --               | 8                     | --                  | 2                        |
| JULY 2016- JUNE 2017  | --               | 7                     | --                  | --                       |
| JULY 2017 - TILL DATE | 2                | 1                     | 5                   | 3                        |

1. **Dr. C.R. Venkateswara Rao** (ID: 1314)

Professor and Head of the Department of Chemistry

**Qualifications:** Ph.D – Anna University, Chennai- 1995, M.Sc(Physical Chemistry) – Andhra University, Visakhapatnam -1985

**Thesis Title:** "Synthesis, Characterization, and Superconductivity studies of Single Crystals of High  $T_c$  Oxides and Fullerides"

**Total Experience:** 22 years

**Postdoctoral Research Abroad:** Japan (1998-2002), USA (2002-08)

**Research Interests:** Solid State Chemistry, Electronic & Superconducting Materials, and Nanomaterials.

**Journal Publications:** 27

**National Conference:**

- Dr.C.R.V.Rao , "Synthesis and Characterization of Graphene for Technological Applications :A Review" in the second two day National Conference on "Materials for Specific Applications"held at Department of Physics, GRIET,Hyderabad,during 29-30 January 2018. ISBN: 978-81-928677-2-4.

**List of Research Publications:**

1. Growth, characterization and superconductivity studies on  $\text{CaLaBaCu}_3\text{O}_{7-x}$  single crystals, C.R.Venkateswara Rao, P.Murugakoothan, R.Jayavel, C.Subramanian and P.Ramasamy, J.Mater.Sci.Lett., 11 (1992) 145-147.
2. Growth of  $\text{CaLnBaCu}_3\text{O}_{7-d}$  (Ln=La, Pr and Nd) single crystals by the flux technique, C.R.Venkateswara Rao, P.Murugakoothan, R.Jayavel, C.Subramanian and P.Ramasamy, Supercond.Sci.Technol., 6 (1993) 443-446.
3. Tunneling studies on single crystals of superconducting  $\text{Bi}_2\text{Ca}_{1-x}\text{Y}_x\text{Sr}_2\text{Cu}_2\text{O}_{8+y}$  H.Srikanth, A.K.Raychaudhuri, C.R.Venkateswara Rao, P.Ramasamy, H.N.Aiyer and C.N.R.Rao, Physica C 200 (1992) 372-376.
4. Structural and crystal field studies on a single crystal of  $\text{PrBa}_2\text{Cu}_3\text{O}_{7-x}$  , S.Uma, T.Sarkar, M.Seshasayee, G.Rangarajan, C.R.Venkateswara Rao and C.Subramanian, Solid State Comm., 87 (1993) 289-293.

5. Growth of YBCO and NBCO single crystals, P.S.Kumar, R.Jayavel, P.Murugakoothan, C.R.VenkateswaraRao, C.Subramanian and P.Ramasamy, Mod.Phy.Lett.B, 4 (1990) 1289-1294.
6. Preparation and characterization of BiSrCaCuO through glassy route, R.Jayavel, P.Murugakoothan, C.R.Venkateswara Rao, C.Subramanian, P.Ramasamy, A. Chakravarti, R.Ranganathan and A.K.Raychaudhuri, Solid State Comm., 79 (1991) 421-424.
7. Growth and morphology studies of  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$  single crystals, R.Jayavel, P.Murugakoothan, C.R.Venkateswara Rao, C.Subramanian and P.Ramasamy, Mat.Res.Bull., 26 (1991) 945-950.
8. Growth and characterization of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_{2-x}\text{Ni}_x\text{O}_8$  single crystals, P.Murugakoothan, R.Jayavel, C.R.Venkateswara Rao, C.Subramanian and P.Ramasamy, Mod.Phy.Lett. B 5 (1991) 1989-1995.
9. Superconductivity and morphological studies on  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$  single crystals grown from stoichiometric and nonstoichiometric melts, R.Jayavel, P.Murugakoothan, C.R.Venkateswara Rao, C.Subramanian, P.Ramasamy, B.V.Kumarasamy and A.V.Narlikar, Bull.Mater.Sci., 14 (1991) 1343-1348.
10. Growth and characterization of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_y$  by floating zone method, P.Murugakoothan, R.Jayavel, C.R.Venkateswara Rao, C.Subramanian and P.Ramasamy, Mat.Chem.Phys., 31 (1992) 281-284.
11. Crystal growth of high temperature superconductors, R.Jayavel, P.Murugakoothan, C.R.Venkateswara Rao, C.Subramanian and P.Ramasamy, Indian J.Pure and Appl.Phys., 30 (1992) 502-510.
12. Textured growth and orientation dependence of hardness measurement on superconducting  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_y$ , P.Murugakoothan, R.Jayavel, C.R.Venkateswara Rao, C.Subramanian and P.Ramasamy, J.Mat.Sci.Lett., 11 (1992) 1650-1652.
13. Growth of large size single crystals and whiskers of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$  by step cooling method, R.Jayavel, C.Sekar, P.Murugakoothan, C.R.VenkateswaraRao, C.Subramanian and P.Ramasamy, J.Crystal Growth, 131 (1993) 105-110.
14. Growth of superconducting  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$  single crystals using  $\text{K}_2\text{CO}_3$  flux, R.Jayavel, P.Murugakoothan, C.R.Venkateswara Rao, C.Subramanian and P.Ramasamy, Supercond.Sci.Technol. 6 (1993) 349-352.
15. Growth and characterization of bulk-textured  $\text{Bi}_2\text{Ca}_{1-x}\text{Y}_x\text{Sr}_2\text{Cu}_2\text{O}_8$  by the float zone technique, P.Murugakoothan, R.Jayavel, C.R.Venkateswara Rao, C.Subramanian and P.Ramasamy, Supercond.Sci.Technol., 7 (1994) 367-371.
16. Growth of large size twin free  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$  single crystals by a temperature gradient, R.Jayavel, P.Murugakoothan, C.R.Venkateswara Rao, C.Subramanian and P.Ramasamy, J.Crystal Growth, 137 (1994) 273-277.
17. Growth and characterization of  $\text{C}_{60}$  single crystals from pure  $\text{C}_{60}$  and fullerite, C.Sekar,

C.R.Venkateswara Rao and C.Subramanian, Fullerene Sci.Technol. 3 (1995) 343-358.

18. Growth of C<sub>60</sub> single crystals from cyclohexane and vapour and their characterization, C.Sekar, C.R.Venkateswara Rao and C.Subramanian, Phys.Stat.Sol.(a) 151 (1995) 9-15.

19. Magnetic and transport studies on RIrAl (R=Y, La, Ce, Pr and Nd) compounds : mixed-valentbehaviour of CeIrAl, N.Harish Kumar, LatikaMenon, C.R.Venkateswara Rao, S.K.Malik, P.Raj, A.Sathyamoorthy and K.Shashikala, Solid State Comm., 109 (1999) 345-349.

20. Synthesis and properties of bitetraselenafulvalene, Masahiko Iyoda, Kenji Hara, C.R.Venkateswara Rao, Yoshiyuki Kuwatani, Kazuo Takimiya, Atsushi Morikami, Yoshio Aso, and Tetsuo Otsubo, Tetrahedron Letters, 40 (1999) 5729-5730.

21. The hydridingbehaviour of UFe<sub>1-x</sub>Ni<sub>x</sub>Al system (0<x<0.75) and magnetic studies OnUFe<sub>1-x</sub>Ni<sub>x</sub>AlH<sub>0.8</sub>P.Raj, A.Sathyamoorthy, K.Shashikala, N.Harish Kumar,C.R.Venkateswara Rao and S.K.Malik, J.Alloys Compd. 296(1-2), 20-26 (2000).

22. Hydride phases, structure, and magnetic properties of UNiAlH<sub>y</sub> system P. Raj, K. Shashikala, A. Sathyamoorthy, N. Harish Kumar, C. R. Venkateswara Rao, and S. K. Malik., Phy.Rev. B 63 (2001) 94414-1

23. CeIrGaH<sub>y</sub>system : Hydrogen induced structural and valence change P. Raj,K.Shashikala, A. Sathyamoorthy, C. R. Venkateswara Rao, and S. K. Malik., SolidState Comm.,120 (2001) 375-378

24. U(Fe<sub>1-x</sub>Ni<sub>x</sub>)AlH<sub>y</sub> system : new hydride phases, structural and magnetic properties, P. Raj, K. Shashikala, A. Sathyamoorthy, N. Harish Kumar, C. R. Venkateswara Rao, and S. K. Malik., Physica B, 312-313 (2002) 885-887

25. Hydriding of the mixed-valent compound CeRhIn: structural and magnetization studies, P. Raj, K. Shashikala, A. Sathyamoorthy, C. R. Venkateswara Rao, D.Kundaliya and S. K. Malik., J.Alloys Comp. 345 (2002) L1-L3

26. Spin pseudogap in La<sub>2-x</sub>Sr<sub>x</sub>CuO<sub>4</sub> studied by neutron scattering, C.H. Lee, K. Yamada, H. Hiraka, C.R. Venkateswara Rao, Y. Endoh, Phys.Rev.B, 67, 134521 (2003)

## **2. Dr.J.Saranya (ID:1496)**

**Associate Professor, Department of Chemistry**

**Qualification: M.Sc., M.Phil., Ph.D**

**Experience: 8yrs**

**Research interest:**Corrosion science, Coordination chemistry

## International Conferences:

1. K.Lavanya, **J.Saranya**, Quinoline as corrosion inhibitors for mild steel: An overview, Corrosion Monitoring & Testing (CMT-1), Proceedings of the Corrosion Conference (CORCON 2017) NACE Publications.
2. **J.Saranya**, S.Chitra, Quinoxaline derivatives for rebar corrosion in simulated pore solution, Corrosion in RCC structures (RCC), Proceedings of the International Conference on Corrosion Control (CORCON2017) NACE Publications.

## National Conferences:

1. K.Lavanya, J.Saranya, published a paper entitled "PolyurethaneZnO Nano composite as protective coating on steel for Rebar corrosion" in national conference on "Materials for specific Applications" ISBN:978-81-928677-2-4, pp.18-20, January 2018.

## Journal Publications

1. G. Nirmala Devi, S. Chitra, **J. Saranya**, "Synthesis and Characterization of Dextrin based polymer electrolytes for potential applications in energy storage devices"- *Ionics*. DOI: 10.1007/s11581-017-2135-5; Accepted on 28.04.2017 (**SCI & SCOPUS Indexed**) IF= 2.119
2. Nirmala Devi Gowraraju, **SaranyaJagadeesan**, Subramanian Chitra, Polyamidoaminoepichlorohydrin resin a novel synthetic anti-corrosive water soluble polymer for mild steel, *Progress in Organic Coatings*, 109 (2017) 117-125. (**SCI & SCOPUS Indexed**) IF = 2.63
3. S. JoneKirubavathy, **J. Saranya**, A. Bhuvanesh, R. Karvembu, R. Velmurugan, S. Chitra Synthesis, Characterisation and biological evaluation of Ru(III) mercapto-pyrimidine Schiff base complexes, *Applied Organometallic Chemistry*, DOI: 10.1002/aoc.3760, 27 March 2017 (**SCI & SCOPUS Indexed**) IF = 2.8
4. **J. Saranya**, P. Sounthari, K. Parameswari, S. Chitra, Synergistic effect of halides and surfactants on the corrosion inhibition of thiazolothiadiazole derivative for mild steel in acid medium, *Moroccan Journal of Chemistry*, 5 (1), (2017) 164-176. (**SCOPUS & WOS Indexed**) IF = 0.5
5. Nirmala Devi Gowraraju, **SaranyaJagadeesan**, Lukman O. Olasunkanmi, Eno E. Ebenso, Chitra Subramanian, Adsorption characteristics of Iota-carrageenan and Inulin biopolymers as potential corrosion inhibitors at mild steel/sulphuric acid interface, *Journal of Molecular Liquids*, 232 (2017) 9-19 (**SCOPUS&WOS Indexed**) IF = 3.648

6. **J. Saranya**, P. Sounthari, K. Parameswari, S. Chitra, Comparison of the inhibition property of Quinoxaline derivative on mild steel in 1.5M H<sub>2</sub>SO<sub>4</sub>, 3M HCl and 1M H<sub>3</sub>PO<sub>4</sub>, *Journal of Materials and Environmental Science*8(1) (2017) 370-377(**SCOPUS Indexed**) IF = 1.21
7. K.Lavanya, J.Saranya, S.Chitra, "Recent Reviews on Quinoline derivative as corrosion inhibitors"- Corrosion Reviews. DOI: <https://doi.org/10.1515/corrrev-2017-0129> (SCIE & SCOPUS Indexed) IF= 1.085.ISSN: 2191-0316
8. G.Nirmala Devi, C.NusrathUnnisa, J.Saranya, S.Chitra, "Electrochemical Studies of Reinforced Bars in Simulated pore solution using Natural Polymers" *Journal of Materials and Environmental Science*. Accepted on 18.11.2017 & Article in press. (SCOPUS Indexed) IF = 1.22 ISSN: 2028-2508
9. G. Nirmala Devi, S. Chitra,**J. Saranya**, "Synthesis and Characterization of Dextrin based polymer electrolytes for potential applications in energy storage devices"- *Ionics*. DOI: [10.1007/s11581-017-2135-5](https://doi.org/10.1007/s11581-017-2135-5); (**SCI & SCOPUS Indexed**) IF= 2.119.ISSN: 0947-7047 (Print) 1862-0760 (Online)
10. Nirmala Devi Gowraraju, **SaranyaJagadeesan**, Subramanian Chitra, Polyamidoaminoepichlorohydrin resin a novel synthetic anti-corrosive water soluble polymer for mild steel, *Progress in Organic Coatings*, 109 (2017) 117-125. (**SCI & SCOPUS Indexed**) IF = 2.63.ISSN: 3000-9440

**Dr. B. Jyothirmai**

**Asst. Professor**

**Qualifications:** M.Sc., Ph.D

**Experience:** 9 years

**Research Interests:** Analytical Chemistry, Environmental Chemistry

**No. of publications:** 6

**National Conferences:**

Bitumen modified with Plastic Waste for Pavement Construction: A Literature Review' presented in National Conference on Materials for Specific Applications, GRIET, 29-30 January 2018. ISBN: 978-81-928677-2-4

## Journal Publications

### International

1. "A Validated liquid chromatographic estimation of Drotaverine in human plasma", B. Jyothirmai, B. SyamaSundar and T. Santosh, **International Journal of Pharmacy**, 2015, 5(3):831-837.
2. "A validated RP-HPLC method for the determination of Eplerenone in human plasma", B. Jyothirmai, B. SyamaSundar, T. N. V. S. S. Satyadev and T. Santosh **Der Pharmacia Sinica**, 2015, 6(2): 61-68.
3. "Development and validation of RP -HPLC method for the determination of Niflumic acid in humanplasma", B. Jyothirmai, B. SyamaSundar, T. N. V. S. S. Satyadev and T. Santosh, **Indo American Journal of Pharmaceutical Research**, 2014, 4(2): 1172-1180.(Scope Med - Online, Open Access), DOI 10.1044/1980-iajpr.14213
4. "Development and Validation of an RP-HPLC method for the determination OfFebuxostat in human plasma", B. Jyothirmai, B. SyamaSundar and T. Santosh, **Indo American Journal of Pharmaceutical Research**, 2014, 4(2): 1040-1048.(Scope Med - Online, Open Access), DOI 10.1044/1980-iajpr.14241.
5. "Development and validation of an RP-HPLC method for the determination of Olmesartan in human plasma", B. Jyothirmai, B. SyamaSundar, T. N. V. S. S., Satyadev and T. Santosh, **International Journal of Research in Pharmacy and Chemistry**, 2014, 4(2): 457-466.

#### **4. K. Kalpana**

Asst.Professor

**Qualifications:M.Sc(Ph.D)**

**Experience:10Years**

**Research Interest:** Synthesis of heterocyclic compounds, Spectroscopic and biological studies.

**No. Of publications/Conferences:2**

**International Conferences:**

1. "Synthesis and Biological Evaluation of 1,2,4- Oxadiazole fused combretastatin derivatives as anti cancer agents" K. Kalpana, at Trend Setting Innovation in Chemical Sciences and Technology- Nature Inspired Chemistry and Engineering at JNTUH, Hyderabad. 4<sup>th</sup> -6<sup>th</sup> October 2016.

2. "Synthesis and Biological Evaluation of combretastatin derivatives as anti cancer agents" K. Kalpana, at Trend Setting Innovation in Chemical Sciences and Technology- Applications in Pharma Industry, JNTUH, Hyderabad. 16<sup>th</sup> -18<sup>th</sup> December 2015.

#### **International Journal:**

1. Kulkarni Kalpana, "Synthesis and biological evaluation of pyrazole amides fused combretastatin derivatives as anticancer agents" in Journal of **Current bioactive compounds**, Vol 13, 2017.

## **Lavanya.K**

Asst.Professor

**Qualifications:**M.Sc

**Experience:** 7Years

**Research Interest:**Corrosion Science, Synthesis of Drugs

**No. Of publications/Conferences:** 3

#### **International conference:**

1. **K.Lavanya**, J.Saranya, published a paper entitled "Quinoline as corrosion inhibitor for mild steel: An Overview in conference CORCON-2017, paper no-14.

#### **National Conferences:**

2. **K.Lavanya**, J.Saranya, published a paper entitled "PolyurethaneZnO Nano composite as protective coating on steel for Rebar corrosion" in national conference on "Materials for specific Applications" ISBN:978-81-928677-2-4, pp.18-20, January 2018.

#### **International Journal:**

1. **K.Lavanya**, J.Saranya have published a paper entitled "Recent Reviews on Quinoline derivative as corrosion inhibitors"- Corrosion Reviews. Available online on 21 Feb, 2018. DOI: <https://doi.org/10.1515/corrrev-2017-0129> (SCIE & SCOPUS Indexed) IF= 1.085.ISSN: 2191-0316.

## **HarithaKiranmai.M**

Asst.Professor

**Qualifications:**M.Sc (PhD)

**Experience:** 11Years



**Research Interest:** Spectrophotometric methods and Environmental Chemistry

**No. Of publications/Conferences: 1**

**National Conferences:**

Bitumen modified with Plastic Waste for Pavement Construction: A Literature Review' presented in National Conference on Materials for Specific Applications, GRIET, 29-30 January 2018. ISBN: 978-81-928677-2-4

